Legal challenges and market dynamics in the video games sector

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Foreword

While the world's attention was captured by the Olympic Games in Paris this summer, another form of international competition has been quietly gaining momentum in the digital realm. In autumn 2025, France will once again host a global competitive event, albeit one of a different nature: the Evolution Championship Series (EVO) of esports fighting games,[1] which will be held in Europe for the first time since its inception in 1996.

While the Olympic Games are a massive global event, with thousands of athletes competing in hundreds of competitions across dozens of disciplines, major video game tournaments, while taking place on a much more focused scale, have carved out a significant place for themselves in the competitive landscape, filling arenas and attracting millions of online viewers. And when it comes to the skills of the EVO competitors themselves, the lightning-fast reflexes, strategic thinking and teamwork are just as essential to winning a medal. Beyond esports, video games have demonstrated the industry's potential since its emergence half a century ago, firmly establishing itself as a significant economic force. The sector's unique value chain, positioned at the intersection of creative and technological industries, has fostered the rise of major players in Europe and globally. This interplay between creativity and innovation and the evolving nature of the video games industry are also reflected in the regulatory approaches taken, to address these unique characteristics and complexities. As the sector grows in economic and competitive importance, new challenges are emerging in Europe, requiring a delicate balance between fostering innovation and ensuring appropriate protection for all stakeholders involved.

This report provides an insight into the rules applicable to the video games sector. It begins with a detailed presentation of the video games value chain (Chapter 1, by Thomas Paris), the market structure and the main challenges facing the industry (Chapter 2, by Loïse Lyonnet). The report then explores fundamental issues related to the definition of video games, as creative platforms and as a gateway to the metaverse (Chapter 3, by Michaela McDonald). It then examines how intellectual property rules apply to the different parts of video games, with an analysis of the related case law (Chapter 4, by Gaetano Dimita), and discusses how to address specific challenges linked to the infringement of these rights in the sector (Chapter 5, by Yin Harn Lee). Definitions play a crucial role in considering public support for the sector, with funding opportunities examined in the context of the ongoing discussion about the cultural value of video games. (Chapter 6, by Thierry Baujard and Hugo Derivry) Finally, the report addresses the perspective of gamers, focusing on user protection related to personal data processing (Chapter 7, by Marcin Przybysz and Jakub Kubit), the protection of minors (Chapter 8, by

[1] Evolution Championship Series

Dirk Bosmans), accessibility and inclusion challenges (Chapter 9, by Thomas Westin), and national security issues (Chapter 10, by Linda Schlegel).

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Maja Cappello
IRIS Coordinator
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Executive summary

This comprehensive report provides an in-depth analysis of the video games industry in Europe, examining its structure, dynamics, market relevance, and key regulatory challenges. The report is divided into three key parts that explore different facets of this rapidly evolving sector.

Overview of the video games industry in Europe (Part I, Chapters 1 to 3)

The video games industry in Europe has undergone significant transformations over the past five decades, evolving from a simple form of entertainment to a multifaceted economic powerhouse. This evolution reflects not only technological advancements but also changes in consumer behaviour and market dynamics. The industry's growth has positioned it as a major player in the global economy, with global revenues generated by players estimated at around USD 187 billion in 2024.[2]

The video games industry shares core professions with other creative sectors, such as design and development (studios), financing and production (publishers), and distribution. Its unique value chain is characterised by the fact that it integrates technological elements to the creative ones, such as console manufacture and software publishing for the development of game engines. This interplay has led to the emergence of major players in both European and global markets. The industry is now highly segmented, with a wide variety of genres, platforms, and economic models, with mobile gaming emerging as a dominant revenue-generating force alongside traditional console and PC gaming.

Technological progress has driven the video games industry's evolution, from early consoles in the 1970s to modern developments like real-time 3D graphics, online multiplayer, and mobile gaming. The industry is now segmented by game genres—such as strategy, adventure, role-playing, and sports—and by support, ranging from consoles to mobile gaming.

Economic models have also diversified, with free-to-play and subscription models complementing traditional one-off purchase systems. The rise of free-to-play models has reshaped revenue strategies, emphasising player retention over initial sales, and expanding the audience beyond traditional gamers.

[2] https://newzoo.com/resources/blog/global-games-market-revenue-estimates-and-forecasts-in-2024.

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Various factors also suggest that the video games sector is subject to significant volatility. These range from regulatory changes, including the introduction of video game tax credits, such as in Canada and France, to retain talents and remain competitive; technological advancements, such as Games as a Service (GaaS) which have changed revenue models and game design; and market shifts, with the rise of cloud gaming services of major tech companies, followed by a period of significant acquisitions. Specific challenges include regulatory scrutiny of some economic models, such as hypercasual games and loot boxes, and government intervention, such as China's restrictions on the use of video games, impacting major companies like Tencent and NetEase. These factors highlight the industry's sensitivity to external forces and its rapid evolution in response to technological, regulatory, and market changes. (**Chapter 1**)

The European video games market is estimated to generate a turnover of EUR 19 billion in 2022,[3] showcasing its significant role in the global gaming industry. Historically, the UK, France, and Germany have been at the forefront of game development, with notable studios emerging since the 1980s. Countries like Sweden and Poland have also made their mark, contributing to a diverse ecosystem of approximately 5 300 studios across Europe. The industry's growth has been fuelled by digitalisation, allowing games to reach a global audience while adapting to various languages and cultures. As the sector continues to expand, it is becoming increasingly competitive, requiring European studios to attract talent and investment while navigating challenges posed by major players from North America and Asia.

Despite its successes, the European video games industry faces several challenges. Access to skilled talent is crucial, requiring enhanced educational programmes to meet the needs of the industry. The competitive landscape also raises concerns about economic sovereignty, as European companies face acquisitions by foreign entities that could undermine their creative independence. Additionally, technological developments and the rise of platformisation present both opportunities and challenges for innovation and market presence. Social issues such as excessive screen time among youth and the industry's environmental impact further complicate the picture. Addressing these multifaceted challenges will be essential to maintain Europe's competitive edge in the global video games market while promoting cultural identity and sustainable practices. (**Chapter 2**)

Establishing a clear definition of video games is crucial, not only to address issues related to their distribution and consumption, but also to clarify the regulatory framework that applies to the sector. As video games evolve from physical products into interactive digital services and immersive experiences, establishing clear definitions has become increasingly important and complex. **Chapter 3** acknowledges the difficulty in establishing a single definition due to the wide spectrum of video games, ranging from simple mobile games to complex AAA titles.

[3] European Games Developer Federation, "2022 European Video Games Industry – Insight report" (p. 11), 27 June 2024.

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Video games incorporate multiple components, including interactive storytelling, art, music, and technology, which complicates the task of finding a single definition that encompasses all aspects. The evolution of video games is discussed, noting the shift from physical products to interactive digital services, with three main segments: console games, PC games, and casual mobile games. This evolution has led to the emergence of "Games as a Service," which further complicates the ecosystem and business models.

In addition, the creative, interactive, and immersive nature of video games makes them a unique medium that blends various artistic and technological elements, placing them at the forefront of creativity and innovation, and serving as a gateway to concepts like the metaverse. The emergence of the metaverse has also introduced new layers of complexity, building on the concept of an interactive, immersive space, offering a broader and more integrated experience than traditional video games, including those with online multiplayer features. Although its definition remains fluid, key components of the metaverse notably include scalability, persistence, interoperability, economy, digital identity, the convergence of physical and digital realms, and contributions from multiple stakeholders. As a constantly evolving concept, the metaverse will continue to develop as technology and culture progress. This definitional ambiguity affects various areas of regulation, including eligibility for funding and compliance with the diverse regulatory landscape that applies to video games, ranging from intellectual property (IP) law to market and competition law, the Digital Services Act (DSA) and the Artificial Intelligence (AI) Act, and consumer protection rules.

Protecting and sustaining video games (Part II, Chapters 4 to 6)

As complex creative works, video games are protected by a variety of IP rights held by a range of stakeholders along the value chain, from developers (studios) to publishers, console manufacturers and software publishers. Under the EU legal framework, most elements of a video game can indeed be eligible for protection, including copyright, trademarks, designs, and patents, provided they meet the relevant criteria. The multifaceted nature of IP protection for video games can be challenging: while individual elements such as graphics, music, and software code can be protected by copyright, there is an ongoing debate about whether a video game as a whole can be treated as a single work of authorship. **Chapter 4** discusses in particular how the distinction between unitary and distributive approaches to copyright protection can significantly influence how video games are classified and protected under EU law. This is complicated by the fact that different jurisdictions may have varying interpretations of copyright law, leading to inconsistencies in protection across the EU. The chapter cites key case law decisions, such as *Nintendo v. PC Box*, to illustrate how judicial decisions shape the legal landscape for video games.

Despite protection, piracy also affects the video games sector, with specific challenges linked to the characteristics of games. **Chapter 5** focuses on IP rights infringement within the video games industry, detailing various practices that negatively impact rightsholders' revenues. Key issues discussed include unauthorised copying and distribution, which refers to the illegal replication and sharing of entire video games, undermining sales and profitability; game cloning, where competitors create games that

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replicate the mechanics of successful titles without directly copying their graphics, music, or codes and which can confuse consumers and divert sales from the original game; and the unauthorised resale of game product keys through grey market channels, which also affects sales of the original games.

The chapter analyses how these practices impact the industry, identifies potential IP rights infringements, and reviews enforcement strategies employed by the industry, including both legal actions and technological protections measures. It also highlights the challenge of balancing protective measures with maintaining a positive player experience and engagement, as overly strict protective measures can lead to user dissatisfaction. Some challenges remain prevalent in this field, especially concerning user-generated content.

Beyond protection, video games also require ongoing support, which is increasingly provided through public policies that recognise and promote the cultural and economic value of the video games industry. **Chapter 6** focuses on public support for the video games sector and examines the intersection of competition rules with public funding initiatives. Most European public funding for video games is linked to traditional audiovisual funds, but video games are distinct due to their global distribution model and development processes: they introduce challenges for new entrants, as significant costs are incurred before a product is marketed, and commercial success remains uncertain.

Publishers play a crucial role in financing video games, but independent studios often lack the resources to complete their budgets. They rely on traditional financing options such as banks and investment funds, which provide crucial long-term investments. However, specialised video game financiers are limited and unevenly distributed geographically, and obtaining loans can be challenging.

Recognising the cultural value of video games, several countries have implemented aid schemes for the sector through cultural funds, while others have chosen to support the sector through economic fund schemes. Various funding mechanisms are employed, such as grants, tax incentives, and subsidies, aimed at supporting different stages of video game development.

Three main trends in European video game funding can be identified: Central countries, mainly France and Germany, pioneered video game funding through traditional audiovisual grants, which have expanded over the past 20 years; Northern countries rely primarily on private financing, with successful studio founders reinvesting in the local industry, fostering the growth of new studios; Central Eastern countries have fewer public funding policies for video games, but benefit from the presence of major publishers like CD Projekt in Poland and attract investments due to their qualified, affordable workforce.

National policies for the sector in Europe and beyond are presented, as well as several European programmes aimed at promoting and supporting the video game ecosystem. As funding is often contingent on the perceived cultural significance of video games in certain regions, this factor can influence the availability of financial resources for developers and publishers. Furthermore, the industry faces several challenges, including navigating competition laws that may affect public support initiatives. The chapter highlights the need for a coherent and supportive framework to sustain the

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industry's growth and competitiveness, particularly in the face of emerging challenges and global competition.

Protecting users in the video games sector (Part III, Chapters 7 to 10)

As video games become increasingly integrated into everyday life, the protection of players has become as important as the protection of the games themselves. Part III addresses several critical issues in this context, reflecting growing concerns about the impact and influence of video games on minors and, more generally, on consumers.

Among these risks, **Chapter 7** addresses the critical issues surrounding the collection and processing of personal data in the video games sector. With over 1.3 billion online gamers predicted worldwide by 2025,[4] data protection has become a significant concern, especially given the vast amounts of personal data collected through user profiles, gameplay preferences, and in-game behaviour.

In the EU, the General Data Protection Regulation (GDPR) and the ePrivacy Regulation are central to data protection, establishing rules on how personal data must be handled and ensuring individuals' rights to access, correct, and delete their data. However, game developers face various challenges in embedding privacy principles into their productions, including obtaining informed consent and implementing privacy by design. In particular, there is a need for clear communication of privacy policies to players, particularly targeting younger audiences who may struggle to understand legal jargon. Furthermore, telemetry, which involves collecting and analysing player data, is crucial for game enhancement and user experience but raises privacy concerns. Developers need to balance effective data use for game improvement while protecting player privacy and complying with the GDPR.

Another critical issue concerns cybersecurity risks, as video game companies are vulnerable to cyber threats that can compromise personal data, necessitating robust reporting and incident response plans. The proposed Cyber Resilience Act aims to enhance cybersecurity standards for digital products, including video games. Finally, compliance and transparency emerge as keywords when it comes to privacy, as developers need to document lawful bases for data processing, prioritise transparency in their practices, and ensure that privacy notices are user-friendly to build trust and awareness among players.

As video games are a popular activity among children and teens, who play them on a variety of devices, it is of paramount importance to balance the benefits of gaming with the need for responsible practices and protective measures in response to the potential risks associated with gaming content and interactions. **Chapter 8** focuses on the protection of minors in the video games sector and addresses longstanding concerns about the impact of video games on young audiences, especially in light of the evolving nature of gaming and its increased accessibility. In this field, the discourse has shifted

[4] Clement J., Online games - Statistics & Facts, Statista, 29 February 2024, https://www.statista.com/topics/1551/online-games/.

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from concerns primarily about violent content to a broader range of issues, including gaming addiction, social interaction online, and in-game monetisation practices.

The chapter highlights the importance of age classification systems, like PEGI, to inform parents about the content and suitability of games for children. It also discusses debates around video game addiction, arguing that while gaming is a common activity for many children, it is not necessarily their primary form of entertainment compared to social media and television. In addition, online gaming communities can foster positive social experiences but also expose players to toxic behaviour and harassment, particularly affecting vulnerable groups. The need for community moderation and safety measures is highlighted.

Other specific risks are highlighted with regard to in-game monetisation, such as loot boxes and micro-transactions, and particularly their impact on children who may not fully understand the financial implications. The chapter presents existing protective measures proposed by the industry, such as parental controls and community standards, to ensure safer gaming experiences for minors. As the gaming landscape evolves, continued efforts to improve safeguards are essential.

Accessibility and inclusion are also key challenges in the video games industry, especially for smaller studios facing resource constraints. Accessibility must be considered at different levels, distinguishing video games from general software and highlighting the need for accessibility features that do not conflict with game mechanics. **Chapter 9** discusses the dual role of players as both gamers and developers, indicating that inclusive design requires the representation of different abilities in the design process.

The chapter introduces the “Game Accessibility Paradox” (GAP) model, which illustrates the tension between accessibility and game design. At its core, accessibility is about removing barriers, while game rules inherently add barriers or challenges. This paradox means that games in general can only be optimised for accessibility, rather than made fully accessible, unless they are specifically designed to allow flexibility in game rules such as universally accessible games, or designed for specific groups, such as audio games.

In addition, the chapter addresses workplace inclusion for disabled game developers, noting the importance of normalising adaptations in the industry. It emphasises the need for clarity, support, and resources to create more inclusive work environments that can lead to the development of more accessible games.

While gaming itself is not fundamentally dangerous, extremist groups leverage the engaging nature of video games to reach audiences familiar with these digital spaces. **Chapter 10** gives a systematic overview of the current state of knowledge in this field, discussing the ways in which extremist actors exploit and misuse certain video games and gaming (adjacent) communication platforms to spread hateful ideologies.

The chapter highlights the need for systematic empirical research to understand the role of gaming in radicalisation processes, noting that large-scale studies are still in their early stages. It suggests that preventive measures could be developed in collaboration with gamers and game developers to combat hate and toxicity but acknowledges that current efforts are limited and lack a robust framework for effectiveness. In conclusion,

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the chapter underscores the importance of addressing extremist activities in gaming without labelling all gaming as a potential risk, recognising the unique challenges posed by the digital nature of these platforms and the need for further research and action in this area.

Overall, Part III emphasises the importance of creating a safe, secure, and inclusive environment for players while navigating the complexities of user rights and protections in the rapidly evolving video games sector.

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PART I - Overview of the video games sector in Europe

50 years of video games, and since, the industry has evolved significantly. What began as pure entertainment has evolved into a multifaceted industry, recognised for its significant cultural and economic contributions. Over the years, the industry has been shaped by a series of technological breakthroughs and has experienced major developments and disruptions, which have reshaped its structure and dynamics. From the simple beginnings of “Pong” to the complexity of “Cyberpunk 2077”, video games have evolved into an industry that shares traits with other creative sectors and is defined by its unique value chain. However, this characteristic often leads to a tendency towards concentration, creating a complex ecosystem for the stakeholders involved. In recent years, the video games industry has also faced multiple external factors that have impacted its development, economic models, supply chains, and consumption patterns, underscoring its fluctuation against rapid change. The first part of this report examines the video games industry from a market perspective, highlighting the growth of the sector and its specificities. It also addresses the strategic importance of the European market and the main challenges it faces, including access to talent, financing and economic sovereignty, technological advancements, and societal concerns.

The strong integration of video games in today's market dynamics has led to new policy perspectives and orientations. However, establishing a clear definition of video games is crucial, not only for determining aspects related to their distribution and consumption, but also for understanding the regulatory framework applicable to the sector. The first part of this report delves into the definition of video games, exploring their features and characteristics. This question of definition has become increasingly complex and significant as video games have evolved from physical products to digital (interactive) services and immersive experiences. While content and software (programming, coding, algorithms…) remain two of the primary characteristics of video games, the recent emergence of the concept of the metaverse has introduced new complexities. Part 1 of the report also introduces the multifaceted regulatory landscape of video games, from intellectual property protection to market regulation, through competition law, the Digital Services Act (DSA) and the Artificial Intelligence (AI) Act), and consumer protection rules.

1. The structure and dynamics of the video games industry

Thomas Paris, researcher at CNRS and associate professor at HEC Paris, France

1.1. Introduction

With the release of *Pong*, often considered the first ever video game,[5] the founding of Atari,[6] the launch of the first console and the opening of the first video arcade,[7] 1972 was a landmark year in the history of gaming. Whether it was coincidental or not, the same year saw the emergence of content, distribution channels and a company (in the shape of Atari) that would go on to play a key role in the video games industry. Unlike the film sector, which developed gradually over several decades, the video games industry seemed to want to cover the same ground in double-quick time. Fifty years on, it is clear that it has continued to grow extremely fast, to the extent that it is now considered the largest of the cultural industries,[8] with estimated global revenues of around USD 187 billion in 2024.[9] During its first half-century of existence, it has experienced periods of crisis, technological revolution, bifurcation, segmentation and consolidation. Reflecting an industry in a constant state of flux, these changes echo, on the one hand, the structural dynamics of the creative industries in general and, on the other, the specific characteristics of the video games sector as a creative and cultural industry (CCI), in particular its technological, interactive, digital and international dimensions.

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[5] Ichbiah D. (2009), "*Pong* – Que le jeu vidéo soit!"*, La saga des jeux vidéo*, Editions Pix'n Love, Houdan.

[6] Atari published the *Pong* arcade game and was one of the first major video game manufacturers. It was sold to Warner Communications for USD 28 million in 1976, four years after it was founded.

[7] Massé D., Paris T. (2022), "Jeux vidéo: petite histoire de la structuration d'une grande industrie", *Entreprises & Histoire* 2022/4, No. 109, pp. 7-17.

[4] Video gaming is considered a creative industry by Caves (2000) and the United Kingdom Department of Culture, Media and Sport (DCMS, Creative Industries Mapping Documents 1998). The term "cultural and creative industry" is sometimes used instead. The notion of cultural industries refers to cultural sectors that include a reproduction element (press, cinema, recorded music, publishing, video games).

[9] https://newzoo.com/resources/blog/global-games-market-revenue-estimates-and-forecasts-in-2024

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This chapter aims to explain the structure and dynamics of the video games industry. It begins with an overview of a sector divided into a wide variety of segments, before describing it in terms of characteristics specific to the creative industries. Finally, it focuses on the sector as it is today, how it has evolved in recent times and the challenges that lie ahead.

1.2. Industry overview

The Cambridge Dictionary defines a video game as "a game in which the player controls moving pictures on a screen by pressing buttons". This definition covers a range of different markets: games bought for tens of euros and played at home on a console or PC, games played free of charge on a mobile phone on the bus, games played in a room using sophisticated equipment such as a virtual reality headset, etc. Nevertheless, the essential characteristics of a video game are found in all these examples: an audiovisual element, interactivity and a technical interface, and the gameplay dimension The gaming industry therefore combines both digital and information technologies. The importance of its technological infrastructure has two major consequences: firstly, it is the reason for the dynamic of constant change mentioned above and the industry's segmentation; secondly, it amplifies the phenomena linked to the relationship between distribution channels and content.

1.2.1. Technological progress

The history of video gaming mirrors that of technological innovation. The launch of *Pong* and the first consoles in 1972 followed the invention of the microprocessor in 1971.[10] Ever since, the industry has grown hand in hand with technological progress. Real-time 3D image processing and the development of storage media (CD-ROM) facilitated a shift towards games with more advanced graphics. The advent of peer-to-peer networks and greater bandwidths opened the door to online and multi-player games. The birth of the smartphone created the need for new types of game, while motion detection systems and virtual reality headsets paved the way for new forms of interactivity. In 2022, mobile games accounted for the lion's share of the global market, generating USD 101 billion compared with USD 45 billion for PC games, USD 30 billion for console games and USD 5 billion for virtual or augmented reality (VR/AR) games.[11]

The segmentation of the video games industry that we see today has therefore evolved over time as new possibilities have opened up. The sector is structured around game genres (strategy, adventure, role-play, sport, etc.), platform types (console, PC,

[10] Natkin S. (2004), *Jeux vidéo et médias du XXIe siècle*, Vuibert, Paris, p. 112.
[11] Source: Visualcapitalist.com, Pelham Smithers data.

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mobile, online, VR, etc.), economic models (free, freemium,[12] subscription, etc.) and bifurcations made possible by the constant growth of computer (and console) processing power, storage capacities and bandwidths. Thanks to such rapid advances, linear games in which players follow a written scenario comprising successive stages have been replaced by open world games, where each can choose their own path. Meanwhile, games played on a console, either alone or in pairs, have given way to online games with the potential to involve huge numbers of players (massively multi-player online games, MMOs).

1.2.2. Segmentation and disruption

These changes have not only resulted in market segmentation, but have also brought into question established positions through disruption or radical innovation. One well-known example is the Wii,[13] which saw Nintendo, tired of competing on the technological front with the other two major console manufacturers (Sony and Microsoft), design a console that focused on different aspects to those that had driven competition until that point, i.e. processing power and graphical quality. By focusing on gameplay,[14] the Wii paved the way for games that were more easily accessible to a wider audience. In the same way, in 2017, major players in the gaming industry who had developed considerable know-how in the design of story-based games, in which players followed a clearly marked path, were caught off guard by the arrival of Fortnite,[15] in particular its *Battle Royale* game mode, where games can last forever. Since the know-how and corporate culture required to create story-based games are different to those needed to design a game reminiscent of a board game in terms of its gameplay, these companies found themselves constrained by a type of path dependence[16] on their previously developed skills and expertise.

Similarly, the growth of the Internet and game digitisation paved the way for new revenue models.[17] The initial model saw games sold as individual products, initially in a box containing a cartridge, CD-ROM, etc.; later they were sold in digital form. The development of the Internet led to the emergence of other models. The freemium model,

[12] The term "freemium" refers to models that give players free access to a game but charge for premium features (subscription, one-off payments, etc.). It is not only reserved for video games. More detail can be found in the following section.

[13] The Wii is considered an archetypal example of disruption because it opened up gaming to non-gamers (older people and families), or an example of a blue ocean strategy (a strategy proposed by W. Chan Kim and R. Mauborgne based on the "search for new, unexplored strategic spaces", called "blue ocean" to distinguish it from the "red ocean" strategy that represents competition in existing markets). See Hollensen S. (2013), "The Blue Ocean that disappeared – the case of Nintendo Wii", *Journal of Business Strategy*, vol. 34.5, pp. 25-35.

[14] The notion of gameplay refers to the essence of a video game, defining the player experience and the pleasure of playing.

[15] Fortnite is an online world designed by Epic Games, in which several different games can be played. *Battle Royale* mode is a shooting and survival game in which 100 players compete online on a virtual island until just one player remains. The game attracted more than 125 million players in under a year.

[16] This economic concept refers to the idea that decisions made in the past influence current actions and decisions.

[17] Benghozi P.J. and Chantepie P. (2017), *Jeux vidéo: l'industrie culturelle du XXIe siècle?,* Les Presses de Sciences Po, Paris p. 268.

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for example, gives players free access to a game and generates income by selling additional features that can make the game more enjoyable or accelerate player progress. Under the advertising model, commercial messages appear in the game. The subscription-based model, which is similar to that used in the music and audiovisual sectors, provides unlimited access to a game library. The rapid growth of the Free2Play model, which enables players to play free of charge, was also a radical innovation insofar as it challenged the design know-how of established game developers. Basing a game no longer on a single purchase but on the sale of in-game features changed the way games were designed. Player retention became the key:[18] it was no longer a case of encouraging consumers to buy a game, but of drawing them into a game in which, the longer they played, the more money could be made (through advertising or the sale of additional features).

Thanks to its segmentation, the video games industry is not singular, but multifaceted. Depending on the platform in particular, companies operate in different markets – hypercasual, mobile, AAA, etc. – in which different stakeholders come to the fore.

Two common video game categories demonstrate two further dimensions of the industry's segmentation. The AAA (triple A) label applies to games with high commercial ambition and large development and marketing budgets. Hypercasual games, on the other hand, are very easy to play and short in duration. They usually have small development budgets and a very short lifespan, and tend to be based on an advertising model.

Table 1. The different types of segmentation of the video games market

Dimension	Segments
Platform	Console, PC, portable console, Internet, mobile, VR
Number of players	Solo, multi-player, massively multi-player (MMORPG)
Ambition/development budget	AAA, AA, indie (independent)
Level of engagement/player types	Hardcore, casual, hypercasual
Economic model	Paid, freemium, subscription, advertising

[18] The notion of retention refers to the idea of keeping players in the game environment for a long time.

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It should be noted that these different dimensions are interlinked and that not every combination is possible. For example, a hypercasual game will be based on a specific economic model (advertising) and the Internet and mobile platforms.

1.3. Video gaming, a creative industry

The video games industry possesses the characteristics of a creative industry[19] which, for many, are based on abundance and extreme uncertainty (the "nobody knows" principle, according to Caves[20]). It is a hypercompetitive industry in which huge numbers of products are brought to the market, with a high failure rate and significant profit potential created by high audience concentration. As a result, everyone involved in the creative process shares the need to stand out somehow from the masses of competing products. Their ability to do so depends on the quality of the game and its innovative dimension (technological, design or gameplay innovation), as reported by critics in the specialist press, and on marketing.

1.3.1. The video game value chain

The video games industry involves several professions, with design studios at the start of the chain. Studios design a game, develop it and position it on one or more platforms. A game may be aimed at one or more consoles, PCs, the Internet (via Facebook, for example), smartphones or new platforms such as virtual reality headsets. The resources needed to develop a game can vary hugely, from a few person days for hypercasual games to years of development work by a team of hundreds of people for some AAA games. This dependence on resources means that a publisher is required to finance the creative process. Studios therefore give up their intellectual property in return for funding for their projects. As distributors, console manufacturers (Microsoft (Xbox), Sony (PlayStation) and Nintendo (Wii)) play a vital role by providing commercial outlets for video games. The distribution process consists of taking games to points of sale. This means either organising the production of games in box form and supplying retailers such as Micromania or, where online games are concerned, preparing games and sending them to digital retailers such as Steam or the App Store.

Finally, the video games industry falls under the economics of singularities,[21] in which great significance is placed on tools that help consumers make judgements when confronted with a hyper offer. Among these tools, critics play an essential role and the Metacritic website, which aggregates reviews by several critics, is closely scrutinised.

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[19] Caves R. E. (2000), *Creative industries: Contracts between art and commerce,* Harvard University Press, Cambridge, Mass., p. 464.

[20] Richard Caves listed the economic properties of creative industries, including the "nobody knows" principle which suggests that it is impossible to predict whether a product will fail or succeed.

[21] Karpik L. (2007), *L'Economie des singularités*, Gallimard, Paris, p. 384.

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The video games industry therefore comprises the same main professions as all other creative industries – design and production (studios), funding (publishers), distribution, sales, media – in addition to technical roles such as console manufacture and software publishing, in particular the development of game engines, e.g. Unreal (Epic Games) and Unity (Unity Technology). Finally, it is worth mentioning esports,[22] a sister industry based on the organisation of video game competitions. Esports is more an external source of revenue from the exploitation of publishers' intellectual property (or IP[23]) rights.

1.3.2. Sectoral configurations

The configuration of the video games sector, like that of other creative industries, is based on two characteristics: a high level of risk and the relationship between distribution channels and content.

The risk and, where the most expensive games are concerned, the quantity of resources required mean that companies must be capable of financing game development. Like any other cultural industry, video gaming is characterised by a mutual dependence between distribution channels and content: content needs to find ways of reaching the public, while distribution channels need access to content. Game consoles need games; publishers and distributors need content to cover their fixed costs. This interdependence creates a vertical integration dynamic. Like the majors in the film and music industries, publishers open their own studios (known as first-party studios) and publish the work of so-called second-party studios. Electronic Arts, the largest pure player in the video games market, runs more than 20 internal studios and publishes the games of around ten independent studios. Many of the other major video game publishers are not pure players, but are backed by holding companies or distribution or hardware firms (console manufacturers), two other vital links in the value chain. Some publishers also act as distributors. As in any cultural industry, the term "independent" is used to refer to stakeholders that are not backed by a large publishing group or console manufacturer. These companies are often structurally fragile because of their dependence on the success of their launches. Moreover, depending on their need for external funding, they sometimes have to sign agreements with publishers that result in the transfer of all or part of their IP (the rights to their game), limiting their ability to capitalise on the eventual success of their games.

[22] Esports comprises competitions based on certain games. It involves professional clubs and players competing in events watched by large crowds, either online or in person.
[23] IP – intellectual property – refers to gaming rights.

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1.3.3. A structural trend towards concentration

These characteristics of cultural industries result in a high level of concentration in the sector, which can be described as an oligopoly with a competitive fringe: a few companies account for a large share of sales, while a multitude of smaller firms operate alongside them. The world's largest video game publisher, way ahead of its competitors, Tencent has mainly grown through acquisitions and currently owns fully or partially Riot Games, SuperCell, Epic Games and Dontnod. Behind it are the two console manufacturers Sony (Naughty Dog, Insomniac Games, etc.) and Microsoft (Activision, Blizzard, Obsidion, etc.), and NetEase, another Chinese Internet tech company.

The fringed oligopoly structure is the result of risk pooling and the vertical integration required to secure access to content. It is also a consequence of the natural tendency among established players to limit creative risk-taking. The publishers hold licences for successful games (IP) and tend to prioritise exploitation of these games, which already have an established brand and player base, rather than launch new, much riskier games. On the other hand, new market entrants have no IP and need to stand out from the crowd in order to have any hope that their games will be noticed. This dialectic is another factor in the video games market structure, with established, continuous (Games as a Service – GaaS) or updated (new editions of *FIFA* or new adventures in *Assassin's Creed*) licences co-existing with new games that try to shake up the market with innovative ideas.

1.3.4. Gatekeepers and talents

Two further characteristics of the creative industries play a major role in the video games industry. Firstly, the notion of "gatekeepers"[24] refers to stakeholders that have significant influence on a game's success. For a game that requires a high level of investment, a publisher is a gatekeeper because the ability to develop the game depends on a publisher's involvement. The importance of a gatekeeper's role was the subject of a recent dispute between Epic Games, developer of the Fortnite game, and Apple, which runs the App Store. Fortnite had been removed from the App Store after offering users its own payment system because it considered Apple's profit-sharing system unbalanced. Since its exclusion from the App Store was very damaging economically, even for a game as popular as Fortnite, Epic Games took the case to the courts.[25]

Secondly, the notion of "talent" refers to rare, gifted individuals working in certain professions and know-how held by certain individuals or teams. In the video games industry, it has taken on particular importance thanks to the rapid growth of the sector

[24] Caves R., op. cit.

[25] The US Supreme Court brought the case to an end in 2024, leaving Epic Games able to offer alternative payments. https://www.01net.com/actualites/la-cour-supreme-met-fin-a-laffaire-epic-games-versus-apple-qui-a-gagne.html.

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and the need for qualified staff in roles with a significant technical element. This scarcity of talent was one of the factors behind the wave of acquisitions that took place between 2020 and 2022 in particular. We will come back to this in the next section.

In summary, video gaming shares the same characteristics as all creative industries: extreme uncertainty ("nobody knows"), hyperabundance and the need to stand out from the crowd, the importance of talent and the influence of gatekeepers, the market structure of an oligopoly with a competitive fringe involving both majors and independents, and a relationship between distribution channels and content that leads to vertical integration. In addition to these generic characteristics, there are others that are specific to the video games industry: the global dimension of the industry and the technological element, which has a number of important consequences. The industry is driven by rapid technological progress. During its first 40 years of existence, console games were the mainstay of consumption. This segment was highly cyclical, with the release of a new generation of consoles rendering previous equipment relatively obsolete and requiring new games to be published. Just like new distribution formats for music (CD) and film (DVD), changes in equipment meant that video game libraries needed to be renewed. Unlike films and music, however, technological advances meant that old games were useless. For a long time, therefore, the development of new consoles drove the industry forward. Several recent changes mean this is no longer necessarily the case.

1.4. Changes and challenges

The video games industry has experienced a number of ups and downs in recent times, suggesting that it is subject to a certain volatility. Various factors are in play here, whether health-related (COVID-19), political (regulation in China), technological (GaaS) or regulatory (tax credits, regulation of loot boxes[26]), factors linked to strategic decisions taken by sector stakeholders (Apple) or disruptive innovations such as the emergence of Fortnite. As well as demonstrating the industry's high level of sensitivity, they illustrate certain characteristics of the sector. We will address them in chronological order.

1.4.1. Creation of a video game tax credit in France

The video games industry relies on talented individuals who, depending on their area of expertise, are sometimes in short supply and tend to be highly mobile. Significant distortions in terms of salary costs – this is a labour-based industry – can cause studios to close or relocate, and talent to move elsewhere. A few years ago, Quebec adopted a

[26] Loot boxes are virtual items that can be collected or purchased and give the player greater powers in the game.

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highly aggressive policy aimed at developing the sector and attracting talent.[27] As a result, companies in some other countries became less competitive and less attractive. To curb the possible decline of its production base, France introduced a video game tax credit in 2007.[28] Adjusted several times since, the tax credit has enabled France to keep its video games industry alive.

1.4.2. Games as a Service (GaaS)

The introduction of GaaS around 2007 was made possible by the growth of Internet bandwidths. This was a significant development, triggering major changes in the sector, such as the emergence of multi-player console games. There were two main consequences. Firstly, it led to the creation of new revenue models: the establishment of a permanent link between player and publisher – as opposed to the model in which the player would make a one-off purchase – meant that games could be offered free of charge and income generated in other ways (subscription, freemium). Secondly, games could be continuously improved, with publishers able to offer regular upgrades, organise events and engage in the battle to retain players. With GaaS, it is no longer a case of enticing consumers to make a one-off purchase, but of encouraging them to play the game for a long period. This changes game design and experience, the production process and the overall economics of the sector, insofar as games can draw players in for long periods in a context in which publishers compete for their time. These possibilities were highlighted with the release of Fortnite *Battle Royale* in 2017, a game that was played by 125 million people in less than a year, 250 million in 2019 and 500 million in 2023.

1.4.3. Cloud gaming, COVID and the metaverse

The growth of GaaS and the success of subscription-based revenue models in the audiovisual and music industries (e.g. Netflix, Spotify) suggested that such a model could also succeed in the video games sector, where it became known as "cloud gaming". Several companies decided to enter this developing market. As in the other industries mentioned, these included sector stakeholders keen to exploit their catalogue (Ubisoft, EA, Xbox, etc.), third-party players from the tech industry (Amazon, Apple, Google, Nvidia) and companies from other sectors that wanted to broaden their offering (Netflix). Apple and Google, for example, launched their respective Arcade and Stadia services in 2019, followed by Amazon (Luna) in 2020 and Netflix's announcement that it would be offering games in 2021.

[27] Lyonnet L. and Poinsignon P. (2023), L'industrie française du jeu vidéo – De la French Touch à la French Pride, Fondation pour l'innovation politique, Paris, p. 64.
[28] French General Tax Code, Article 220 terdecies.

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A race for subscribers therefore began, with major publishers competing alongside tech industry giants. Access to content was essential to attract subscribers. This marked the start of a gold rush era, magnified by the COVID-19 pandemic, which saw an upsurge in the popularity of video gaming and interest from investors. It was also amplified by the metaverse bubble that lasted several months, culminating in Facebook's October 2021 announcement of a major shift towards the metaverse, with substantial investment and a change of company name to Meta. Based on video game technologies and know-how, the metaverse could be seen as a potential extension of gaming, covering all human activity.

These three combined effects resulted in a period of significant acquisitions in the market, driven both by distributors who wanted to safeguard their cloud gaming platforms and by investors. In 2022, the Zynga studio was acquired by distributor Take-Two, the publisher and developer Bungie by Sony, and Activision Blizzard by Microsoft. In France, Tencent bought a stake in Ubisoft, Quantic Dream was acquired by NetEase and the publisher Focus Entertainment completed numerous acquisitions. These takeovers were worth more than USD 100 billion in the first quarter of 2022 alone.

In 2024, the size of the cloud gaming market remains marginal.[29] In spite of its resources, Google was unable to make a success of Stadia and closed it in 2023, while the period of mass acquisitions also came to an end, making it much harder for studios to access funding.

1.4.4. Questioning of economic models

The success of the advertising model used in hypercasual games and the use of loot boxes in online gaming has been called into question by regulatory or strategic decisions. This reflects not only the dynamism of the search for new economic models, but also, once again, the volatility of the sector.

Hypercasual games first became popular in the late 2010s. Released by companies with expertise in digital marketing, these games are developed very quickly and at low cost, and are very easy and quick to play. Their lifecycle is relatively short. In 2021, Apple introduced restrictions on targeted advertising in its App Store, which inevitably pushed up the cost of player acquisition and brought the hypercasual model into question.

Loot boxes were first launched in 2017 as a new way of generating income within games. Players buy these goody bags in order to enhance their in-game experience: objects, characters, skills, etc. This new form of monetisation became popular but has been challenged in the courts of several countries (Belgium, Netherlands..) in order to protect minors, partly because it could be considered a form of gambling.[30]

[29] USD 2.27 billion (Mordor Intelligence)
[30] https://www.lemonde.fr/pixels/article/2022/06/22/lootboxes-dans-les-jeux-video-ou-en-est-leur-regulation-en-france_6131625_4408996.html.

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1.4.5. Fight against addiction in China

China, which has a huge video games market, is the home of two of the sector's main players, Tencent and NetEase. In 2021, the Chinese government began imposing various restrictions on the use of video games – playing time for children, online spending, etc. The announcement of further restrictions at the end of 2023 sent shares in several companies, including Tencent and NetEase, tumbling, as a result of which the government backtracked on its plans. Nevertheless, this episode once more illustrates the sector's dependence on regulatory decisions.

1.5. Conclusion

Video gaming is a global industry that combines the characteristics of both tech and creative industries. Having grown rapidly since its birth 50 years ago, its development over the next few years will be influenced by at least three factors: environmental and energy-related issues, artificial intelligence and the emergence of new countries that currently have a limited presence in the video games market. At least three factors, then, but there will no doubt be others that nobody can currently predict.

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2. The European video games market: strategic importance and key issues

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2.1. Overview and strategic importance of the European market

2.1.1. Europe, land of video games

According to the latest report published by Video Games Europe (VGE) and the European Games Developer Federation (EGDF), the European video games industry recorded an estimated turnover of EUR 19 billion[31] in 2022.[32] This impressive figure reflects the work of studios that have been set up in various European countries over a number of decades. Europe has played a key role in the history of video game development and is home to several highly dynamic creative hubs that, together, are building a European video games industry with considerable international influence. Europe's video games sector has grown in successive waves, with the United Kingdom, France and Germany leading the way.

A number of successful studios, such as Ultimate Play The Game, were established in the United Kingdom in the 1980s. The industry's early expansion was linked to the advent of affordable microcomputers, which enabled an entire generation to develop programming skills and create video games independently. France quickly followed in the

[31] Countries included: Belgium, Croatia, Denmark, Finland, France, Germany, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Romania, Serbia, Slovakia, Slovenia, Spain and Sweden. See: EGDF (27 June 2024), "2022 European Video Games Industry Insight Report", p. 11.

[32] According to the latest industry data, this figure corresponds to the cumulative turnover of studios and publishers in the EU. For more information, see EGDF (27 June 2024), "2022 European Video Games Industry Insight Report".

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UK's tracks in the late 1980s, with studios such as Infogrames[33] and the current global giant Ubisoft. France was the birthplace of the "French Touch", a term referring to the unique aesthetics, detailed narration and creativity of French productions. Meanwhile, Germany also helped the European video games industry flourish with studios such as Factor 5, famous in particular for *Star Wars: Rogue Squadron*, and has a first-class reputation for strategy games.

During the 1990s and 2000s, new countries began to make their mark in the European video games industry, including Sweden, whose Mojang studio developed the famous *Minecraft* game, and Poland, where the CD Projekt Red studio devised *The Witcher* series. Finally, Finland emerged as a leading creator of mobile games, with *Clash of Clans* a product of its Supercell studio. Finland continues to overperform in terms of turnover from the sector and claimed to be "among the top five largest national game industries in Europe by turnover and a European leader in mobile game development" in 2022, according to national figures.[34] Meanwhile, Sweden is now Europe's biggest game developer in terms of development studios, with more than 900 studios. It is followed by Germany and France.[35] More recently, Spain, Belgium and Romania have made their mark as promising European destinations with increasing potential for the video games industry. They are already home to several talented studios, including MercurySteam in Spain, and AMC Games and Ubisoft Bucharest in Romania.

Since the early 1990s these European studios have gradually increased their international presence, with games no longer designed solely for national markets. On the contrary, they have developed a European and global perspective, growing largely as a result of market digitalisation, which means they can reach a worldwide audience while retaining a large share of the revenue. In the early years of the French video games industry, for example, the translation standard was known by the acronym EFIGS[36] (English, French, Italian, German and Spanish) because any new game would need to be translated into these five languages. Today, thanks to the globalisation of game distribution and the growth of the market, games are translated into more and more different languages. This linguistic expansion demonstrates how the industry has adapted to an audience that is increasingly diverse in terms of language and culture.

Europe is now an attractive powerhouse of the video games industry, with around 5 300 studios[37] that are mostly found in clusters, defined as "geographic concentrations of interconnected companies and associated institutions in a particular field".[38] These hubs lead the industry, while several countries continue to lag a long way behind.

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[33] See "Les grands tournants du jeu vidéo en France", published by the *Centre national du cinéma et de l'image animée*.
[34] *Neogames – Hub of the Finnish game industry* (2023), "The Finnish Game Industry Report 2022".
[35] EGDF (27 June 2024), "2022 European Video Games Industry Insight Report".
[36] https://videogamecreation.fr/glossaire/efigs/.
[37] Ibid.
[38] Definition of Michael Porter's Institute for Strategy and Competitiveness, referred to by Paris T. and Lê P. L. (2016) in "Industries de création et territoires, une relation spécifique? Le cas du jeu vidéo en région parisienne", *Réseaux*, vol. 196, No. 2, pp. 49-80.

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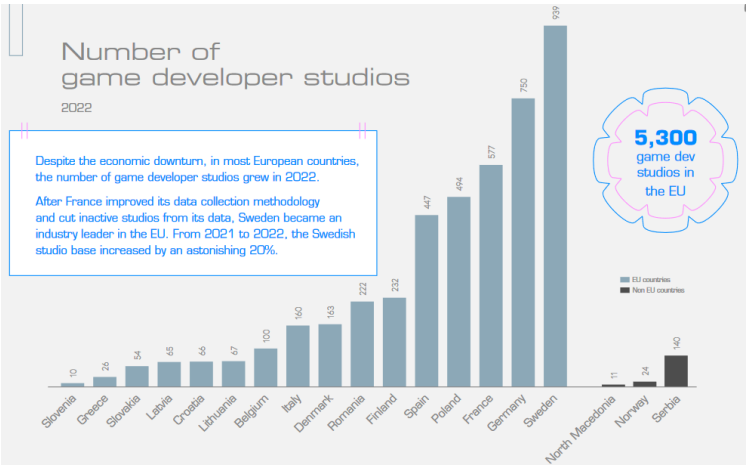
Figure 1. Number of game developer studios 2022



Source: 2022 European Video Games Industry Insight Report, EGDF[39]

2.1.2. A European market supported by a dense ecosystem and a large gaming community

The video games industry is highly competitive, with major players in North America and Asia. European studios must compete with these giants in order to attract talent and investment, and gain a foothold at the international level. According to industry data, 90 000 people are currently employed in the sector in the European Union.[40]

European studios benefit from numerous dynamic video game development hubs and the density of the ecosystems found in several European countries. As the map below shows, video game professionals in Europe are mainly found in Germany, France, Spain, the United Kingdom, Poland and Sweden.

[39] EGDF (27 June 2024), "2022 European Video Games Industry Insight Report"
[40] EGDF (27 June 2024), "2022 European Video Games Industry Insight Report"

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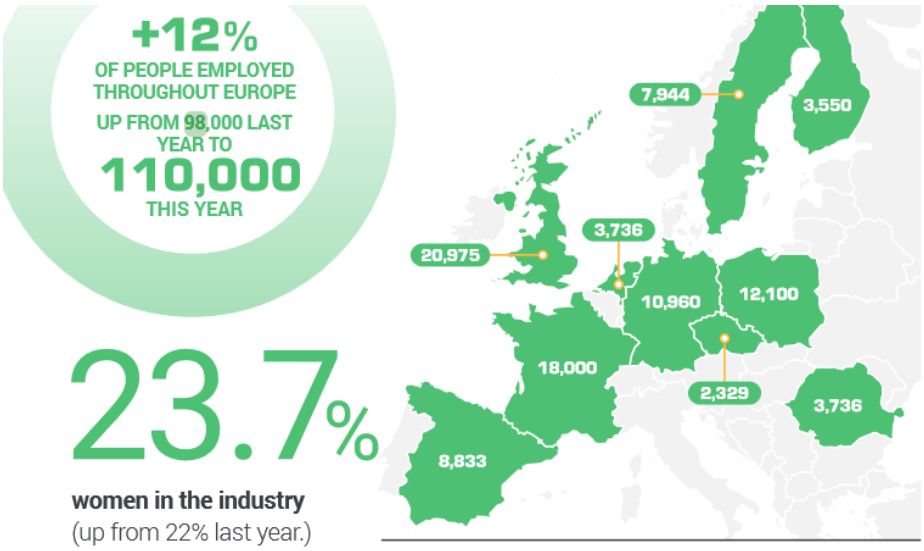
Figure 2. Women in the industry



Source: "Workforce and Employment, European Key Facts 2022", VGE and EGDF

The video games industry is gradually becoming feminised, although it still remains predominantly male . In 2021, women made up 23.7%[41] of the European video games industry compared with 22% the previous year. In 2022, the proportion of women rose to 24.4%.[42] However, disparities remain, as the following chart shows.

[41] VGE – EGDF, "

[42] Introduction by Hendrik Lesser, EGDF president, and Hester Woodliffe, VGE – EGDF, "European Key Facts 2022", p. 3.

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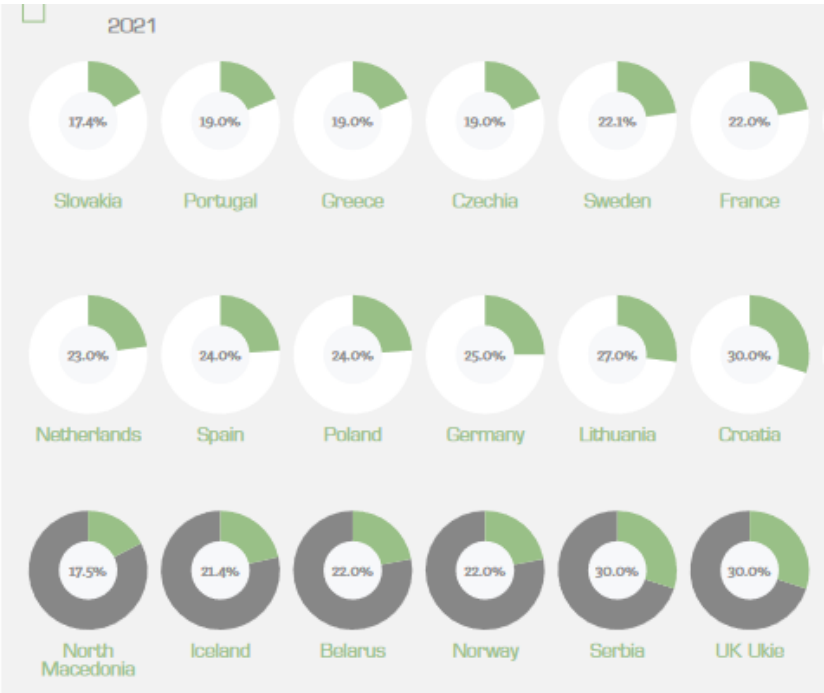
Figure 3. Percentage of women working in the video games industry in 2021[43]



A study of newly created posts could provide an interesting pointer in the next few years: in 2023, for example, women were appointed to 44% of new jobs in the Swedish video games industry.[44] However, analysis of female representation in the video games industry should not just be based on the overall proportion of women working in development studios. A more detailed study would require examination of the actual posts, including positions of responsibility, that they hold.

The number of female gamers is also increasing. Among the 126.5 million[45] European gamers recorded by VGE,[46] 44% of females are aged between 35 and 64, while the average age of female gamers across Europe is 33.

Today, gamers are found across all age groups, as the graphs[47] published by industry representatives demonstrate.

[43] EGDF, "2021 European Video Games Industry Insight Report".
[44] Dataspelsbranschen, Swedish Games Industry, "New Industry Report Shows Record Year For The Swedish Game Industry".
[45] VGE – EGDF, "European Key Facts 2022".
[46] Only includes France, Italy, Germany, Spain and the United Kingdom.
[47] VGE – EGDF,

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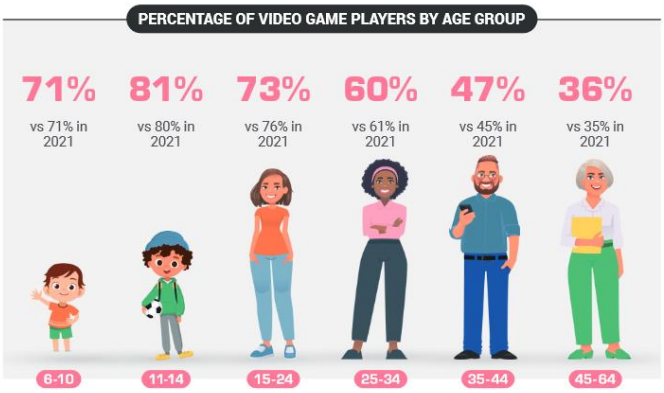
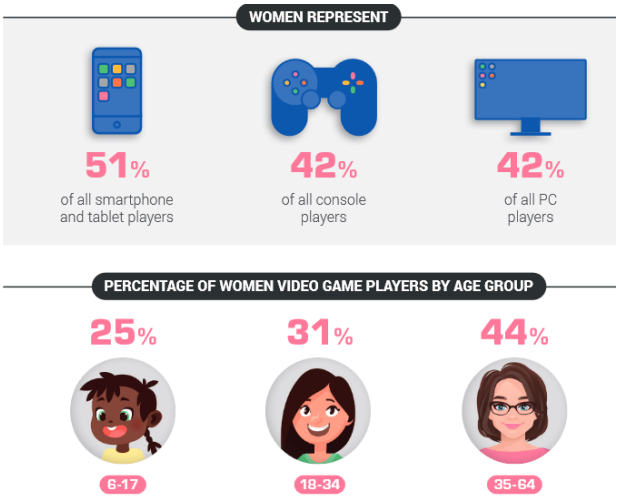
Figure 4. Proportion of women gamers



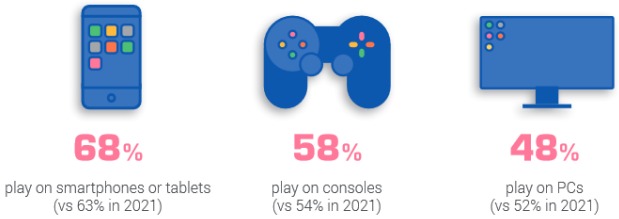


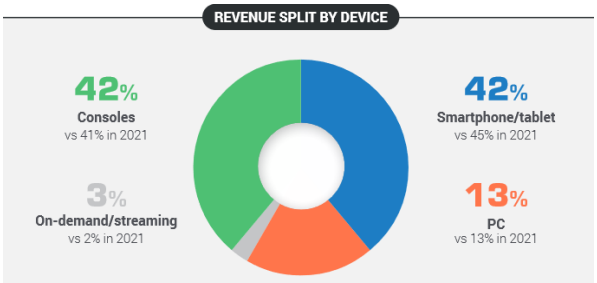
Source: "European Key Facts 2022", VGE and EGDF

To conclude, the European video games industry is driven by a small number of pioneer countries in which its main development hubs are located. With a global customer base, these video game companies are also benefiting from an increase in the number of players, who are spread relatively evenly across age groups and genders.

2.1.3. Economic trends in the European video games market

As regards the economic trends of the European video games industry, the graphs contained in the 2022 VGE and EGDF report show an increase in the popularity of mobile games.[48]





Source: "European Key Facts 2022", VGE and EGDF

[48] VGE – EGDF, "European Key Facts 2022".

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Mobile games tend to use either the "free to play" or "freemium" economic model. In other words, the game itself is free but players may be offered optional microtransactions, e.g. to access additional equipment.[49]

The European video games industry is also directly affected by the political and geopolitical context. According to the EGDF, the conflict in Ukraine, for example, has had an impact on the industry in Eastern Europe, where the sector has seen significant changes in terms of talent distribution and the growth of game development studios. The mass exodus of video games industry talent from Russia and Belarus, combined with the arrival of Ukrainian refugees in the region, has contributed to the industry's growth in certain neighbouring countries, especially Poland.[50]

Finally, as a result of various factors, including a drop in video game consumption after the end of the COVID-19 lockdowns and increasing difficulty in accessing investment, the European video games industry is currently going through a tricky time. The pandemic, in particular, saw a substantial rise in video game consumption.[51] In France, for example, video game turnover increased by 9.9% between 2022 and 2023 to a record EUR 6.1 billion.[52] Today, however, the industry faces various challenges: the rapid growth of the market during the pandemic attracted a multitude of investors, which led to the creation of many new studios and financing for a wide variety of games. In 2023, the market was saturated, a situation exacerbated by the release of numerous games that had been ready for launch in 2022 but whose release had been delayed by the pandemic. In Finland, for example, no fewer than 46 new studios were opened either during or immediately after the pandemic.[53] To summarise, although the pandemic stimulated the sector, it also led to market saturation.

Since 2023, several waves of redundancies have followed all over the world. In November 2023, Ubisoft announced that 124 staff would lose their jobs,[54] while Unity released 1 800 employees in January 2024.[55] According to a report published in 2024 by the organisers of one of the world's biggest video games industry events, the Game Developers Conference (GDC) in San Francisco, 56% of developers fear losing their job.[56] This has created a real period of uncertainty, numerous projects have been abandoned and studios have had to close or restructure. In this context, some European studios risk being squeezed out of the market following a boom period that was characterised by easy access to finance.[57]

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[49] See Chapter 1 of this publication for more information on the economic models of video games.
[50] Rabineau D. and Lyonnet L. (October 2023), **"**L'industrie du jeu vidéo à l'échelle européenne**"**, Fondation Robert Schuman.
[51] EuropeArchive.org, "L'impact de la pandémie de COVID-19 sur l'industrie du jeu : entre innovations et défis".
[52] Agence Française pour le Jeu Vidéo (AFJV), "Marché du jeu vidéo : Bilan 2023 - Dans une année post-covid atypique, le marché français, en croissance de près de 10%, atteint un pic historique à 6,1 milliards d'euros".
[53] Neogames – hub of the Finnish game industry (2023), "The Finnish Game Industry Report 2022", op. cit.
[54] RTBF actus, "Ubisoft se sépare de 124 employés, dont 98 au Canada".
[55] L'Echo, "Licenciements en série: le secteur du jeu vidéo est-il en crise?"
[56] GDC (2024), "2024 State of the Game Industry".
[57] Rabineau D. and Lyonnet L., "L'industrie du jeu vidéo à l'échelle européenne", op. cit.

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2.1.4. Cultural sovereignty and "soft power"

The video games industry raises important issues related to cultural sovereignty and "soft power", i.e. the "intangible dimension of power",[58] when one country is followed by others that "admire its values [and] aspire to its level of prosperity and freedom".[59]

Unlike the audiovisual sector, video game development does not depend on linguistic and territorial differences. Specific countries are not given exclusivity when a new video game is released. On the contrary, thanks to the rapid growth of the sector, video games offer a genuine platform to influence perceptions, protect European heritage and disseminate cultural values.

For example, in a report on esports and video games adopted by the European Parliament in 2022, the latter stresses that "video games and esports have great potential to further promote European history, identity, heritage, values and diversity through immersive experiences; [and] believes that they also have the potential to contribute to the EU's soft power".[60] This is a major challenge at a time when North America and China are dominating the global video games market, while Saudi Arabia is using video games to develop its own "soft power".[61]

Although distribution platforms and video game consoles are primarily developed outside Europe, by Steam, Nintendo and Xbox, for example, Europe has enjoyed particular success in the field of content creation, especially in terms of storylines and creative universes. Over the years, these games have gained recognition as cultural products.[62] Games developed in Europe have the potential to disseminate stories, historical elements and perspectives linked to the continent to a huge audience. Their impact is strengthened by the immersive and interactive nature of the games, which encourages public engagement. This is especially true of Ubisoft's *Assassin's Creed,*[63] which explores the French Revolution or ninth-century Baghdad, for example, or DigixArt's *11-11 Memories Retold,* which transports players to the First World War. Since the gaming experience immerses players in a specific virtual universe, European video games can contribute to the continent's cultural visibility on the international stage.

The industry also represents a significant economic sector and has potential diplomatic implications. Major European video game events such as Gamescom[64] in Cologne, Germany, and esports competitions also play an important role in showcasing the industry. These gatherings of the sector's stakeholders in particular create opportunities to strengthen links between European countries. At an institutional level,

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[58] Lord C. (2005), "Diplomatie publique et *soft power*", *Politique Américaine*, vol. 3, No. 3, pp. 61-72.
[59] Nye J. S. Jr. (2004), *Soft Power: The Means to Success in World Politics*, New York, Public Affairs.
[60] European Parliament, "Report on esports and video games (2022/2027(INI))", Committee on Culture and Education, Rapporteur: Farreng L., 13 October 2022.
[61] *Courrier International*, "Divertissement. Jeu vidéo : la 'méthode bulldozer' de l'Arabie saoudite".
[62] Annart J. (2020), "Courte histoire culturelle et industrielle des jeux vidéo", *La Revue Nouvelle*, vol. 1, No. 1, pp. 56-69.
[63] See Guilbert X. et al. (2019) "La construction des mondes d'Assassin's Creed", *Revue de la BNF*, vol. 59, No. 2.
[64] Gamescom.

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the European Parliament has recognised that events such as national, regional and global esports tournaments could be perceived as fostering cultural exchanges and promoting European culture and values.[65] This approach highlights the growing importance of video games and esports in the European cultural and economic landscape, demonstrating their ability to promote cohesion and European identity.

2.2. Main challenges facing the European video games sector

2.2.1. Access to talent: training and skills

The video games industry is growing rapidly at the international level. To maintain its position in the sector, Europe is trying to develop a favourable environment that is both attractive and competitive for video game companies and investors. The availability of suitable talent and the presence of specialist training establishments are important factors in this process. Objectives include training new talent, retaining existing professionals and attracting skilled individuals from other parts of the world.

With regard to training, the aim is to strengthen the network of recognised educational institutions already established in the industry's leading countries in order to train future video game professionals. The reputation of these training programmes also helps to create an attractive climate for investment. However, there is one major obstacle to this plan, which is the current shortage of teachers in science, technology, engineering and mathematics.[66] The main recruitment pool for the video games sector comprises professionals who are already working in the industry.

In this connection, the aforementioned report adopted by the European Parliament in 2022 stresses the need "to develop leading educational programmes in Europe, including in public institutions and universities, bridging the gap between the existing European curricula and the requisite set of knowledge and skills for video game professions".[67] This need is exacerbated by demographic changes and the ageing of the European population, which make the challenge of training and recruitment all the more urgent.

[65] European Parliament, "Report on esports and video games (2022/2027(INI))", op. cit.
[66] EU Education and Training Monitor 2023.
[37] See Guilbert X. et al. (2019), "La construction des mondes d'Assassin's Creed", *Revue de la BNF*, vol. 59, No. 2.

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2.2.2. Financing and economic sovereignty

Since the video games industry operates in a highly competitive global environment, European companies face fierce competition from the major players based in Asia and North America, especially when it comes to attracting talent and investment. Despite these challenges, a growing number of European companies have recently managed to break into the international video games market.

In 2022, the EU institutions launched a global study of the video games industry by gathering professionals and experts together around the initiative "Understanding the value of a European Video Games Society".[68] Workshop participants identified a number of challenges, including "private investors' risk aversion", "limited public funds budgets" and a "lack of public strategic approach".[69] These discussions also resulted in a series of recommendations[70] concerning all aspects of the video games industry.

Protecting the autonomy of European studios in the face of acquisition by foreign entities also has a strategic dimension. Such acquisitions by non-European actors can lead to internal restructuring and job relocations, which can be detrimental to the creative independence of the teams concerned. In recent years, several significant acquisitions have been reported by the specialist media. One example is the takeover of French company Quantic Dream by the Chinese group NetEase in August 2022.[71] Tencent, the Chinese tech giant, has also been active in this field, buying Swedish studio Sharkmob in 2019[72] and British studio Sumo in 2023, the latter for around USD 1 billion.[73] It also owns shares in the capital of numerous other European studios, including French company Ubisoft.[74]

Preserving the richness and cultural diversity of European video game production is a significant challenge. It is important to maintain a variety of content while fostering innovation. European companies in the sector are known for their creativity and ability to innovate. Talent retention and the protection of European studios appear to be vital if this innovative dynamic and the competitiveness of the sector are to be preserved.

The question of digital sovereignty also applies in the context of video games, which can be used to collect player data. This data, which may include users' individual characteristics, gaming habits and areas of interest, can be sensitive. The protection of

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[68] Ibid.

[69] Workshop 9: "Understanding the value of a European Video Games Society", "Fuelling a growing market – Financing and investments in the video games sector", 28 November 2022.

[70] European Commission, Directorate-General for Communications Networks, Content and Technology (2023), "Understanding the value of a European Video Games Society – Final report", Publications Office of the European Union.

[71] *La Tribune* (1 September 2022), "Jeu vidéo : le géant chinois NetEase rachète 100% du studio français Quantic Dream".

[72] *Gamereactor (2 June 2019)*, "Tencent rachète la totalité du studio suèdois Sharkmob".

[73] *Les Echos (19 July 2021)*, "Jeu vidéo : le géant chinois Tencent débourse plus de 1 milliard de dollars pour acquérir le studio Sumo".

[74] *Le Monde (7 September 2022)*, "Ubisoft : le chinois Tencent se renforce au sein du champion français du jeu vidéo".

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this data may need to be taken into account in relation to the acquisition of European studios by non-European entities.[75]

In this context, one issue that European public authorities must address is the need to create a framework that takes into account the diversity of content as well as the economic and technological elements relevant to the sector.

2.2.3. Technological developments and platformisation

The video games industry is defined as "eminently creative … and innovative in its ability to design and explore original economic models while taking into account national particularities and competition in a global market".[76] In order to remain competitive in the international market, video game companies are therefore required to adapt to new dynamics and relentless technological progress, including market platformisation, while continuing to innovate in order to stay ahead of the game.

In the video games industry, platformisation is the emergence of distribution platforms and online services such as Steam, Xbox Live, Playstation Network and the Apple and Google app stores for mobile games. These platforms centralise access to games. While making games available to a global audience, they also have considerable power to negotiate the conditions of games' visibility, content management and profit sharing with developers and publishers, in particular for independent creators. The development of platforms in the next few years is a major issue facing the industry, especially in view of their non-European origin.

European companies will also need to be on the cutting edge of innovation if they are to remain competitive and produce original, high-quality content that meets the expectations of an increasingly demanding public. Over the last two decades, video games have been heavily influenced by the concept of user-generated content. Created and distributed by gamers themselves, this content can enhance an original game or even change the game experience. The Roblox platform launched in 2005 illustrates this trend by enabling users to create and share their own games.[77] This approach could influence the future evolution of video games.

Artificial intelligence and new creative tools could also radically change the types of games available, the way they are distributed and creative processes, making them accessible to as many people as possible. Any user, including amateurs, will be able to access the creative tools needed to design original games that can be distributed more easily through online platforms. The extreme simplification of tasks in video games could

[75] See Chapter 7 of this publication for more information about the protection of personal data in the video games industry.
[76] Benghozi J.-P. and Chantepie P. (2017), *Jeux vidéo : l'industrie culturelle du XXIe siècle,* pp. 243-246, Ministry of Culture – DEPS - et les Presses de Sciences Po.
[77] Rodriguez P. (2022), "Le métavers, un phénomène culturel", *La révolution métavers – Le défi de la nouvelle frontière d'Internet*, Dunod, pp. 33-55.

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have an impact similar to that seen in the music industry, where "the emergence of digital technologies … over the last 20 years has considerably changed production conditions".[78]

2.2.4. Responding to social issues: public health and sustainable development

As a reflection of the world, the video game industry is at the heart of social change, both in Europe and elsewhere. It is therefore facing the major challenges of our time, which are helping to shape its future. Two such challenges stand out in particular: the protection of young people from excessive screen use and sustainable development.

The regulation of screen use has become a key public health issue. Video games are a source of entertainment and help develop cognitive and social skills.[79] However, excessive or inappropriate use can harm gamers' well-being or health, especially if they are very young.[80] While excessive screen use is generally frowned upon, it should be noted that views on the threshold above which use becomes excessive vary from one expert to another, since it depends on the context in which games are played. Alongside major initiatives such as PEGI,[81] video game creators are encouraged to include tools in their games that limit playing time (notifications that appear after a certain duration of uninterrupted play, for example). Consoles also include parental control mechanisms to protect children.[82] At the same time, however, parents, teachers and supervisors need to be trained in how to support young gamers. The objective is to provide a safe and secure environment for all video game users.

Sustainable development is also one of the main issues relevant to the video games industry which, like all digital sectors, has a significant carbon footprint. This is largely due to the toxic waste produced by the manufacture of electronic components as well as the energy consumed by servers and data centres, the production of consoles, computers and accessories, and their transportation throughout the world. Even if a game is distributed digitally, it still has a significant ecological cost because it is downloaded and may need regular updates. Nevertheless, video game manufacturers can (and do already) play an important role in the transition to a more responsible, environmentally friendly economy.

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[78] Société française des sciences de l'information et de la communication (11 April 2022), "Les mutations engendrées par le numérique dans l'industrie musicale".

[79] See Besombes N., Lech A. and Collard L. (2016), "Corps et motricité dans la pratique du jeu vidéo", Corps, vol

[80] See Larrieu M., Rocher B. and Erhel S. (2023), "Chapitre 5 : Les jeux vidéo sont nuisibles pour la santé physique et psychique des enfants et des adolescents", Cordier A. (ed.), *Les enfants et les écrans*, Retz.

[81] The Pan European Game Information (PEGI) initiative, created in 2003 by the Interactive Software Federation of Europe, has become an essential tool for the regulation of video games in Europe. Used in over 40 European countries, PEGI classifies games by age category and provides information about their content. For more detail, see Chapter 8 of this publication.

[82] SELL, "Systèmes de contrôle parental : le jeu vidéo s'engage pour accompagner les familles".

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Various measures are already in place, such as the use of recycled or less polluting materials, campaigns to raise awareness of sustainable practices, and fundraising for environmental organisations. Thanks to their vast international audience, video games have an enormous reach, which can be used to educate gamers about environmental issues, for example. "Playing for the Planet"[83] is a global initiative led by industry stakeholders, while the Jyros platform[84] created in France in October 2023 calculates the carbon footprint of video game companies and their games.[85]

By tackling these various issues, the European video games industry is fully equipped to develop a distinctive approach and become a world leader in terms of social and environmental responsibility.

[83] Playing for the Planet.
[84] Access to the Jyros platform.
[85] This initiative is led by the Consortium national du jeu vidéo pour l'environnement (composed of the Syndicat National du Jeu Vidéo (SNJV), the Syndicat des Éditeurs de Logiciels de Loisirs (SELL) and French regional associations) and supported by the state under the France 2030 investment plan.

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3. Definitions: what constitutes a video game?

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3.1. Introduction

Understanding video games is essential to shaping the public discourse around them, their potential and the benefits they provide, as well as the challenges they present. It also facilitates a stronger connection between the creative and innovative inputs into video games and the industry, and the legal and technological measures available to protect these inputs. As rapid changes in technology and business practice often outpace the development of laws and regulations, greater awareness of the video game ecosystem is key. This knowledge can drive the development of effective strategies to support, protect, and regulate this dynamic, fast-growing industry.

3.2. Video games – in search of a definition

Establishing a single definition of a video game is not a straightforward task, because the medium is incredibly diverse and constantly evolving. Games occupy a wide spectrum, from simple mobile games such as *Candy Crush* to complex AAA titles such as *Cyberpunk 2077*, each with varying mechanics, genres, and purposes. Moreover, games blend multiple elements, such as interactive storytelling, art, music, and technology, making it hard to pinpoint a specific definition that encapsulates all of these components. The diversity in purpose – games as entertainment, education, social interaction, artistic expression, or even as tools for simulation and problem-solving – further complicates defining what exactly constitutes a video game.

From the perspective of technology, new trends and developments push the boundaries of what can be considered a video game. For instance, virtual reality (VR) and augmented reality (AR) experiences, immersive experiences and the concept of the metaverse, experimental or indie games all defy traditional game structures, making them difficult to categorise.

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The following sections explore the broad video game ecosystem and demonstrate that a single definition of video games may be too limiting to encompass the wide range of experiences and functions that video games fulfil.

3.2.1. The evolution of video games: from physical products to digital services

Firstly, video games and the industry that produces them have evolved dramatically over the past few decades. Historically, video games were sold as physical products in brick-and-mortar stores. The industry has, in recent years, undergone a shift from physical sales to digital distribution channels for games as digital products and services. This transformation has been driven by improvements in technology, greater access to devices and an increased bandwidth capacity.

Secondly, the industry comprises three main segments: console games, PC games, and casual mobile games, each with distinct hardware and access methods. This complexity is heightened by vertical integration and a shift to Games as a Service, where the platform type determines the ecosystem, business models, and distribution channels.[86]

Thirdly, from easy-to-play hyper-casual games to elaborate multimillion-dollar AAA titles, there are many different types and genres of video games. Games draw on different tools or expressive aspects to design a creative gaming experience. Just to mention some examples, one can distinguish between adventure games (where the player faces a number of challenges and puzzles in order to progress in the story), action games (with titles such as *Pong* and *Space Invaders* initially defining this genre), first-person shooter games (where the player is 'behind the eyes' of the game character in a first-person perspective), real-time strategy games (revolving around goals and objectives within managing logistics, resources and production), role-playing games (originally inspired by pen and paper games such Dungeons and Dragons), simulation games (simulating a real-world physical activity such as flying an aircraft), racing games (competing in a race against other players or time), sports games (underpinned by the rules of actual sport, such as football, basketball or golf), and traditional games (computerised versions of board, word, and card games, including games such as chess, checkers, backgammon, Mahjong, Go, or Scrabble).[87]

3.2.2. Video games: creative, interactive, and immersive

Video games are a form of creative, interactive, and immersive media that combine art, storytelling, music, and technology to engage players in dynamic experiences. This

[86] See Chapter 1 for more details on the evolution of video games and the video games industry.
[87] MacDonald M. (2017), "The Case for Virtual Property", PhD thesis, pp.44-46.

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medium stands at the crossroads of creativity and innovation, continually pushing the boundaries of what is possible in entertainment and interactive design. For instance, games now frequently host virtual concerts and live events (artists including Travis Scott, Ariana Grande and Eminem performed in Fortnite in the past),[88] further transforming into platforms or locations for entertainment and experience.[89]

3.2.2.1. Video games as creative platforms

As highly creative and innovative platforms, video games empower players with freedom and a wide range of tools to explore, engage, and express their creativity. These environments foster personal expression by allowing interaction both with other players and with the rich virtual spaces that surround them. A prime example are sandbox-style games, such as Minecraft, which offer an open-world environment that is not bound by a strict storyline or predefined objectives.

A high level of interactivity can transform video games from a pre-defined experience with rigid goals into both a playground for the imagination and a platform for self-expression. Players can create their own narratives, experiment with problem-solving, and develop personalised projects. The act of creation becomes a fundamental part of the gaming experience rather than a mere by-product.

Creativity is a driving force not just for the players, but for the entire video game ecosystem, which revolves around content and brings together video game platforms, hardware manufacturers, publishers, and developers. The creation of a video game demands a diverse range of skills and professions, bringing together artists, designers, animators, musicians, composers, writers, software engineers, and even legal experts. All of these roles collaborate to shape the innovative, immersive experiences that define the industry.

3.2.2.2. Video games: a gateway to the metaverse

The concept of the metaverse then builds on the idea of an interactive and immersive space and offers a much broader and more integrated experience than video games, even those with a strong online multiplayer component.[90] While defining the metaverse is difficult due to varying visions and its incremental development making a strict definition impractical, there are some early themes and characteristics emerging from the ongoing scholarly debate. Some consensus exists on its fundamental components: scalability, persistence, interoperability, economy, identity, the convergence of physical and digital realms, and contributions from multiple stakeholders.

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[88] "Metallica Announced As 'Fortnite Festival' Headliner: Here Are Other Artists That Have Performed In-Game", Forbes (12 June 2024).
[89] See Chapter 1 for more details on the evolution of video games and the video games industry.
[90] Dimita G. et al. (2024), "IP and Metaverse(s)", UKIPO.

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The metaverse is generally conceived as an immersive, persistent, and shared digital environment where users, represented by avatars, interact socially and economically, blending virtually enhanced physical reality with persistent virtual spaces.[91] This further expands on the existing perception of video games and virtual worlds, adding or emphasising certain features or characteristics. It is possible to argue that video games (or platforms) such as Roblox or Fortnite may be conceived as proto-metaverses.[92]

In more detail, the characteristics of the metaverse are the following:

- Scalability is the ability of the metaverse to grow and expand in terms of user base, content, and functionality without compromising performance or user experience.
- Persistence refers to the fact that it exists continuously and independently of individual user sessions. Changes and interactions are maintained over time, making it a persistent virtual environment.
- Interoperability means that different virtual worlds, platforms, and systems within the ecosystem can interact and work seamlessly, allowing users to move between them and share assets, identities, and data.
- The metaverse supports its own economy, enabling trading, creation, and ownership of digital goods and services. This includes virtual currencies and marketplaces.
- Users have consistent and evolving digital identities or avatars that represent them within the metaverse, allowing for personal expression and continuity across different virtual environments.
- The convergence of physical and digital realms integrates virtual experiences with physical reality, creating a blended environment where digital and physical elements interact and coexist.
- Contributions from multiple stakeholders mean that the content and experiences are created by a diverse range of contributors, including individual users, developers, and commercial organisations, fostering a rich and varied virtual ecosystem.[93]

As a digital frontier, the metaverse is a constantly evolving and fluid concept, one that will continue to take shape as technology, culture, and innovation progress.

3.3. Dual approach to video games

Video games are complex multimedia creations that consist of multiple works and components. Broadly speaking, a video game has two separate yet equally important

[91] Ibid.
[92] Ball M. (2020) "The metaverse: what it is, where to find it, and who will build it".
[93] Ball provides a comprehensive and frequently adopted definition of the metaverse in his seminal work, "The metaverse: what it is, where to find it, and who will build it", op. cit.

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building blocks: the multimedia audio-visual work, or content, that provides the gameplay experience, and the software, or engine, which runs the game.

3.3.1. Video game content

Depending on the type or genre of the game, the richness, complexity, and originality of the content will vary. Video game content can be developed either in-house, relying on original intellectual property (IP), licensed from a third party, or a combination of both. For instance, Nintendo created *The Legend of Zelda* series entirely in-house, developing its own characters, world, and story. On the other hand, the *LEGO Star Wars* series is built using licensed content from both the LEGO and *Star Wars* franchises. While *Fortnite* started as an original in-house IP by Epic Games, it frequently incorporates licensed content from third parties, including characters and items from *Marvel, DC Comics*, and major film franchises.

These decisions have significant business and cost implications. Even as the rise of generative AI tools has democratised the video game development process, it can still be difficult and costly, especially for small and indie developers, to create a successful game title and compete for a market share in the increasingly crowded ecosystem. Creating original content in-house requires a significant talent and is considered high risk. Developing a video game on an existing IP and acquiring a licence from the rightsholders is another option, such as Electronic Arts (EA)'s now discontinued *FIFA* series. One challenge associated with this option can be the cost of negotiating and maintaining such a partnership. After almost 30 years, EA has decided to end the partnership with FIFA following a reported disagreement over the cost of the licence to use the FIFA brand.[94]

There are other reasons why developers may choose to incorporate third-party IP in their game. To craft a highly immersive and authentic experience for players, video games often incorporate real-world elements like vehicles, clothing, accessories, weapons, architectural designs, Easter eggs,[95] and even dance routines.[96] Developers may also design games based on historical events, featuring replicas of weapons, military vehicles, aircraft, uniforms, and equipment, or they may include both real and fictional characters, locations, or objects. Many of these real-world assets are subject to existing protection under copyright and other IP rights[97] and therefore may require a licence. Alternatively, video game companies may decide that the use of third-party IP will fall within one of the copyright exceptions and limitations. At the EU level, enshrined in the

[94] "Fifa to EA Sports FC: Name change is big gamble for UK's best-selling game", BBC News (27 September 2023).
[95] The term describes secret content hidden in a video game by its developers, typically as a joke or reference. It often references or mimics an existing piece of media.
[96] The hugely popular video game *Fortnite* is particularly well known for this. Players can direct their characters (or avatars) to act out short dance moves. Some of these dances are original to the game, but others are based on dances performed by real-life celebrities.
[97] Dimita G., Lee Y. H. and MacDonald M. (2022), "Copyright Infringement in the video game industry", WIPO.

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Directive on copyright and related rights in the information society (InfoSoc Directive) and in the Directive on copyright and related rights in the Digital Single Market (CDSM Directive),[98] fair dealing exceptions include specific activities excluded from copyright protection – usually for the purposes of criticism, parody, access for the visually impaired, and so on. Another approach, seen in the US fair use doctrine, provides guidelines for permissible use interpreted by courts, considering factors such as the purpose and character of the use, the nature of the copyrighted work, the amount and substantiality of the portion taken, and the effect of the use upon the potential market.[99] This still leaves consideration with regards to other types of IP rights (trademarks, design rights), image and personality rights, or unfair competition.

Video games, like other creative works, can themselves be the basis for complex multimedia franchises. Successful franchises, such as Nintendo's *Pokémon*, Blizzard's *Warcraft*, or CD Projekt Red's *Witcher*, can bring in additional income through licensing and merchandising agreements that vastly exceed the earnings of the initial products.[100] Individual characters, storylines, levels or the entire fictional universe can inspire further types of works, marketing or merchandise.

Generative AI tools offer exciting new ways for video game developers to create engaging content, realistic visuals, and immersive gameplay experience, and ultimately enhance and accelerate game development. Nevertheless, video game publishers (especially AAA publishers) may consider the use of these tools high risk as too many legal uncertainties persist with regards to IP and copyright, with questions surrounding ownership, originality, and infringement. Video game companies will rely heavily on contractual warranties and indemnities addressing the use of generative AI during the video game development. Broadly speaking, generative AI tools may be used for the purposes of procedural generation, terrain generation (enhancing the visual appeal and realisms of virtual environments), generative music, sound effects and voice modification, or dynamic storytelling. For instance, Ubisoft, a video game company behind Assassin's Creed, has developed its own generative AI tool called Ghostwriter to create short phrases spoken by non-player characters when triggered by certain events (such as an enemy dialogue during a battle scene). Human scriptwriters then select and incorporate the best ones.[101]

[98] Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society, Article 5(1); Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC, Article 17.

[99] General information on the fair use doctrine and the four-factor test can be found here, for example: "Measuring Fair Use: The Four Factors', Stanford Libraries.

[100] Alexandrou A., Dunford M. and Fasciana S. (2019), "Cyberpunk 2077: An Intellectual Property Analysis of a Multifaceted Product", WIPO.

[101] "The Role Of Generative AI In Video Game Development", Forbes (18 April 2024).

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3.3.2. Software development

The second fundamental building block of a video game is the underlying engine. A video game engine refers to the software framework needed to develop video games, facilitating functions such as rendering for 2D or 3D graphics, physics, sound, scripting, animation, or AI. Engines are independently protectable works. A video game developer can either develop their own engine or license an engine from another developer. It can be quite expensive and time-consuming to develop, and many video game studios prefer to license existing engines, giving them the freedom to focus on developing original video game content while the technical aspect of video game development is outsourced. One of the most popular engines is the Unreal Engine, owned by Epic Games, the original version dating back to 1998. Another example of a powerful engine that can deliver a complex game universe with player choice-driven stories is the third iteration of redENGINE by CD Projekt Red (CDPR). Their continued investment in their in-house engine enables the video game publisher to deliver an increased creative freedom, enhanced visuals and a complex storytelling structure, through the introduction of

> *… improvements to facial as well as other computer animation … volumetric effects enabling advanced rendering of clouds, mist, fog, smoke and other such particle effects … advanced ultra-high-resolution textures and mapping, as well as dynamic physics and advanced dialogue mimic system.*[102]

3.4. Multifaceted legal landscape: challenges and innovations in a dynamic industry

IP law is crucial in defining the legal framework for the video games industry, while confidentiality and trade secrets help safeguard companies' valuable assets. These protections are further supported by a vast contractual framework, including licences, which enable the commercial use and distribution of these assets. Moreover, public policy and regulation targeting markets and industries – competition and anti-trust laws, regulation of digital services or AI – and focusing on consumers and citizens – consumer protection, product safety rules, protection of minors or data protection – play an increasingly important role in shaping the industry's future. Altogether, they make for a multifaceted legal landscape that varies all around the globe.

[102] Alexandrou A., Dunford M. and Fasciana S. (2019), "Cyberpunk 2077: An Intellectual Property Analysis of a Multifaceted Product", WIPO.

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3.4.1. Intellectual property: the backbone of the industry

IP plays a crucial role in this dynamic and innovative industry: copyright, which protects the engine and content; patents, which safeguard hardware and software-related technical effects; trademarks, which protect branding; and design, which shields the visual aspects of a product, both physical and digital. Various elements of video games can be subject to protection under copyright, trademark or design rights, such as game titles, characters, storylines, level design, music, sound effects, and more.

Furthermore, IP, and copyright in particular, is instrumental in shaping the perception and legal qualification of video games, as well as uses and practices associated with and inherent to video games and the wider community, some of which are discussed below.[103]

One area where a conceptual shift can be witnessed is about community building and player engagement. From competing against each other in arcades, to participation in multiplayer online games, to today's competitive gaming (esports), the intensification of engagement has reached unprecedented levels.[104] Video game streaming, which refers to viewing live or recorded broadcasts of others' gameplay, has become an essential part of the marketing toolkit for publishers and developers worldwide since they "offer a significant economic value to the video game companies. This includes new opportunities for marketing and promotion, monetisation, community building and player engagement."[105]

Many of these community-based practices use, transform and distribute various elements of video games without a specific permission or licence from the rightsholder. This raises several legal challenges for both players, video game companies, platforms and tournament organisers (in the case of esports, which refers to professional or semi-professional competitive gaming in an organised format). For example, an unauthorised streaming of video games can lead to potential copyright infringement, as it typically involves the reproduction, public performance, distribution, or communication of copyrighted game content or its elements. However, whether this amounts to infringement depends on the specific laws of the jurisdiction, as certain copyright exceptions may apply to such practices.[106]

While video game content remains at the centre of the industry's output, it also creates innovation and added value in the form of customer engagement, innovative digital monetisation models, cutting-edge youth protection programmes, or the development and implementation of technological protection measures. Other sectors often try to learn and benefit from video games innovation.

The shift from physical to digital distribution has fundamentally transformed the video games industry, introducing new monetisation models that impact how games are

[103] See Chapter 4 of this publication for more details on copyright protection of video games.
[104] Ibid.
[105] MacDonald M., "Streaming", Esports Legal News (June 2024).
[106] Dimita G., Lee Y. H. and MacDonald M. (2022), "Copyright Infringement in the video game industry", WIPO.

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experienced, developed, and distributed. IP remains central to these trends, as new models like subscription services, downloadable content, paid apps, and free-to-play games all rely on the ongoing protection, licensing, and exploitation of IP. This evolution – from one-off payments for physical copies to diverse digital pricing models – highlights the increasing importance of IP management in the digital age.[107]

This can be directly connected to the growing trend of the metaverse. Creative platforms, digital assets, and user-generated content (UGC) will likely involve a complex interplay of IP rights, as subscription services, in-game purchases, and virtual economies become more central to both player experiences and business models. As the metaverse expands, IP will continue to shape this immersive digital ecosystem.

Equally, familiar issues and challenges will arise in connection with this new emerging model. One of the fundamental characteristics shared by digital environments and platforms, including the metaverse, is the ability of users to create, upload and share online content – UGC.[108] Therefore, it is likely that these types of features and interactions will result in cases of unauthorised uses of trademarks and copyright-protected works and trigger enforcement issues, similar to the ones that digital platforms face in the current state of the Internet.

New questions emerging in connection with the metaverse are specifically linked to the key characteristics and technologies that potentially set it apart from "conventional" digital platforms. Those that particularly stand out are: interoperability, decentralisation, and the convergence of physical and digital environments. Interoperability promises seamless mobility for data, information, virtual property, and users. Decentralisation focuses on leveraging technology as instruments of governance. Converging physical and digital environments to enhance and augment user experience then further challenges notions such as territoriality or exclusivity, that are central to the application of laws and regulations.

While digital environments will continue to embrace disruptive technologies and their various applications, such as AI, automation, blockchain and cryptocurrencies, there are potential shortcomings and risks associated with their use. For instance, blockchain technology is currently a prominent feature of many metaverse models and key to the notion of decentralisation. In practical terms, however, it is quite restrictive on a number of levels, especially if considered as an alternative to existing legal regimes, such as IP. Blockchains are costly to run due to high processing power needs, resistant to changes affecting IP management, and require a strong legal framework for automated contracts and transactions.[109]

Similar to video games, the metaverse is a complex matrix of IP products and services and therefore, IP will determine what models of the metaverse will emerge and prevail, how they will be experienced, whether users will be able to migrate between

[107] Greenspan D. and Dimita G. (2022), *Mastering the Game* (2nd ed.), WIPO, p. 40.
[108] This is further discussed in Chapter 4 of this publication. For more details, see Dimita G., Lee Y. H. and MacDonald M. (2022), "Copyright Infringement in the video game industry", WIPO.
[109] Dimita G. et al. (2024), "IP and Metaverse(s)", UKIPO.

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different spaces, and eventually, leave them. Past experience of the development of the Internet and digital platforms suggests that a hybrid model (a series of metaverses with different levels of interconnections) will become the most viable one, alongside several large technological monopolies, dominating the different geographical and cultural regions. Technical standards, ethics, and regulation will dominate the discourse going forward.[110]

3.4.2. Market perspective: competition law, the Digital Services Act, the Artificial Intelligence Act

One of the main legal and regulatory issues emerging for video game companies involves competition law, especially when it comes to anti-trust law and merger and acquisition oversight. Historically, the industry was dominated by a handful of major players such as Nintendo or Sony (PlayStation), especially when considering distribution.

The expansion and diversification of the video games industry, new distribution platforms (run by Google, Apple or Steam) and technological trends such as cloud gaming[111] have changed how business is conducted. New business practices with regards to licensing fees, privacy, access to platforms, and market share have emerged, and they are inevitably attracting increased scrutiny by competition authorities.[112]

In January 2021, the European Commission fined Valve and five publishers – Bandai Namco, Capcom, Focus Home, Koch Media, and ZeniMax – a total of EUR 7.8 million for violating EU antitrust laws by imposing restrictions on video game sales within the European Economic Area (EEA) through "geo-blocking". Geo-blocking restricts access to certain games or game content based on the user's geographic location, often preventing cross-border purchases or activations, effectively depriving EU consumers of the benefits of the EU Digital Single Market.[113]

In early 2022, major acquisitions in the gaming industry included Sony acquiring Bungie, Take-Two Interactive purchasing Zynga, and Embracer Group expanding with Saber Interactive and 4A Games, while Saudi Arabia's Savvy Games Group also made significant investments. The most notable move was Microsoft's acquisition of Activision Blizzard, aiming to strengthen its gaming portfolio with franchises like *Call of Duty*, *World*

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[110] Ibid.

[111] Cloud gaming is a technology that allows users to play video games streamed directly from remote servers to their devices, eliminating the need for powerful local hardware. Longan M. et al. (2021), "Cloud Gaming Demystified: An Introduction to the Legal Implications of Cloud-Based Video Games", Queen Mary Law Research Paper No. 369/2021. For the context of competition law perspective, see Geradin D. and Huijts S. (2023), "Dark clouds gather – The development of cloud gaming, and competition agencies' efforts to enable it on mobile app stores", *IELR* 6(1).

[112] For more details, please see Chapters 1 and 2 of this publication.

[113] "Antitrust: Commission fines Valve and five publishers of PC video games €7.8 million for 'geo-blocking' practices", 20 January 2021. Commission Decision of 20 January 2021 in cases AT.40413; 40414; 40420; 40422; 40424.

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of Warcraft, and *Candy Crush*. Competition authorities in the EU, UK, and US[114] investigated the Microsoft-Activision merger to assess its potential impact on fair competition in both game software development and publishing and digital video game distribution for PCs and consoles.

Furthermore, the UK and the EU have recently implemented extensive legislation aimed at safeguarding online users from illegal and harmful content. The Online Safety Act (OSA)[115] in the UK and the Digital Services Act (DSA)[116] at the EU level both aim to make the Internet safer, focusing on high-risk services with the most stringent requirements. While the OSA specifically targets providers of UGC, enforcing obligations related to criminal or harmful content, the DSA applies to all intermediaries and covers a broader range of illegal content and systemic risks. While their scope is overlapping, it is not identical. Video game companies will have to evaluate their compliance with these laws, in a global context, and determine their applicability and how best to implement the necessary measures.

Moreover, the role of AI in the video game ecosystem is growing rapidly and it can be expected that the AI Act[117] will shape the regulatory landscape for AI implementation in video games, ensuring that ethical and safety considerations are taken into account. The risk-based approach focuses on the entire supply chain of AI systems, and in the context of the video games industry, will cover content creation and animation enhancements, the use of generative AI, as well as behaviour trees.[118]

3.4.3. Players and citizens: consumer rights, product safety, protection of minors and data protection

The video games industry has evolved from physical products, to digital distribution, to immersive experiences. As digital environments and platforms become more interconnected, video games now integrate with social media, enabling players to share achievements, scores, and other game-related content. However, this connectivity raises significant concerns about how companies handle the vast amounts of personal data they collect, particularly regarding children and cross-border data transfers. Consumer groups and governments are likely to push for stricter oversight, with enhanced enforcement of existing regulations and the potential for new, more restrictive rules governing data collection and sharing.

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[114] EU – "Mergers: Commission clears acquisition of Activision Blizzard by Microsoft, subject to conditions"; UK – "Microsoft / Activision Blizzard merger inquiry"; US – FTC "In the Matter of Microsoft/Activision".
[115] Online Safety Act 2023.
[116] Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market For Digital Services and amending Directive 2000/31/EC (Digital Services Act).
[117] Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence (AI Act).
[118] For more details, see Zhu X. and Loth M. (2024), 'AI and games', The Video Game Industry in 2024, Taylor Wessing.

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Video game players and users are also consumers of digital products and services and as such, they are subject to specific protections, most notably when it comes to the consumption of video games by minors. EU legislation[119] establishes rules that determine when the provision of video games involves contracts for digital content, contracts for digital services or a combination of both; they stipulate the requirements concerning the transparency and fairness of commercial practices, such as in-game promotions and advertisements, in-game purchases, or lootboxes;[120] and they also apply to the product safety of both hardware and software components of video games.[121] Recent changes to product safety rules include new requirements for appropriate cybersecurity features.

With players under the age of 18 representing a significant demographic within the video game community, regulating the access to and consumption of video games by minors has been on the policymakers' agenda for a few decades. The approach combines industry self-regulation, which in the case of Europe translates into a Pan-European Game Information (PEGI) system,[122] parental control tools provided by video game companies on all major video games platforms, allowing parents to block content by age-rating, limit time spent, exercise purchasing control and communication restriction. Both legislative measures mentioned earlier, the OSA (UK) and the DSA (EU), regulate the provision of content that may be harmful to children.

Data-driven business models, such as the collection of gameplay data, have become common in the video games industry, allowing companies to enhance gaming experiences and make games more accessible, but also raising privacy concerns. The video games industry must adhere to EU personal data protection and e-privacy regulations[123] with implications regarding consent to data collection, informing players what data is being collected and why, a privacy notice, or data security.[124]

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[119] Directive 2011/83/EU of the European Parliament and of the Council of 25 October 2011 on consumer rights; Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market.

[120] Lootboxes are virtual items in video games that players can purchase or earn, which contain randomised rewards. These rewards can range from cosmetic items, such as skins and outfits, to gameplay-enhancing features, like weapons or abilities. For more information on the legal and ethical implications of lootboxes, see Honer P. (2021), "Limiting the loot box: overview and difficulties of a common EU response", *IELR* 4(1).

[121] Directive 2001/95/EC of the European Parliament and of the Council of 3 December 2001 on general product safety (General Product Safety Directive), updated with Regulation 2023/988 of the European Parliament and of the Council on general product safety (Regulation on General Product Safety).

[37] PEGI

[123] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation); and Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications).

[124] Further information on the regulatory environment for video games in Europe can be found in "Understanding The Value of a European Video Games Society", section 3.0. (EC 2023).

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PART II – Protecting and sustaining video games

As complex creative works combining creativity and cutting-edge technology, video games are protected by a variety of intellectual property (IP) rights held by a range of stakeholders along the value chain, from creators and studios to publishers, console manufacturers and software publishers. The second part of this report analyses the legal frameworks and national approaches to protecting video games, taking into account their many facets. With regard to copyright, the report distinguishes between "unitary" and "distributive" approaches to video games protection. It also explores other forms of protection, including trademarks, designs and patents. Relevant case law is described, serving as a guide to shaping and understanding the legal protection of video games.

Despite protection, infringements also persist in the video games sector, with specific issues linked to the characteristics of games. The report addresses issues such as "traditional" piracy, game cloning, and key reselling. It also examines the methods that rightsholders can use to enforce their rights, both through judicial channels and alternative strategies, including commercial and technological approaches.

Beyond protection, video games also require ongoing support, which is increasingly provided through public policies. Recognising the cultural value of video games, several countries have implemented aid schemes to the sector through cultural funds, while others have chosen to support the sector through economic fund schemes. The report outlines various funding instruments available at different stages of video game development, highlighting how these characteristics vary between countries. It presents examples of national policies to the sector in Europe and beyond, as well as several European programmes aimed at promoting and supporting the video game ecosystem.

4. EU legal provisions and national approaches to the protection of video games

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Video games are a unique blend of art and technology. They are creative, innovative, interactive, immersive, and differ substantially from other creative works. Although there is no universally agreed definition of video games and their characteristics[125] and notwithstanding the ongoing debate on their legal nature in the academic scholarship,[126]

> *videogames, as complex creative works with a unique and creative value, have a wide value chain in which intellectual property rights and assets play a significant role for increased competitiveness and innovation and which should be protected to ensure talent, creativity, innovation and technological development flourish.*[127]

"Complex" is the key word. It is omnipresent in the literature, and it has been used by both the Council of the European Union[128] and the Court of Justice of the European Union (CJEU)[129] to define video games. Therefore, this chapter will shine a light on this complexity and focus on how intellectual property protects video games in the EU.

[125] Frasca G. (2007), "Play the message: Play, game and videogame rhetoric", IT University of Copenhagen.
[126] See Chapter 3. See also, Ramos A. et al. (2013), "The Legal Status of Video Games: Comparative Analysis in National Approaches", WIPO.
[127] Council of the European Union, Council conclusions on enhancing the cultural and creative dimension of the European video games sector, Brussels, 24 November 2023, paragraph 9.
[128] Ibid.
[129] Case C-355/12, *Nintendo Co. Ltd. and Others v. PC Box Srl and 9Net Srl* (ECJ 23 January 2014).

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4.1. Video games as complex subject matter and the legal framework for their protection

Video games are complex and interactive digital products/services comprising multiple subject matters potentially protected by multiple layers of intellectual property (IP) rights and, in the EU, by a blend of directives and national laws. Most elements of a video game can be eligible for IP protection when they meet the relevant criteria, as well as, in some circumstances, a video game as a whole. Thus, the legal framework for protecting video games in the EU is multifaceted, addressing the complex nature of these products/services through a combination of copyright, trade mark, design, and patent laws as shown by the table below.

Table 2. The legal framework[130]

Video game component/asset	Legal framework
Software code (source code and object code)	Copyright – EU Software Directive (Directive 2009/24/EC) Patent – European Patent Convention Trade Secret – Trade Secret Directive (Directive 2016/943)
Art and graphics (graphic user interface – GUI); artworks: drawings, maps, buildings, etc.; video elements: photographs, digitally captured moving images, animation, etc.)	Copyright – EU Copyright Directive (Directive 2001/29/EC) Trade Mark – EU Trade Mark Directive (Directive 2015/2436); and EU Trade Mark Regulation (Regulation 2017/1001) Design – Design Directive (Directive 98/71/EC); and Community Design Regulation (Regulation 6/2002). See below.
Music and sound effects (audio elements: musical composition, sound recording, voices, sounds effects, etc.)	Copyright – EU Copyright Directive (Directive 2001/29/EC) Trade Mark – EU Trade Mark Directive (Directive 2015/2436); and EU Trade Mark Regulation (Regulation 2017/1001)
Game title and logos; identifiable "catchphrases" and non-traditional marks associated with the game or company	Trade Mark – EU Trade Mark Directive (Directive 2015/2436); and EU Trade Mark Regulation (Regulation 2017/1001)
Game story (script, plot, dialogues, narrative, etc.)	Copyright – EU Copyright Directive (Directive 2001/29/EC)
Well-developed/distinctive characters	Copyright – EU Copyright Directive (Directive 2001/29/EC) Trade Mark – EU Trade Mark Directive (Directive 2015/2436); and EU Trade Mark Regulation (Regulation 2017/1001) Design – Design Directive (Directive 98/71/EC); and Community Design Regulation (Regulation 6/2002). See below.
Visual design elements (characters, virtual objects; product and service names, logos; colours and shapes, etc.)	Trade Mark – EU Trade Mark Directive (Directive 2015/2436); and EU Trade Mark Regulation (Regulation 2017/1001) Design – Design Directive (Directive 98/71/EC); and Community Design Regulation (Regulation 6/2002).

[130] Table based on Greenspan D. and Dimita G. (2022), "Mastering the Game", WIPO; Ramos A. et al., op.cit.; Ecorys and KEA (2023), "Understanding the value of a European Video Games Society", Final Report.

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	See below.
Hardware (controllers, accessories)	Patent – European Patent Convention Trade Secret – Trade Secret Directive (Directive 2016/943) Design – Design Directive (Directive 98/71/EC); and Community Design Regulation (Regulation 6/2002). See below.
Databases	Copyright – EU Copyright Directive (Directive 2001/29/EC) Sui Generis Right – EU Database Directive (Directive 96/9/EC)
Gameplay (innovative game design, mechanics, rules and systems)	Copyright – EU Software Directive (Directive 2009/24/EC) Patent – European Patent Convention Trade Secret – Trade Secret Directive (Directive 2016/943)
Video game (as a whole)	Copyright – EU Copyright Directive (Directive 2001/29/EC) Unfair Competition – National Law

4.2. Copyright protection in the EU and the global context

Copyright is arguably the most significant IP protection for video games[131] and protects the original and expressive works of authorship, such as literary (including software), dramatic, musical and artistic works (but not the ideas themselves) within the game as well as – potentially – the video game as a whole.

Copyright laws around the world have been harmonised to some extent through the Berne Convention,[132] the TRIPS Agreement,[133] the WIPO Copyright Treaty[134] and the WIPO Performances and Phonograms Treaty.[135] In the EU, copyright has been partially harmonised by a number of directives and regulations[136] and by the ever increasing CJEU case law. Differences among countries still exist and originality standards, criteria for protection and subject matter might vary between jurisdictions.

Copyright protection is automatic and arises as soon as an original work is created or fixed (depending on the jurisdiction). There are no formalities.[137] This contrasts with patents, trade marks, and design, which involve application/registration processes and fees, and trade secrets, which require specific steps for their protection. Copyright provides specific rights to the rightsholders, including making copies, creating derivative works, distributing, public performance and public display. These rights are not absolute as copyright also provides for specific limitations, exceptions and defences. These, however, are less harmonised internationally.

[131] Boyd G., Pyne B. and Kane S-F. (2019), Video Game Law: Everything You Need to Know About Legal and Business Issues in the Game Industry, CRC Press, 20.
[132] The Berne Convention for the Protection of Literary and Artistic Works, adopted in 1886 and updated in 1971.
[133] The Agreement on Trade-Related Aspects of Intellectual Property Rights (1994).
[134] WIPO Copyright Treaty (1996).
[135] WIPO Performances and Phonograms Treaty (1996).
[136] More details at https://digital-strategy.ec.europa.eu/en/policies/copyright-legislation.
[137] Some countries have voluntary registration systems, for example the US. In some countries, the works must be fixed to be protected, but this criterion is generally quite easy to fulfil in the video game ecosystem.

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In the EU, for a work to be protected by copyright, it must meet two criteria:[138]

1. the work must be *original* – i.e. it is an author's own intellectual creation, and
2. it must be *expressed with sufficient precision and objectivity*, although it need not be in a permanent form.

It follows that the only real issue in the copyright protection of video games is the legal protection of video games as single, unique works of authorship, since it is irrefutable that the individual elements included in video games (including stories, characters, music, art, graphics and software) can enjoy independent copyright protection when they meet the above criteria.[139]

Beyond this, there is no international consensus on either the legal nature of video games or how they should be classified for the purposes of copyright. To simplify, there are two main approaches to the legal nature of video games for copyright protection stemming from case law:

1. the "unitary" approach, where a video game is considered predominantly as a computer program, audiovisual work or a complex subject matter, or
2. the "distributive" approach, where each protectable subject matter within the video game is considered a separate work.

These different approaches have substantial consequences that have yet to be fully explored in the case law and the literature, and classifying video games as whole under audiovisual works or computer programs brings unique legal issues.[140] Moreover, it is not always straightforward to determine how video games are classified in a given jurisdiction as often – due to the complexities involved – courts prefer to embrace the more conservative distributive approach and find legal protection of the different elements of the video game separately, according to the specific nature of the work at stake within the known and established categories (literary, graphic, audiovisual, software, etc.).[141]

The arguments that video games are predominately computer software as the audiovisual components are not original enough to enjoy copyright protection dates back to the 1980s and while it might still be valid for some early video games, nowadays most games possess creative elements which meet the originality threshold.[142]

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[138] See, *inter alia*, C-5/08 *Infopaq International A/S v. Danske Dagblades Forening* [2009] ECR I-6569; C-310/17 *Levola Hengelo BV v. Smilde Foods* BV [2019] ECDR 2; C-683/17 *Cofemel – Sociedade de Vestuario SA v. G-Star Raw CV* [2020] ECDR 9.

[139] See Dimita, G., Harn Lee,Y. and MacDonald, M. (2022), "Copyright Infringement in the video game industry", WIPO.

[140] For a more in-depth analysis see Ekin Gürünlü I., "Video Games and Copyright Protection Under International, European, and U.S. Law", Stanford-Vienna TTLF Working Paper No. 59, 2020.

[141] See, Ramos A. et. al., op. cit.

[142] See, for instance, France: T. corr. Nanterre, 29 June 1984, RIDA 124, April 1985, 177; CA Paris, 4 June 1984 and 20 February 1985, D. 1985, 39; Ass. Plén., 7 March 1986, D. 1986, 405; Germany: OLG Frankfurt, 13 June 1983, [1983] 39 GRUR, 756; Italy: Pret. Torino, 25 May 1982, Riv. ann. dir. ind. 1982, 539, Trib. Torino, 17 October 1983, Giur. piemontese 1983, 820, Pret. Milano, 1 June 1983, Giur. pen. 1983, 576; Pret. Padova, 15

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Software is present by definition in a video game and, in the EU, it is protected by copyright under the Software Directive. For video games this means that the source and object codes that constitute the game engine, plug-ins, and scripts are covered by this directive. The CJEU confirmed this in the *BSA* judgment,[143] but it excluded the graphic user interfaces (GUI) from being protected under the Software Directive, while in *SAS v. World Programming*,[144] the court also excluded their functionality, programming languages and the format of data files. In both cases, however, the court indicated that works which cannot be protected under the Software Directive might nevertheless find copyright protection under the Copyright Directive. This approach was later consolidated in *Nintendo v. PC Box*.[145]

The counter argument, that video games are essentially a multimedia or audiovisual work, might also be flawed as the most common definition of audiovisual work refers to "a series of related images intrinsically intended to be shown"[146] which is not the case when it comes to video games. Video games are not passive and need to be played and run using a computer program.[147] Moreover, defining video games as predominantly audiovisual works is not without issues as:[148]

1. the co-authors of audiovisual works (generally, the scriptwriters, the director and the composer of the original soundtrack) are not necessarily the same sorts of authors involved in the development of a video game (character and setting designers, animation designers, video testers, audio engineers, etc.);
2. the rights requested by producers of video games and audiovisual works do not always coincide; and
3. audiovisual works involve certain neighbouring rights that are not always present in video games.

Given these perceived difficulties in embracing a unitary approach it is not surprising that most EU member states prefer the distributive approach. However, the EU appears to favour a unitary approach. In the seminal decision *Nintendo v. PC Box*, the CJEU stated that

> *Videogames … constitute complex matter comprising not only a computer program but also graphic and sound elements, which, although encrypted in computer language, have a unique creative value which cannot be reduced to that encryption. In so far as the parts of a videogame, in this case, the graphic and sound elements, are part of its*

December 1983, Dir. inf. 1985, 729; Trib. Monza, 12 December 1984, Dir. inf. 1986, 176, Among others, Pret. Milano, 18 October 1985, Dir. e giur. 1986, 966; Trib. Milano, 20 June 1988, Dir. inf. 1988, 499; Cass., 3 September 2007, Foro it. 2008, 27. To the contrary see TJ Paris, 4 September 2020, No. 20/03352, 10.

[143] Case C - 393/09 *Bezpečnostní softwarová asociace v. Ministerstvo kultury* [2010] ECR I-13990.

[144] Case C-406/10 *SAS Institute Inc. v. World Programming Ltd.* [2012] ECLI:EU:C: 2012:259.

[145] Case C-355/12, *Nintendo Co. Ltd. and Others v. PC Box Srl and 9Net Srl* (ECJ 23 January 2014).

[146] See, for instance, section 101, title 17 US Code.

[147] See, Ramos A. et. al., op.cit.

[148] Ibid.

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> *originality, they are protected, together with the entire work, by copyright in the context of the system established by Directive 2001/29.*[149]

Nintendo v. PC Box is often generally interpreted as meaning that, for video games, only the general Copyright Directive applies, but some read the decision as meaning that video games are regulated by both Copyright and Software Directives,[150] including some national courts,[151] and the European Parliament:

> *… the Court of Justice of the EU has recognised that video games are complex creative works with a unique and creative value, protected both by Directive 2009/24/EC on the legal protection of computer programs and Directive 2001/29/EC on copyright;*[152]

These issues are not limited to the EU. In the United States (US) copyright subsists in both the software which underscores the video game and in its audiovisual display. The software is protected as a literary work, and the "entire effect of the game as it appears and sounds"[153] as an audiovisual work. The US position on video games can be traced through an entrenched series of precedents, with *Stern v. Kaufman*[154] establishing that the audiovisual display is an appropriate subject for copyright, regardless of whether the underlying software is protectable by copyright.[155] It stressed that the program and display are independent from form and function. A rhetoric confirmed by *North American Philips,*[156] which found that although the audiovisual work was primarily a product of an unprotectable game, there were nonetheless new and additional "fanciful"[157] elements which warranted copyright protection, emphasising the Pac-Man and Gobbler characters, as well as the ghost monsters and pursuit figures. *Midway v. Stohon*[158] provides perhaps the most explicit example of this approach: the court confirmed that both the registered copyright on the audiovisual display and the underlying software were valid. The court reiterated that the audiovisual display and the software are not so "intertwined" as to preclude their separate consideration. As such, while the US adopts a distributive

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[149] Case C-355/12, *Nintendo Co. Ltd. and Others v. PC Box Srl and 9Net Srl* (ECJ 23 January 2014). In *Grund v. Nintendo*, the CJEU had also been asked to deal with the hybrid legal nature of video games in the context of TPMs. But the referring court (the BGH) withdrew the case after *Nintendo v. PC Box. Case C-458/13 Grund v. Nintendo Co Ltd. and Nintendo of America Inc* [2014] CJEU ECLI:EU:C:2014:589.

[150] Mezei P. (2015), "Digital First Sale Doctrine Ante Portas: Exhaustion in the Online Environment" (n 23) 48, *IPITEC – Journal of Intellectual Property, Information Technology and E-Commerce Law*; Kaiser A. (2020), "Exhaustion, Distribution and Communication to the Public – The CJEU's Decision C-263/18 – Tom Kabinet on E-Books and Beyond" 69 *GRUR International* 489, 495.

[151] See, *inter alia*, Landgericht Berlin 15 O 56/13 (Steam Accounts) [2014]; *UFC-Que Choisir v. VALVE* [2019] Tribunal de Grande Instance de Paris No. RG 16/01008.

[152] European Parliament resolution of 10 November 2022 on esports and video games (2022/2027(INI)), paragraph [D].

[153] *Tetris Holding, LLC v. Xio Interactive, Inc* 863 F Supp 2d 394 (DNJ 2012).

[154] *Stern Electronics, Inc. v. Kaufman*, 523 F. Supp. 635 (E.D.N.Y. 1981).

[155] Ibid.

[156] *Atari, Inc. v. North American Philips Consumer Electronics Corp*., 672 F.2d 607 (7th Cir. 1982).

[157] Ibid.

[158] *Midway Mfg. Co. v. Strohon*, 564 F. Supp. 741 (N.D. Ill. 1983).

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approach, it has greater freedom to characterise a video game work holistically, at least with respect to all the audiovisual elements.

The United Kingdom (UK) adopts a distributive and taxonomic approach to protection, where the work is identified against the various subject matter categories and their prescribed forms. UK copyright follows a closed list system, meaning that the work and the protected expressions must fall within one of the explicitly recognised categories of protection.[159] Accordingly, for video games, the assessment requires the work to be dissected into its various protectable components, which are then assessed within their respective categories. This is evidenced by *Nova v. Mazooma*,[160] the most authoritative UK case examining the legal nature of video games under copyright. The decision outlined that a video game can be protected as an artistic work – in the form of the bitmap graphics and individual frames which are generated and displayed to the user; and as a literary work, in terms of the design notes and program underlying the game. However, it was stressed that this protection did not extend to the functionality connected to the code, meaning that there was no protection available for the game mechanics described by the code. This left protection only for the literal code itself. Moreover, the court found that a video game could not be treated as a dramatic work as the specific sequencing of images was too variable and dependent on how it was played, finding that it lacked "sufficient unity"[161] to be capable of being a classified as a performance and dramatic work. Consequently, in the UK, there is no protection for video games per se. They are protected under copyright only to the extent to which they can be broken down, and then categorised within the explicit and closed list of works, subject to the formal requirements of those respective categories.

The full consequences of a unitary approach for copyright protection of video games in the EU need to be further investigated to understand whether and how *Nintendo v. PC Box* has affected the national approaches of the member states. This is important as, depending on which approach is adopted, there are profound practical and theoretical consequences; for example, depending on the available subject matter characterisation, the scope and nature of infringement and protection may vary.[162]

4.3. Protection under other forms of IP

Copyright is not the only form of IP protecting video games. As mentioned, the legal framework is multifaceted, and addresses the complex nature of these products/services through a combination of copyright, trade mark, design, and patent.

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[159] See section 1, Copyright, Designs and Patents Act 1988, as amended.

[160] *Nova Productions Ltd. v. Mazooma Games Ltd. and Others* [2007] Bus LR 1032.

[161] *Nova v. Mazooma* [2006] EWHC 24.

[162] Germany, for instance, still protects the software components under section 2(1) and the audiovisual elements under section 5. Urheberrechtsgesetz – UrhG of 9 September 1965 (Federal Law Gazette I, p. 1273), as last amended by Article 25 of the Act of 23 June 2021 (Federal Law Gazette I, p. 1858).

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Trade marks may be used to protect company names, logos, game titles, characters, and related merchandise and services, as well as non-traditional signs like shapes, sounds, animations, and colours, depending on the jurisdiction. Trade marks can also be used to protect signs used within the game such as fictional and virtual marks. A further potential application of multimedia trade marks is the protection of the video game gameplay and mechanics which could be indirectly protected through a multimedia mark for a character animation.[163] Trade marks are territorial and require registration in a specific category of goods or services. Once obtained, they potentially grant a perpetual protection, making it a strong complement to copyright protection.

Patents, on the other hand, protect certain inventions. There are two kinds of patents relevant to video games: hardware and software (including gameplay and mechanics). Hardware patents are straightforward and extend to the machines and equipment (electronic devices) used to play and run video games. However, the protection for software, including gameplay or mechanics, is more complex and presents substantial differences between Europe and the US. In the US, the subject matter of patentability is historically open-ended, and this includes protection for software patents. Even after *Alice*[164] which clarified that "abstract ideas" implemented by a computer are not patentable, the number of software and gameplay patents granted is still significant. In Europe, the European Patent Convention (EPC) excludes computer programs as well as methods of playing games "as such" from the patentable subject matter.[165] Conversely, computer implemented invention which produces a "further technical effect" (e.g. it goes beyond the inherent technical interactions between hardware and software) is patentable.[166] Generally, patents which include hardware seem to have more success in being granted protection under the EPC.[167] Gameplay patents will be discussed below (see Chapter 5).

Finally, design can protect the appearance/graphic elements of a video game – the icons used, GUI and the appearance of the characters, etc. – when the requirement of novelty and individual character are met. Until recently, design was not much used by the video games industry, though in recent years, applications for registration in the EU have increased exponentially.[168] As of today, however, the validity and scope of these registrations appears not to have been tested in court.

[163] There has already been one attempt at such protection, with a multimedia mark sought for the X-ray kill cam from the Sniper Elite series, although there were various clear issues including its graphic nature, lack of distinctiveness and length. See, EUTM application number 017282203. See below.
[164] *Alice Corp. v. CLS Bank Int'l* : 573 U.S. 208 (2014).
[165] Article 52 EPC.
[166] See, the guidelines of the European patent office.
[167] For example, Konami Co., Ltd. European Patent Video Game Patent (EP 1703429 A2).
[168] See generally, Sarlangue E. (2021), "Registered Community designs in the video game industry: a neglected yet potent tool", *Interactive Entertainment Law Review*, 4.2, pp. 87-101.

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4.4. Challenges and opportunities

Given the complexity of the issues above, it should not come as a surprise that there are plenty of opportunities for the current legal framework to adapt to face emerging challenges. Below is an overview of the main ones.[169]

4.4.1. Protectability of gameplay

Gameplay is, in short, the combination of game mechanics, rules, goals, obstacles, rewards and penalties used in a particular video game, which is made manifest through the audiovisual displays generated when the player interacts with the game.[170]

In the EU, gameplay itself, as an idea or concept, is not protectable under copyright law. Theoretically, the specific expression of gameplay — such as the code, audiovisual elements, and potentially the unique combination of mechanics — could be protected if they meet the originality requirement. However, this last argument has not been particularly successful in the EU and the UK so far,[171] as "[a]n idea consisting of a combination of ideas is still just an idea. That is as true for ideas in a computer program as for any other copyright work."[172]

However, it appears that courts in the US have somehow circumvented the issue by expanding the scope of copyright protection and/or being generous in assessing similarities.[173] For example, in *Tetris Holding v. Xio Interactive,*[174] the court held that certain game mechanics deserved copyright protection, namely

> *the dimensions of the playing field, the display of "garbage" lines, the appearance of "ghost" or shadow pieces, the display of the next piece to fall, the change in colour of the pieces when they lock with the accumulated pieces*.

[169] For a more detailed analysis see: Dimita G., Harn Lee Y. and MacDonald M. op.cit.
[170] See Harn Lee Y. (2012), "Play Again? Revisiting the Case for Copyright Protection of Gameplay in Videogames" 34(12) EIPR 865, 855: See also, Boyden B. E. (2011), "Games and Other Uncopyrightable Systems", *18 George Mason Law Review* 439.
[171] See, for instance, France: *Voodoo v. Rollic Games and Hero Games* (Tribunal Judiciaire de Paris, 4 September 2020); UK: *Nova Productions v. Mazooma Games* [2006] EWHC 24 (Ch); [2007] EWCA Civ 219. See also Fava E. (2021), "Hyper-Casual Simulation Video Games May Not be Original Enough to Enjoy Copyright Protection but Game Cloning Could Still be Prevented by Relying on Unfair Competition: Voodoo v. Rollic Games and Hero Games" 43(6) *European Intellectual Property Review* 402.
[172] Nova Productions v. Mazooma Games, [2007] EWCA Civ 219, at [35]. Similarly, at EU level, "The combination of several functionalities, continues to be comparable to an idea and cannot therefore be protected, as such, by copyright." (Opinion of Advocate General Bot in Case C-406/10 *SAS Institute Inc. v. World Programming Ltd.* [2011] CJEU ECLI:EU:C:2011:787, [63]).
[173] For instance, Fava argues: "The recent case-law dealing with game clones in the US seems to have somehow circumvented the problem." See Fava E., op. cit.
[174] 863 F Supp 2d 394 (DNJ 2012).

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Another example is *Spry Fox v. LolApps,*[175] where the court found the following to be protectable expressions of that idea: "an object hierarchy that progresses from grass to bushes to trees to houses and beyond"*;* "a bear as the antagonist object and a 'bot' as the object with the power to destroy others"*;* the placing of "those objects on a field of play that resembles a field or meadow"; as well as "progressing from grass to bush to tree to hut is similar to progressing from sapling to tree to tent to cabin".[176]

Chinese courts have also been prepared to take a more flexible approach in cases involving the copying of game mechanics and rules. In *Taichi Panda,*[177] the court held that the specific selection, arrangement and combination of game rules could amount to expression and could therefore be protected by copyright to some extent. Similarly in *Blizzard Entertainment and Shanghai NetEase*,[178] the court held the game design elements such as the game rules, winning and losing conditions, character designs and the user interface to be specific expressions of abstract rules and therefore capable of being protected by copyright.

It appears therefore that gameplay is less likely to enjoy copyright protection in the EU compared to the US and China. Nevertheless, trade mark, patent, design and, in particular unfair competition, when available, might help with the protection of gameplay in the EU, as will be discussed below (see Chapter 5).

4.4.2. Generative AI: protectability of the outputs and potential input/output infringements

Artificial intelligence provides numerous opportunities for video games and the industry has already embraced it to enhance creativity, immersive experiences, and consumer support with different degrees of success. In particular, generative AI can dramatically improve the development of video games[179] but it raises numerous questions surrounding both the protectability of works created with AI assistance and potential copyright infringement issues in the creation of work by AI tools trained with unauthorised inputs. There is an increasing number of cases pending in courts worldwide, which will soon provide some clarity on these issues. The interplay between copyright and generative AI is evolving as we write but in the meantime some pointers can be identified.

Copyright requires human authorship. Hence the protectability of AI-assisted works depends on the degree of creativity and control of the human using the AI tool. The

[175] No. 2:12-cv-00147 (WD Wash 2012).
[176] Ibid.
[177] *Suzhou Snail Digital Technology Co., Ltd. v. Chengdu Tianxiang Interactive Technology Co., Ltd.* (2015) Su Zhong IP Civil Verdict No. 00201.
[178] *Blizzard Entertainment Co., Ltd. and Shanghai NetEase Network Technology Co., Ltd v. 4399 Network Co., Ltd.* (2017) Hu 0115 Civil Verdict No. 77945.
[179] Tools such as GiTHub Copilot, ChatGPT and Tabnine are largely used by developers and Unity have already included in the suite two AI systems: Muse and Sentis (apparently trained using internally-created assets, with others coming from licensed third party sources).

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European Commission has suggested a four-step test to determine copyright protection for AI-assisted output,[180] but given *Cofemel*[181] this might be redundant (see above 4.2). Similarly in the US, the Copyright Office has consistently held that works created entirely by machines or automated processes without any creative input or intervention by a human author do not qualify for copyright protection.

When a reproduction of a protected work takes place without authorisation in the absence of available limitations or exceptions, an infringement takes place. Consequently, if an AI tool "reproduces" protected works without authorisation the limitations and exceptions available are the new text and datamining (TDM) exception introduced by the Digital Single Market (DSM) Copyright Directive (Directive 2019/790)[182] in the EU, and fair use in the US.[183] There is no equivalent in the UK. In the EU, Articles 3 and 4 of the Directive differentiate between TDM for scientific research and TDM for commercial purposes, giving the opportunity to opt-out from the latter. In the US, fair use appears to be flexible enough to include these activities but this defence needs to be assessed together with a potential infringing output: if the output infringes copyright, the fair use defence will not be available.[184]

Finally, if an output is substantially similar to a protected work used to train the AI, the output will most probably be an infringement, arguably irrespective of the user's knowledge of the pre-existent work. Hence transparency (if still achievable today) and record keeping are of the utmost importance, not only for assessing the role of human input and the degree of creativity and control to determine protectability, but also for defending against potential copyright claims and assessing liability (on the part of the user or the AI provider).

4.4.3. Cheating

Cheating[185] in video games, through hacks and bots, exploiting bugs, and using unauthorised private servers, has significant copyright implications. It affects the reproduction right and the right of communication to the public and may also involve the

[180] 1) The output must be a production in the literary, scientific or artistic domain; 2) It must be the result of human intellectual effort; 3) It must be original and reflect human creative choices; 4) It must be the expression of the human creator's creativity. See European Commission Trends and Developments in Artificial Intelligence – Challenges to the Intellectual Property Rights Framework, September 2020, pp. 77-84. This reading appears to have been welcomed by the video game industry in the EU. See position paper by Videogames Europe, AI and Copyright, April 2024.

[181] According to *Cofemel*, for a work to be protected, it must be original and expressed with sufficient precision and objectivity. This arguably already encapsulates all the relevant criteria. See *Cofemel – Sociedade de Vestuario SA v. G-Star Raw CV* [2020] ECDR 9.

[182] Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC.

[183] Section 107 USC.

[184] See *Authors Guild v. Google* 804 F.3d 202 (2nd Cir. 2015).

[185] "Cheating" refers to the activities which interfere with the integrity of the video game or the experience of other players.

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circumvention of technological protection measures (TPMs) and breaches of end-user licence agreements (EULAs).[186] Video game companies have been proactive in enforcing actions against users and providers of these tools, resulting in extensive case law.[187] This case law is very helpful in understanding the boundaries of copyright protection in new and unanticipated ways. After almost a decade of litigation in Germany, *Sony v. Datel*[188] has been referred to the CJEU which has been asked to determine whether, in the context of video games

> *it is permissible for third parties to create and users to use, without the authorisation of the holders of the copyright in those games, programs which make a game easier by circumventing certain difficulties designed by its author, commonly referred to as "cheat software"*.[189]

4.4.4. User-generated content, "Let's Play videos" and streaming

Video game players often re-create and mix protected works from their favourite video games or other sources. These activities are increasingly popular, and largely welcomed by the video game rightsholders, but they might nevertheless infringe copyright in the absence of authorisation or available limitations and exceptions. To facilitate these creations, video games publishers provide licensing term in their EULA or Terms of Service (ToS).[190] In the absence of and beyond these licensing terms, however, it appears that the limitations and exceptions provided in the EU by the Copyright Directive and the DSM Directive are much narrower that those provided by fair use in the US. Nevertheless, these activities are largely condoned by the rightsholders, with two exceptions: "Let's Play videos" and streaming.

Let's Play videos are videos which document the playthrough of a video game, usually accompanied by the player's humorous or critical commentary. Since they incorporate all or most of a video game, their creation will almost certainly implicate the reproduction rights in the game and/or its constituent works, while uploading them to a

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[186] See generally, Lober A. and Conraths T. (2019), "Cheat software – 'Doping' in Online Games" 2(2) *IELR* 78.
[187] For instance, in Germany: BGH, decision of 7 February 2017 – 3 StR 430/16 = NStZ 2017, 274, 275; OLG Munich, decision of 2 March 2017 – 29 U 1799/16 = ZUM-RD 2017, 394, 398; judgment of 6 October 2016; docket No. I ZR 25/15; US: *MDY Industries, LLC v. Blizzard Entertainment, Inc* 629 F 3d 928 (9th Cir 2010). The earliest copyright cases involving cheating are probably the US case *Lewis Galoob Toys, Inc v. Nintendo of America, Inc* 964 F 2d 965 (9th Cir 1992); *Riot Games, Inc v. Stefan Delgado Argote et al*. Case number 2:16-cv-05871 (CD Cal 2017); *Epic Games, Inc v. Joseph Sperry*. Case number 5:18-cv-00094 (EDNC 2018); *Bungie, Inc v. AimJunkies.com*. Case number 2:21-cv-00811-TSZ (WD Wash 2022); UK: *Blizzard Entertainment SAS v. Bossland GmbH* [2019] EWHC 1665 (Ch); *Take-Two Interactive v. James* [2020] EWHC 179 (Pat).
[188] Case C-159/23: *Sony Computer Entertainment Europe Ltd. v. Datel Design and Development Ltd. and Others*.
[189] Opinion of the Advocate General Szpunar delivered on 25 April 2024 (1), Case C-159/23: *Sony Computer Entertainment Europe Ltd. v. Datel Design and Development Ltd., Datel Direct Ltd., JS*.
[190] See Mezei P. and Harkai I. (2022), "End-User Flexibilities in Digital Copyright Law – An Empirical Analysis of End-user License Agreements", 5(1) *IELR*, pp. 2-21.

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hosting platform where it can be viewed by the general public potentially implies public performance, making available to the public and/or communicating to the public rights in these same works.

Livestreaming, on the other hand, is the practice where players broadcast themselves playing a video game — typically with commentary — to a live audience via an online platform like Twitch, Facebook Gaming or YouTube. Video game livestreams share certain similarities with Let's Play videos, but the latter feature a higher degree of editing and curation while the former is an unedited, real-time performance.

In both scenarios, in the absence of authorisation (often available via EULA or ToS),[191] creators have to rely on limitations and exceptions to avoid copyright infringement. This is more likely to be successful in jurisdictions that have a specific exception for user-generated content (UGC) (such as Canada) or an open-ended system of copyright exceptions (such as fair use in the US) rather than a closed list system of exceptions (such as in the EU and the UK). This is however yet to be tested in court, and probably will never be tested as these activities – while not condoned – are quickly resolved by the notice and take down regime available.

Given the complexity of the subject matter (the video game/s being used), the fact that the rights holder in the video game authorises or condones the UGC, Let's Play or streaming video, might not be enough to avoid copyright infringement. The video game might incorporate third-party content which has only been licensed to be used in the video game itself and not for these secondary uses. Particularly relevant is the example of music, as the publisher might have licensed their music for a video game but prohibited the streaming of it by the players. Securing all the rights necessary to provide a blanket licence to the player/creators might be a difficult, time-consuming and expensive task for most video game rightsholders. In the EU, Article 17 of the DSM Directive recently made content-sharing platforms more accountable. It will be interesting to observe whether and to what extent this will impact on the video game ecosystem.

4.5. Conclusion

The IP framework and legal landscape for the protection of video games in the EU is comprehensive, multifaceted, and addresses the complex nature of these products/services. However, video games are where creativity meets new technologies; they are ever evolving and are unique in their interactive nature. They constantly spark new legal issues, thus is it not surprising that there are still some aspects of their IP protection which remain untested.

[191] Create published a very clear dashboard showing what is allowed by a number of video game publishers: https://www.copyrightevidence.org/ycp/overview.

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5. Video games and intellectual property infringement

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This chapter focuses on the problem of intellectual property infringement in the video games industry, and in particular on certain practices that have a significant negative impact on rightsholders' revenue streams. These include the unauthorised copying and distribution of entire copies of video games; game cloning, a practice where a competitor replicates the way in which a successful video game plays without engaging in any direct copying of its graphics, music or code; and the unauthorised reselling of video game product keys through 'grey market' channels. In each case, the chapter will set out the impact of the practice on the video games industry, identify the potential intellectual property infringements arising from it, and provide an overview of the enforcement strategies (both legal and otherwise) which the industry has developed for dealing with the practice. As video games are an interactive medium, player engagement is a key part of every game's success. On average, video game companies maintain a much closer relationship with their audience compared to other sectors in the creative industries (through online discussion forums, social media and so on), and are reliant on their most engaged players for feedback, word-of-mouth marketing (and increasingly, influencer marketing), and continued sales of their subsequent games. It is therefore important for a video game company to maintain a positive relationship with its player base, and to recognise that its choices as to whether, when and how to enforce its intellectual property rights against individual players might well undermine that relationship.

5.1. Unauthorised distribution

In the present day, the unauthorised copying and distribution of entire copies of video games is typically done online through peer-to-peer file-sharing protocols (such as BitTorrent) and file-hosting websites.[192] Unlike the unauthorised distribution of other forms of audiovisual content, where there has been a clear transition from downloading

[192] Moshirnia A, 'Giant Pink Scorpions: Fighting Piracy with Novel Digital Rights Management Technology' (2012) 23 *DePaul Journal of Art, Technology & Intellectual Property Law* 1, 12 – 16.

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to streaming, this remains the dominant form of distribution for unauthorised copies of video games. While it is in principle possible for games to be played remotely via cloud servers, this requires an exponentially larger amount of processing power compared to servers for streaming other forms of audiovisual content, due to the amount of complex computing involved, as well as a significantly faster and more stable internet connection than is available to most households. Statistics provided by the video games industry indicate that the unauthorised downloading of games is frequent and commonplace.[193]

A party who seeks to make an unauthorised copy of a video game available online will engage in many acts that undisputably amount to copyright infringement. In making a copy of the game in the first place, they infringe the rightsholder's reproduction right. In uploading the copy to a file-hosting website or making it available through a peer-to-peer file-sharing system, they infringe both the reproduction right and either the rightsholder's right to distribute copies of the video game or the right to communicate the work to the public, depending on how the act of making a work accessible to the public online is categorised in the jurisdiction in question.[194] In the present day, many video games are protected by technological protection measures ('TPMs'), such as access controls which allow only legitimate purchasers to access them, and copy controls which prevent the making of subsequent copies. Where this is the case, the infringer must first circumvent these TPMs (or 'crack' them, as the process is colloquially known) in order to create a playable copy of the video game.[195] This puts them in breach of the anti-circumvention protections mandated by the WIPO Copyright Treaty[196] and WIPO Performances and Phonograms Treaty,[197] which are present in the copyright legislation of the vast majority of jurisdictions around the world,[198] and rightsholders will have an additional cause of action against them on that basis.

The operators of file-hosting platforms and websites that facilitate peer-to-peer file-sharing may also incur liability on an accessory basis where they have actual or constructive knowledge that their services are being used to distribute infringing material.[199] This is more likely to be the case where the platform itself has been obviously designed for the primary purpose of enabling users to share copyright-protected material,

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[193] See generally Moshirnia (n 192) 21 – 23; Holm P, 'Piracy on the Simulated Seas: The Computer Games Industry's Non-Legal Approaches to Fighting Illegal Downloads of Games' (2014) 23 *Information & Communication Technology Law Journal* 61, 61- 63; Moshirnia A, 'Typhoid Mario: Video Game Piracy as Viral Vector and National Security Threat' (2018) 93 *Indiana Law Journal* 975, 987 – 992; Garcia K, 'Monetizing Infringement' (2020) 54 *UC Davis Law Review* 265, 289 – 290.

[194] In the EU, this would be classified as an act of communicating the work to the public: C-263/18 *Nederlands Uitgeversverbond v Tom Kabinet* [2020] CMLR 20. In the US, which does not provide for a separate right of communication to the public or right to make the work available to the public, this would be classified as an act of distribution: see Pallante M, *The Making Available Right in the United States* (US Copyright Office, 2016).

[195] For specific details as to how this is accomplished, see Moshirnia (n 192)11 – 12.

[196] WIPO Copyright Treaty 1996.

[197] WIPO Performances and Phonograms Treaty 1996.

[198] See e.g. Australian Copyright Act 1968, s 116AN; Copyright Law of the People's Republic of China, art 49; EU Information Society Directive, art 6; UK Copyright, Designs and Patents Act 1988, Part VII; US Copyright Act of 1976, s 1201.

[199] For a global overview of the liability of internet intermediaries for their users' actions, see Seng D, *Comparative Analysis of National Approaches of the Liability of Internet Intermediaries* (WIPO, 2010).

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such as The Pirate Bay, which was founded by an explicitly anti-copyright organisation[200] and whose purpose is clear from its very name, rather than platform that have clear non-infringing as well as infringing uses, such as general-purpose file-hosting services. In some jurisdictions, such as the European Union (EU), these platforms may even incur direct liability. In *Stichting BREIN v Ziggo*,[201] the Court of Justice of the European Union (CJEU) held that the making available and management of an online platform like The Pirate Bay — which, although it did not host any copies itself, nevertheless made it easy for users to locate and download unauthorised copies of works by indexing relevant data and providing a search function — constituted an act of communication to the public of the protected works shared unlawfully through it.

Individual users who download unauthorised copies of video games, meanwhile, will be directly liable for infringing the rightsholder's reproduction right. This means that the infringers who made those copies available in the first place will also be liable as accessories for the infringing acts of reproduction committed by these users. Where users engage in such downloading using a peer-to-peer file-sharing protocol such as BitTorrent, they will also be infringing the rightsholder's right to communicate the work to the public — specifically, the right to make the work available to the public — at least under EU law. This is because BitTorrent operates in such a way that each downloader (known as a 'leecher') becomes an uploader (known as a 'seeder') as soon as it receives a relevant fragment of downloaded content. In *Mircom International Content Management v Telenet*,[202] the CJEU held that this characteristic of the BitTorrent protocol meant that the unauthorised sharing of copyright-protected content constituted an infringement of the rightsholder's right to make the work available to the public.

5.1.1. Legal enforcement

Rightsholders will typically have a very strong case of copyright infringement, potentially based on multiple causes of action, against the different parties involved in this kind of unauthorised distribution: the uploaders who make the games available online, the users who download them, and, depending on the circumstances, possibly even the operators of the platforms through which the games are unlawfully distributed. However, litigation may be a time-consuming and costly process, particularly where the infringers are located in different jurisdictions and their identities are unknown. Litigation against individual users who have merely engaged in the downloading of unauthorised copies of games may also prove to be counter-productive for another reason: it is likely to be seen by players as a disproportionate, oppressive, and unjustified response, and may potentially increase

[200] Specifically, the Swedish think-tank Piratbyrån, which was disbanded in 2010.
[201] C-610-15 *Stichting BREIN v Ziggo* [2017] ECDR 19.
[202] C-597/19 *Mircom International Content Management v Telenet* [2022] ECDR 1.

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anti-copyright sentiment among the player base.[203] For these reasons, this is not a tactic commonly employed by rightsholders.

The causes of action outlined above also provide a basis on which rightsholders may apply for other remedies that are speedier and less likely to result in backlash from their player base. These remedies are generally available to rightsholders in all kinds of works. They include website blocking orders requiring internet service providers (ISPs) to block their subscribers' access to these sites, in jurisdictions where such a remedy is available.[204] Again, applications for such orders are much more likely to be successful in relation to websites whose primary purpose is the distribution of infringing material, such as The Pirate Bay, and more likely to fail where they relate to websites that have clear non-infringing uses, such as general-purpose file-hosting platforms. Rightsholders may also, on the same basis, make use of 'notice and takedown' procedures to demand that website operators remove infringing material that is being made available through their services, though this will depend on whether the operators in question have implemented such a system. This is more likely to be the case with operators of general-purpose file-hosting platforms, who have an incentive to do so. A significant number of jurisdictions have enacted 'safe harbour' regimes that offer immunity to online service providers from copyright infringement claims based on the activities of their users provided that: (i) they have no knowledge or awareness of the fact that infringing material is being provided through their services; and (ii) upon acquiring knowledge or awareness of that fact, they act expeditiously to remove or disable access to the material.[205] Rightsholders should be aware, however, that in using notice and takedown measures, they may encounter the 'whack-a-mole' problem, where infringing material is repeatedly reinstated even after being removed.

5.1.2. Business and technological strategies

As stated previously, many contemporary video games are protected by TPMs which are aimed at ensuring that only legitimate users are able to access the game.[206] These, of course, may — and often are — eventually circumvented by technologically proficient 'infringers, but they still throw up a significant obstacle, as time has to be spent 'cracking' them.[207] There will therefore be some delay before unauthorised copies begin appearing online. As the vast majority of sales occur in the month following the initial release of a

[203] Moshirnia (n 192) 24; Holm (n 193) 64 – 65. On the effects of litigation against individual users in the context of file-sharing generally, see Depoorter B, Van Hiel A and Vannaste S, 'Copyright Backlash' (2011) 84 *Southern California Law Review* 1251.
[204] Examples include Australia, the EU, Singapore and the UK. See, respectively, Australian Copyright Act 1968, s 115A; EU Information Society Directive, art 8(3); Singapore Copyright Act 2021, s 325; UK Copyright, Designs and Patents Act 1988, s 97A (as interpreted by *Twentieth Century Fox v British Telecommunications* [2011] EWHC 1981).
[205] For a global overview, see Seng (n 199).
[206] For an overview of the usage of TPMs in the video game industry, see Holm (n 193) 65 – 66.
[207] Holm (n 193) 66.

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game, this delay protects a very significant proportion of sales.[208] In applying TPMs to their games, it is important for rightsholders to ensure that these do not disrupt the player experience.[209] Some TPMs — such as the SecuROM, system which was widely used within the video games industry in the late 2000s — have been linked to computer crashes, instabilities in system performance and potential security loopholes. Using such TPMs is likely to lead to a great deal of consumer dissatisfaction, and even — ironically — drive players who have purchased a legitimate copy of the game to download an unauthorised one in order to enjoy a smooth gaming experience.[210]

Some rightsholders have adopted business models that are less susceptible to this kind of unauthorised distribution. Rather than a single payment in exchange for a one-off download, an increasing number of games are structured in such a way as to derive revenue from players' continued engagement.[211] Massively Multiplayer Online Role-Playing Games ('MMORPGs') such as *World of Warcraft* and *Star Wars: The Old Republic* charge players a monthly subscription fee for continued access to the game,[212] while 'free to play' games such as *Genshin Impact*, *World of Tanks* and *Fortnite* are available to players at no cost but are structured in such a way as to incentivise repeated micro-transaction purchases for accessing additional content or progressing through the game more quickly.[213] Other strategies that have been employed, primarily by independent game developers, include the use of open pricing models, whereby purchasers pay what they want for a particular game;[214] creative TPMs that cause unauthorised copies of games to degrade, often in a comical manner;[215] and social shaming.

5.2. Game cloning

Game cloning refers to a practice where a competitor seeks to capitalise on the success of a video game by replicating its combination of game mechanics — i.e. the rules and systems that govern and guide the player's interactions with the game — but without any copying of its graphics, sounds or underlying computer program. This allows the competitor to produce a game that 'plays' like the original but looks and sounds different from it. This first arose as an issue in the mobile game industry, as the relative simplicity

[208] Moshirnia (n 192) 7.
[209] Holm (n 193) 67 – 69.
[210] Lee J, 'Still Alive' (*Games Industry.biz*, 10 December 2008) (Randy Stude, president of the PC Gaming Alliance, observing that 'your readers, your publisher audience, knows these stories well where consumers feel a lot of times that the DRM restrictions that are placed on games make it harder for them to install and play a game than someone who pirated the game'); Moshirnia (n 192) 35 – 38.
[211] Lee (n 210) (Randy Stude, president of the PC Gaming Alliance, noting that online games are 'not being impacted' by piracy as they require 'continual touch points, logging into the game, revalidation of your right to have the game on a regular basis'); Garcia (n 193) 291 – 292.
[212] Holm (n 193) 69 – 70.
[213] For more details on business models in the video games sector, see also Chapter 1 of this publication.
[214] Moshirnia (n 192) 39 – 49.
[215] Unauthorised copies of *Serious Sam 3*, for instance, will spawn a giant, invincible pink scorpion armed with two shotguns that relentlessly hunts down the player: Moshirnia (n 192) 49 – 66.

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of mobile games makes them particularly susceptible to this kind of imitation. Since then, however, it has become a concern even for major big-budget titles. In a recent high-profile incident, US-based company Riot Games sued the Chinese company NetEase over the latter's mobile game *Hyper Front*, claiming that *Hyper Front* was a clone of its own first-person shooter[216] *Valorant*.[217]

5.2.1. Legal enforcement

It is possible in principle to make the case that the creation of a game clone amounts to an infringement of the rightsholder's reproduction right and potentially their adaptation right or derivative works right (depending on how these rights are characterised in the jurisdiction in question) in the original game.[218] However, given the difficulties surrounding the classification of video games as copyright subject matter[219], the success of such a claim may depend on the jurisdiction in which it is made. As explained in Chapter 4 of this publication, one such early attempt in the UK was ultimately unsuccessful, with the High Court holding that the video game did not fall into a subject matter category that was capable of encompassing game mechanics.[220] Recent cases brought before the US[221] and Chinese courts[222] have been more successful, though a significant of artistic similarity exists in several of these cases, making it unclear whether a similar outcome would be reached in cases of 'pure' gameplay copying without any artistic similarities.

The law of unfair competition offers a potentially promising route for rightsholders to take action in relation to clones of their games.[223] Unfair competition law, in essence, prohibits market participants engaging in acts of competition 'contrary to

[216] This is a genre of video game which is centred on gun-based combat as seen from a first-person perspective.

[217] *Hyper Front* was subsequently shut down by NetEase, and Riot Games announced that it would be making a mobile version of *Valorant*. Since then, NetEase has announced that it will be relaunching a revised version of *Hyper Front* under the new title *Operation Apocalypse*.

[218] For instance, UK copyright law gives rightsholders the exclusive right to create adaptations of their works, while US copyright law gives rightsholders the exclusive right to prepare derivative works: see UK Copyright, Designs and Patents Act 1988, ss 16(1)(e) and 21; US Copyright Act 1976, s 106(2).

[219] For more details, see in Chapters 3 and 4 of this publication.

[220] *Nova Productions v Mazooma Games* [2006] EWHC 24 (Ch); [2007] EWCA Civ 219.

[221] *Tetris Holding v Xio Interactive* 863 F Supp 2d 394 (DNJ 2012); *Spry Fox v LolApps* No 2:12-cv-00147 (WD Wash 2012).

[222] *Woniu Technology Inc. v Tianxiang Hudong and Aiqiyi* [2018] Suzhou Intermediate People's Court SZZMCZ No 00201; [2018] Higher People's Court of Jiangsu Province SMZ No 1054. For commentary, see Z Li, 'The Copyright Protection of Video Games from Reskinning in China: A Comparative Study on UK, US and China Approaches' (2019) 11(2) *Tsinghua China Law Review* 293, 326 – 331; T He 'From Single-Player Games to Metaverse: A Futuristic Analysis of Challenging Legal Issues in the Video Game Industry in China' (2022) 71(10) *GRUR International* 952, 959 – 960.

[223] Fava E, 'Hyper-Casual Simulation Video Games May Not be Original Enough to Enjoy copyright Protection But Game Cloning Could Still be Prevented by Relying on Unfair Competition: *Voodoo v Rollic Games and Hero Games*' (2021) 43(6) *European Intellectual Property Review* 402. See also Wang M, 'Original Idea or Illegal Copying? Video Game Copying in China and Its Effects on the US Video Game Industry, Future Steps for US Developers and Publishers' (2022) 38 *Santa Clara High Technology Law Journal* 215, 244 – 246.

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honest practices in industrial and commercial matters'.[224] It is of particular relevance where the clone is marketed in such a way as to confuse customers into believing that it is the original game, leading them to purchase the clone when they might well have intended to purchase the original. It was on this basis that a developer of the 'hyper casual' game *Woodturning 3D* was able to succeed in legal action against the producer of a game clone, *Wood Shop*, before the Paris Court of First Instance.[225] The marketing of *Wood Shop* was held to amount to unfair competition because it had been intentionally designed as a clone of *Woodturning 3D*, and consumers could confuse the two games. Similarly, US-based publisher Blizzard Entertainment also succeeded in an action which it brought in the Chinese courts against defendants who had cloned its popular title *Hearthstone*, on the basis of China's Anti-Unfair Competition Law.[226]

Some rightsholders have been able to secure patents for particularly innovative game mechanics in the US,[227] allowing them to take action against competitors who have incorporated the same mechanic into their own games.[228] However, this strategy may not be available in all jurisdictions. European patent law, for instance, prohibits the patenting of computer software 'as such', and also excludes from patentability 'schemes, rules and methods for … playing games or doing business'.[229] Because of this, rightsholders have had difficulty obtaining patents for game mechanics in Europe, especially where the mechanic in question does not involve the use of specific hardware, and is therefore much more likely to be classified as 'software as such' or a mere rule for playing a game.[230]

It has also been suggested that a video depicting the operation of a game mechanic could be registered as a trade mark which, if successful, would allow a rightsholder to enforce it against competitors using an identical or confusingly similar feature in their games.[231] However, it is unclear whether such a mark would meet the requirement of being 'distinctive' — i.e. capable of distinguishing the goods or services provided by one trader from those provided by another[232] — as consumers are accustomed

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[224] Paris Convention for the Protection of Industrial Property 1979, art 10*bis*. In other jurisdictions, the law of passing off or trade dress infringement performs a similar function.

[225] Tribunal Judiciaire de Paris, No. 20/03352 (4 September 2020). For commentary, see Fava (n 223) 402 – 405.

[226] *Blizzard Entertainment v Blizzard Entertainment v Shanghai Youyi Network Technology* [2014] Shanghai First Intermediate People's Court HYZMW(Z)CZ No 23. For commentary, see Wang (n 223) 236.

[227] E.g. the 'dialogue wheel' from the *Mass Effect* series (US Patent No 8,082,499) and the 'sanity system' from *Eternal Dark* (US Patent No 6,935,954).

[228] See *Sega of America v Fox Interactive* No 4:03-cv-05468 (ND Cal 2003). The case was eventually settled out of court.

[229] European Patent Convention, art 52(2)(c) and 52(3).

[230] Compare EPO Boards of Appeal Decision of August 17, 2006 in respect of Case No T 1504/17 (European Patent Office granting Nintendo a patent for the use of a controller's movement sensor to determine the selection and movement of in-game objects, on the basis that the inventive feature was 'not a game aspect, such as a game rule … but a technical way of controlling an object in a game space') with EPO Boards of Appeal Decision of May 3, 2013 in respect of Case No T 0188/11 (European Patent Office refusing to grant a patent for a mechanic in a kart-racing game which allowed players to drive the kart in different ways according to the weight of the in-game driver and passengers, as attributing weight to virtual characters and having the kart respond in different ways according to their weight was merely a game rule).

[231] Lobov K, 'How Multimedia Trademarks Could Kill Cloned Games' (*Games Industry.biz*, 19 February 2018).

[232] See e.g. EU Trade Marks Directive, art 3.

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to thinking of game mechanics as features of a game rather than an indicator of trade origin. An application for a multimedia trade mark depicting the 'kill cam' mechanic from *Sniper Elite 4* was made to the European Intellectual Property Office in 2017, but still remains pending thus far.[233]

Design protection has also been mooted as a potential avenue for rightsholders to gain some measure of protection against cloning.[234] However, while design rights might be able to protect how certain elements of a game *look* — such as the user interface, the icons, the appearance of the characters and so on — they would not protect how the game *works*. They would therefore be of limited utility when dealing with a clone that implements the same mechanics in a visually different way. It might also be difficult for the visual elements of a video game to fulfil the qualitative requirements for design protection. The EU designs regime, for instance, requires designs to both be 'new' and have 'individual character' in order to be eligible for protection.[235] This in practice means that the visual elements of a video game will not be protected unless they differ materially *and* produce a different overall impression from previous designs that have already been available to the public. This may be difficult to achieve, particularly for games within the same genre.

5.2.2. Business strategies

Even where a rightsholder is reasonably confident that it will be able to succeed against the producer of a game clone in litigation, this in itself may not be sufficient. Litigation is time-consuming, and trends within the video games industry — particularly the 'hyper-casual' mobile games sector — move swiftly. By the time the case is resolved, the original game may no longer be popular, and the rightsholder may have suffered significant losses from the diversion of sales which it cannot recoup. A much faster and more efficient approach would therefore be to request the digital distribution platforms on which the clone is being marketed to de-list the clone from their catalogues. Many digital distribution platforms, including Apple's App Store, have policies prohibiting 'copycat' products that borrow too heavily from an existing game and/or make use of similar names.[236] In practice, the threshold for getting a game clone de-listed from a digital distribution platform that operates such a policy may well be lower than that required for a successful claim in intellectual property law or unfair competition law, making this an even more strategically sound option for rightsholders. Some independent game

[233] EU Trade Mark Application 017282203.
[234] Sarlangue E, 'Registered Community Designs in the Video Game Industry: A Neglected Yet Potent Tool' (2021) 4(2) *Interactive Entertainment Law Review* 87.
[235] EU Community Design Regulation, art 4(1). A design is 'new' where no identical design has been previously made available to the public. It has 'individual character' where the overall impression it produces on the informed user differs from the overall impression produced on such a user by any design
which has been made available to the public.
[236] See Mehta I, 'Apple Updates Its App Store Rules to Crack Down on Clones' (*Techcrunch*, 7 June 2023).

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developers also deploy 'naming and shaming' tactics against cloners, particularly where the latter are large companies.[237]

5.3. Key reselling

Key reselling is the practice of selling video game product keys, which allow users to download and install games from online storefronts, through 'grey market' channels that have not been authorised by the relevant rightsholder.[238] Unlike the audiovisual industry, where audiovisual works are released with territorial exclusivity, video games tend to be released worldwide and territoriality plays a role in determining the price. Some of these channels sell game keys directly to purchasers; others operate as online marketplaces that allow users to list game keys for sale to each other. The most popular of these grey market websites include G2A and Kinguin.

Some of the keys sold through these websites may have been obtained promotionally, such as keys that have been sent to influencers in hopes of being featured on social media. In many cases, resellers may purchase keys from regions where the game is priced more cheaply and offering them to purchasers in regions where the game is more expensive.[239] In still other cases, an individual who has purchased a digital bundle[240] of games may decide that they are only interested in some of those games and not others, and list the keys for the unwanted games for sale.[241] It is often claimed that many of the keys sold through grey market websites have been obtained illicitly through stolen credit card information,[242] and this appears to be true in at least some cases.[243] Game keys on these websites are typically listed at a lower price than those set by authorised digital retailers, thereby diverting sales away from the latter. While buyers purchasing game keys from key reselling websites have no guaranteed that the keys are legitimate or will

[237] Phillips T, '"Don't Clone My Indie Game, Bro!" Informal Cultures of Videogame Regulation in the Independent Sector' (2015) 24 *Cultural Trends* 143. For instance, when independent game developer Buffalo Studios felt that their game *Bingo Blitz* had been cloned by leading mobile games designer Zynga, they issued an infographic highlighting the similarities between the two games and a statement telling Zynga, 'We are moved that your new game was inspired by our innovative product': see Rose M, '*Bingo Blitz* Developer Accuses Zynga of Copying' (*Game Developer*, 30 January 2012)

[238] For an overview, see Hall C, 'The Truth Behind Those Mysteriously Cheap Gray Market Game Codes' (*Polygon*, 9 February 2015) .

[239] Fenlon W and Wilde T, 'PC Game Storefronts Compared: What You Need to Know About Retailers and Resellers' (*PCGamer*, 13 July 2019)

[240] A bundle is a group of video games sold together, typically at a discounted price.

[241] Federspiel I, 'Retailer Scam Re-Sells Humble Bundle Games, Reaps Profit Off Charity' (*Game Informer*, 28 March 2014) ; Lober A, Klein S and Groothuis F, 'The Long and Winding Road of Digital Distribution, or Why the ECJ's *UsedSoft* Decision is of No Use to Keysellers', (2018) 1(1) *Interactive Entertainment Law Review* 44, 44; Fenlon & Wilde (n 239).

[242] Fenlon & Wilde (n 239); Bycer J, 'The Impact of Key Resellers on the Game Industry' (*Game Developer*, 11 July 2019) .

[243] Klepek P, "G2A Scammer Explains How He Profited Off Stolen Indie Game Keys" (kotaku.com.au, 31 July 2016) ; Yin-Poole W, "G2A and tinyBuild's Row Over PC Game Key Reselling Gets Ugly" (eurogamer.net, 23 June 2016) ; Phillips T, "G2A Admits it Sold Stolen Game Keys" (eurogamer.net, 21 May 2020) .

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actually even work as promised — and indeed, many have fallen prey to fraudulently-obtained keys[244] — the cheaper price means that many are prepared to take the risk. Further problems arise in the case of game keys that have been obtained using stolen credit card information, as this will require the rightsholder who has received payment for the key to carry out an investigation, at the conclusion of which they will likely have to reimburse the rightful cardholder and pay a fee to the credit card company. This is particularly burdensome for smaller companies, who have limited financial resources.

5.3.1. Legal enforcement

It is sometimes asserted that the resale of digital copies of video games is permitted under copyright law. These arguments are generally predicated on the principle of exhaustion.[245] Exhaustion is a limitation on the rightsholder's distribution right: once a copy of a work has been put on the market for the first time with the rightsholder's consent, the distribution right is 'exhausted', and the copy can be resold without the rightsholder's authorisation. There has been a long-standing debate as to whether exhaustion applies to digital copies of works in addition to physical copies.

The decision of the CJEU in *UsedSoft v Oracle* would appear, at first glance, to answer this question in the affirmative. Here, the CJEU held that under the Software Directive,[246] the doctrine of exhaustion applies to digitally distributed copies of software, so as to entitle their purchasers to resell them without further authorisation from the rightsholder. When *UsedSoft* was first decided, many video game news outlets took it to mean that customers in the EU would be permitted to resell digital copies of games.[247] Since then, however, the CJEU has held that video games — being complex matter comprising not only a computer program but also graphic and sound elements — are not governed by the software-specific regime under which *UsedSoft* was decided, but by the regime applicable to works in general as established by the Information Society Directive.[248] It has also held that, under the Information Society Directive, the digital distribution of works falls within the scope of the right to communicate the work to the public, and not within the distribution right; accordingly, the principle of exhaustion does not apply.[249] The same outcome was also reached in the US case of *Capitol Records v*

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[244] Futter M, '[Update] Ubisoft Says Deactivated *Far Cry* Keys Purchased with Stolen Credit Card, EA Confirms' (*Game Informer*, 28 January 2015) .

[245] This is also known as the 'first sale doctrine' in the US.

[246] C-128/11 *UsedSoft v Oracle International* [2012] 3 CMLR 44.

[247] See Schreier J, 'European Court Says You Should be Able to Re-Sell Your Digital Games' (*Kotaku*, 3 July 2012) ; Walker J, 'Crikey: EU Rules You Can Resell Downloaded Games' (*Rock Paper Shotgun*, 3 July 2012) ; Yin-Poole W, 'EU Rules Publishers Cannot Stop You Reselling Your Downloaded Games' (*Eurogamer*, 3 July 2012) .

[248] Case C-355/12 *Nintendo v PC Box* [2014] ECDR 6. For more details, see Chapter 4 of this publication.

[249] *Nederlands Uitgeversverbond v Tom Kabinet* [2020] CMLR 20. See also Ewald K and Hilgert F, 'Key Selling: Why Video Games Are Not Simply Software' (*Osborne Clarke*, 30 August 2016) ; Lober A, 'Key Resellers Claim Legitimacy — the Courts Say Otherwise' (*Games Industry.biz*, 11 November 2019) .

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ReDigi,[250] where the court held that the principle of exhaustion did not apply to digital copies. There is some suggestion that this is also the position in China.[251]

In jurisdictions that do not recognise the applicability of exhaustion to sales of digital copies, therefore, a party who obtains a digital copy of a work from the initial purchaser and seeks to resell it will be liable for infringing the rightsholder's distribution right or their right to communicate the work to the public, again depending on how the rights are defined in each jurisdiction. At present, it is not entirely clear whether the act of offering a game key — which provides access to the game, but does not constitute a copy of the game — would amount to an infringing act on the same basis. A plausible argument can be made that, at least under EU law, it does, given that the CJEU has held that an act of communication occurs when a party 'intervenes, in full knowledge of the circumstances' to give access to a work that the recipient would otherwise not be able to enjoy.[252] In doing so, it has defined the concept of 'intervention' very broadly so as to include even the sale of a multimedia device loaded with links to unauthorised streaming services[253] and the provision of a CD player and CDs in hotel rooms.[254]

Even if the provision of game keys were held not to be an act of distribution or communication to the public, however, there remains another set of acts on which liability could be founded — the acts of reproduction that will inevitably occur when the purchased keys are used to download copies of the video games concerned. These acts will be infringing except in the — extremely rare — case where the rightsholder permits the reselling of its games and the downloading of them by the subsequent publisher, and key resellers will be liable on an accessory basis for them.[255] This is in line with *ReDigi*, where the US Court of Appeals for the Second Circuit held that a platform which specialised in the resale of digital musical files was contributorily liable for the infringing acts of reproduction carried out by its users when they uploaded files to and downloaded files from its website.[256] It is also consistent with case law in Germany (the only EU jurisdiction with reported judicial decisions on the question of key reselling thus far), where the courts have held that the doctrine of exhaustion does not apply to the re-sale of non-activated product keys[257] for software *and* that where a product key has been transmitted by a reseller to a purchaser without the rightsholder's authorisation, the downloading of a copy of the software by the purchaser will amount to an infringement of the rightsholder's reproduction right.[258] Similarly, the Paris Court of Appeal has also held

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[250] *Capitol Records v ReDigi* 910 F 3d 649 (2nd Cir 2018).
[251] See Xiao B, 'Copyright Law and Non-Fungible Tokens: Experience from China' (2022) 30 *International Journal of Law and Information Technology* 444, 462 – 463.
[252] C-162/10 *Phonographic Performance (Ireland) Ltd v Ireland* [2012] 2 CMLR 29.
[253] C-527/15 *Stichting BREIN v Wullems (t/a Filmspeler)* [2017] 3 CMLR 30.
[254] C-162/10 *Phonographic Performance (Ireland) Ltd v Ireland* [2012] 2 CMLR 29.
[255] Kilduff-Taylor P, 'The Key Masters: Reselling and the Games Industry' (*Game Developer*, 25 September 2015) .
[256] *Capitol Records v ReDigi* 910 F 3d 649 (2nd Cir 2018). The platform was also held to have engaged in direct infringement of the rightsholders' distribution and reproduction rights.
[257] In practice, virtually all of the game keys resold via grey market channels will be non-activated product keys.
[258] Lober, Klein and Groothuis (n 241) 47 – 48.

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that the doctrine of exhaustion does not apply to digitally distributed video games and that attempts at engaging in the 'resale' of such games would implicate the reproduction right.[259]

The upshot of this is that individual key resellers and operators of websites that engage directly in key reselling will be liable on an accessory basis for infringements of the rightsholder's reproduction right that will inevitably be committed by their purchasers, and are also potentially directly liable for infringements of the rightsholder's right to communicate the work to the public. It seems likely that a grey market website which is structured strictly as a marketplace for third-party sellers to connect with third-party purchasers, and does not engage in any direct reselling of game keys itself, will nevertheless be liable on the same basis, given the fundamentally unlawful nature of the enterprise.[260]

In addition to litigation, rightsholders would also be able to use this as a basis for demanding that grey market websites — both those that engage in the direct reselling of game keys and those that operate as marketplaces for third-party listings — remove all unauthorised listings of their game keys, though again, this would only be effective if the website does operate a sufficiently robust notice-and-takedown procedure.[261] It may also be possible for rightsholders to obtain a blocking injunction against these grey market websites on the same basis.[262]

5.3.2. Business strategies

Several industry commentators have suggested that rightsholders who are concerned about key reselling should simply cease to offer game keys in ways that facilitate it.[263] Video game publisher Ubisoft has adopted a process called 'silent key activation', which links each purchased game directly to the purchaser's account; at no point does the purchaser receive a key that can be resold or transferred.[264] Some independent video game developers have even taken the unusual step of asking players to download unauthorised copies of their games rather than buying keys from grey market websites, given the

[259] Gal C et al, 'Game Over for Second-Hand Game Sales in France' (*Lexology*, 12 January 2023) .
[260] Lober (n 249). cf Kilduff-Taylor (n 255) (solicitors from specialist media and technology law firm Sheridans suggesting that such marketplaces would be in a similar position as eBay).
[261] Kilduff-Taylor (n 255) (the author, a developer, stating that key reselling website G2A's offer to accept formal takedowns for specific reasons 'seems like a shield against litigation rather than an attempt to reach out'). See also K Hilliard, '7 Entertainment Updates Terms to Prohibit the Resale of Humble Bundle Keys' (*Game Informer* 29 March 2014) ; Lober (n 249).
[262] Lober (n 249).
[263] See e.g. Procter L, 'On Serial Resellers, and SavyGamer's Role in Their Use' (*SavyGamer*, 29 March 2014)
[264] Batchelor J, 'Ubisoft and Genba to "Kill the Grey Market" with Silent Key Activation' (*Games Industry.biz*, 2 May 2019) .

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significant costs they incur in fielding customer service queries from purchasers who have obtained fraudulent or non-functioning game keys.[265]

It is technically possible for rightsholders to apply geo-blocking measures so as to prevent keys purchased in one region from being used in another region. However, the CJEU has recently ruled that such geo-blocking measures would amount to a breach of EU competition law where it creates trade barriers between EU member states.[266] Here, a number of video game companies had granted Valve, the operator of the well-known online distribution platform Steam, a licence to distribute certain of their games on a worldwide basis, including within the entirety of the European Economic Area (EEA). Subsequently, the video game companies requested Valve to set up geo-blocking measures in order to restrict cross-border sales of those games within the EEA. This conduct was held to be a breach of the competition law provisions in the Treaty on the Functioning of the European Union (TFEU)[267] and the EEA Agreement.[268] While this decision does not operate as a blanket prohibition against the granting of territorial licences by rightsholders, it does preclude rightsholders from imposing additional terms or measures (such as geo-blocking) where these have the aim and effect of creating segmentation within the internal market. It is also open to rightsholders to de-activate game keys that are found to have been obtained through grey market channels. However, this risks causing dissatisfaction and backlash among purchasers who may believe in good faith that they have paid legitimately for access to the game.[269] It has also been suggested that the problem of key reselling would be resolved to a significant extent if rightsholders were to permit the resale of their games.[270] This has yet to be taken up to any significant extent by the industry, and would in any event require a significant period of adjustment.

5.4. Conclusion

Video games industry rightsholders have a wide range of options open to them in deciding how to respond to various practices that impact negatively on their revenue stream. In deciding which of these — or which combination of these — to deploy, factors taken into account include speed, cost, efficacy, and the risks of alienating their player base.

In relation to the unauthorised distribution of their video games, rightsholders would have a very high likelihood of success in litigation against most of the parties involved in the process, including the 'uploaders who initially make unauthorised copies of their games available online, the users who download them, and in many cases, the

[265] Brown F, 'Developers Tell People to Pirate Their Games Instead of Using G2A' (*PCGamer*, 1 July 2019) ; Garcia (n 193) 293 – 295 (referring to this as 'remedial infringement').
[266] T-172/21 *Valve v Commission* [2024] 4 CMLR 3. This was foreseen in Lober, Klein and Groothius (n 45) 44.
[267] Treaty on the Functioning of the European Union, art 101.
[268] Agreement on the European Economic Area, art 53.
[269] Futter (n 244); Taylor-Kilduff (n 255).
[270] Taylor-Kilduff (n 255).

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operators of the websites that facilitate this unlawful activity. However, litigation is slow and costly, especially as the defendants are likely to be located in different jurisdictions and their identities are rarely known. Litigation against individual users is also likely to result in highly negative publicity. Accordingly, it may be prudent for rightsholders to adopt other forms of legal enforcement, such as seeking blocking injunctions against websites that facilitate the unauthorised uploading and downloading of video games, and making use of notice and takedown procedures where these are available. In addition, the use of TPMs is likely to be effective in reducing the most harmful type of unauthorised distribution, though rightsholders should be aware that some forms of TPMs are very disruptive to the player experience. In the longer term, rightsholders could also consider the possibility of moving towards business models that are less susceptible to this form of unauthorised distribution, though this would have to be balanced against considerations of whether these models are suited to the games they intend to develop and the player base to which they seek to market.

In relation to game cloning, the success of litigation will likely depend on the jurisdiction in which it takes place, as some jurisdictions appear more ready to treat certain forms of cloning as copyright infringement than others. In jurisdictions that are less willing to recognise game cloning as an actionable infringement, the law of unfair competition may well offer the strongest protection to rightsholders. Again, given the lengthy and expensive nature of litigation, rightsholders would be well-advised to pursue other strategies alongside — or even as an alternative to — it, such as seeking the co-operation of digital distribution platforms on which the clone is available to have it delisted.

Finally, when it comes to key reselling, rightsholders will have a good chance of success in litigation against key resellers, purchasers, and the operators of key reselling websites, at least in jurisdictions where the principle of exhaustion does not apply to digital copies of works. Other forms of legal enforcement are also available to them, such as seeking blocking injunctions against key reselling websites and making use of notice and takedown procedures where these are available. While it is open to rightsholders to de-activate game keys that have been obtained through key reselling websites, a factor they should bear in mind is that this could cause high levels of dissatisfaction and negative publicity among players. In the longer term, rightsholders could also consider moving away from distribution models that involve the transmission of game keys, and even to consider permitting the resale of games.

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6. Public support for the video games sector and competition rules

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6.1. General overview

6.1.1. Context and scope

The funding for video games in Europe is a particularly complex subject due to the various types of support available for companies in general, whether at local, regional, national, or European level.

This chapter aims to provide a generalised approach, considering only those public structures that: (1) specifically fund video games/video game studios, (2) offer broader funding where video games are clearly specified as eligible, (3) have previously funded a video game/video game studio. Consequently, the following are excluded: (1) programmes and other supports that do not provide direct financial contributions, (2) general organisations that have never funded a video game and have never mentioned it, (3) local structures where the amounts granted are not significant.

This chapter relies primarily on the database of public funders available on the Indie Plaza website,[271] a platform designed to help European independent video game studios with reduced financial resources to find specialised financiers, to identify the right financial tools at the right stage of their production development, and to locate experts from various fields (accounting, legal, marketing, etc.) with experience in the video games industry.

[271] Indie Plaza.

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6.1.2. Specificities of financing in the video games sector

Although most of the European public funds available for video games are associated with traditional audiovisual funds, video games stand out in particular, due to their distribution model (territorial for films versus global for games) through international platforms. In addition, the development of video games is not linked to a specific geographical area; thus, video game development models are more closely related to those for animated films than to those for fiction films. Another specific feature of the sector is that the business model associated with video games makes it particularly challenging for new players to enter the market, since almost all costs are incurred before the product is marketed and commercial success is highly uncertain.

Publishers play a major role in financing video games, as they generally cover a significant portion of the production costs, along with marketing and distribution expenses. However, the remaining part of the total budget still needs to be financed. Almost all independent studios lack the necessary internal funds, and the remaining options are traditional ones: banks and investment funds.

Venture capital (VC) funds play an important role in the development of the video games industry, as their financial contributions reduce the financial stress on developers and, above all, provide them with the "right to fail". Achieving major commercial success with a first game is difficult, and VC funds typically invest for the long term rather than for a specific project. However, there is a limited number of financiers specialised in the video games sector,[272] and their geographical distribution is uneven.

Additionally, obtaining a loan can be very difficult for a game studio.[273] Video games are now almost entirely digital products, resulting in the majority of a studio's assets being intangible. Traditional private financiers lack the tools to properly assess the value of games and studios, consequently deeming loan requests too risky and often rejecting them. Furthermore, the scarcity of public data in the industry (such as sales, revenues, costs, etc.) leads to difficulties in evaluating the potential sales.

6.1.3. Diverse approaches to public funding policies in Europe

It is within this context that public funding policies have emerged, aiming to support the launch of young studios by acting as the initial investor in their projects. Thus, all countries offering funding for video games provide at least an option for the development of a prototype. This is crucial because publishers generally require a prototype before discussing the financing of a game's development. As a result, funding a first playable version of the game not only helps to cover part of the total budget, but also makes it easier for studios to seek private funding. However, as the industry evolves, needs change

[272] Examples of funds: Hiro Capital, BITKRAFT Ventures, Makers Fund, Play Ventures, etc.
[273] Financing game businesses, Richard Faichney, Taylor Wessing, 10 April 2024.

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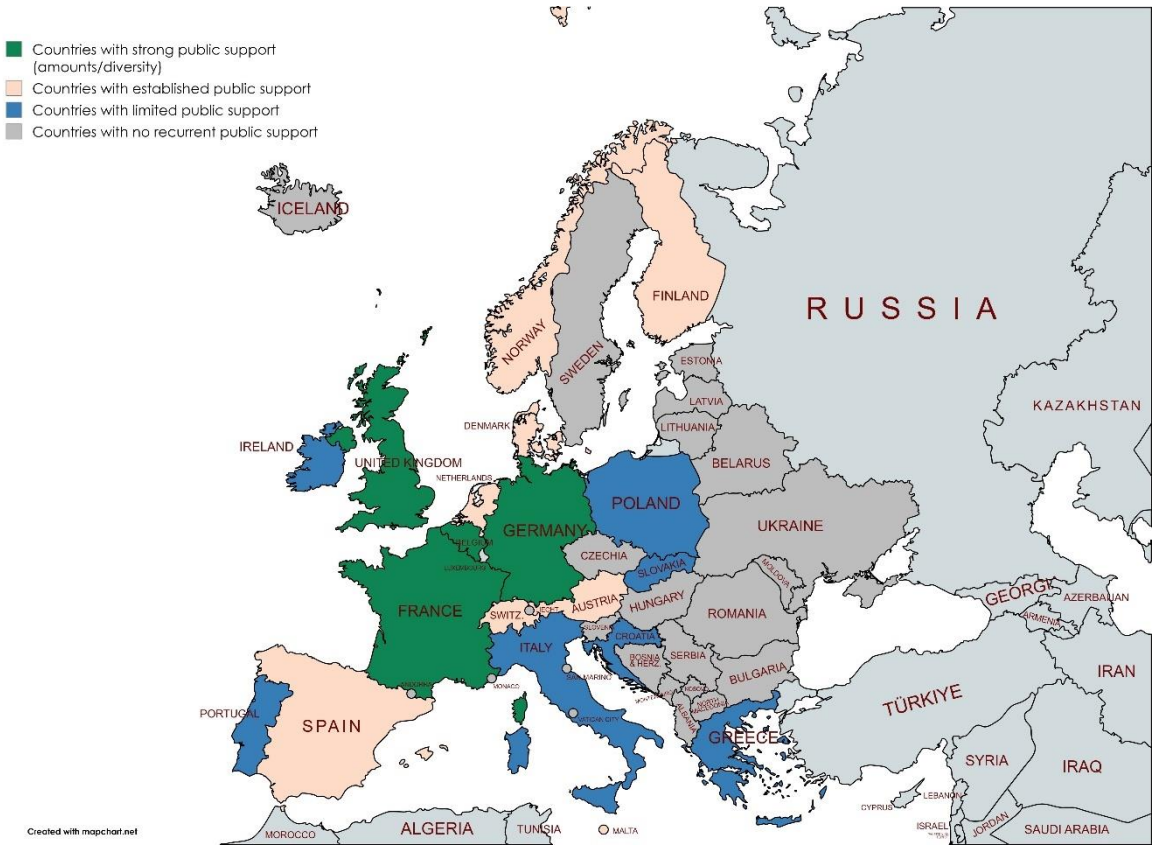
and increase. This has led to a diversification of funding offers, allowing studios to receive support in their growth.

The map bellow illustrates the variation in public support for video games across European countries. The colour gradient represents different levels of public support policies. Countries in dark green tend to have a very diversified offer, attractive amounts, or significant budgets (allowing multiple calls for applications per year). In contrast, countries in dark blue are beginning to implement support policies or are offering a very limited range of support to local studios. The countries in pale pink are those that offer established support for video games, but whose range of offerings and amounts remain relatively limited compared with the countries in dark green. The countries shown in grey represent those with no recurring aid recorded for video games, or where the amounts involved are negligible in relation to production costs.

Figure 5. Public support for video game development in Europe – different levels of public policies



Source: SpielFabrique (based on research as of July 2024)

As illustrated above, there is a very strong disparity between European countries. However, the lack of public funding policies does not necessarily imply the absence of a strong video games industry. As previously said, some funding opportunities not directly

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linked to video games (e.g. honour loans, aid and benefits granted to very small enterprises (VSEs), etc.) also exist but are not considered in this chapter.

Three main trends can be distinguished in Europe.

- Central countries are historically pioneers in video game funding. Under the initiative of traditional audiovisual funds, the first grants dedicated to video games appeared more than 20 years ago and have multiplied over the years, with France and Germany leading the rest of the countries.
- Northern countries, on the other hand, have implemented very few public policies aimed at financing video games. The region relies heavily on its impressive network of private financiers. Most founders of globally successful studios, which were later sold, chose to reinvest in the local industry, enabling the emergence of numerous studios.
- Central Eastern countries have a less generalised trend towards implementing public policies aimed at funding the video games sector. However, there is a significant responsibility on the part of publishers, such as CD Projekt[274] established in Poland, as well as a strong attractiveness due to a qualified and affordable workforce.

6.2. Recent trends in public funding in Europe

A significant array of financial instruments is now available in the video games industry. The majority of these instruments are specifically designed to support the development of video games in particular. However, there are a few exceptions that target the broader development of game studios in general.

6.2.1. The different phases in which funding intervenes

Before discussing the various existing financial instruments, it is important to define the different phases in which they can potentially intervene.

Concept	This phase marks the initial stage of development, allowing the definition of major game characteristics such as genre, lore,[275] and core mechanics.[276]
Pre-production	This phase is marked by the beginning of game production. It typically concludes with a playable prototype (or a vertical slice),[277] providing tangible

[274] CD Project.
[275] Lore refers to the collective background story, history, and world-building details that enrich the game's setting and narrative.
[276] Core mechanics refer to the fundamental gameplay systems and rules that define how the game is played.
[277] Vertical slice is the next step after a prototype. It aims to showcase a complete section of the game, like a chapter.

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	content to present to partners to secure funding for the completion of production.
Production	This phase encompasses the entire development process of the video game up to its final version.
Post-production	This phase includes the promotion of the game (marketing and communication) as well as the production of additional integrated content, or downloadable content (DLC), to increase the lifespan of the game. It may include the addition of a new playable character, a new storyline, new chapters, etc.

6.2.2. The different types of funding instruments

Although various funding methods are used by public funds, public debt and equity opportunities are still very limited. Most public funding is distributed through subsidies, such as grants, reimbursable loans, and tax incentives. While each option generally has its own specific features (such as constraints and costs), it is still possible to classify them into broader categories. This categorisation, as suggested by Indie Plaza, allows for easier comparison of funding models across different countries.

6.2.2.1. Studio investment

Studio investment encompasses all funding not directly related to the production of a specific video game. This form of investment aims to support the overall development and growth of game studios. However, such funding remains very limited in Europe.

6.2.2.2. Financial tools

While Europe offers a variety of financial instruments for the video games industry, the diversity of these instruments within any single country usually remains limited.

6.2.2.3. Grants

Grants are non-repayable support generally intended for a specific project. This is the most widespread financial tool, as it helps the youngest studios whose financial situation does not allow them to obtain funding otherwise. However, the maximum amount allocated remains limited for large-scale studios.

Generally, the amounts offered do not exceed EUR 200 000, although there are a few exceptions, such as the Federal Fund[278] in Germany, where the amount is theoretically

[278] See the website of the German Federal Ministry for Economic Affairs and Climate Action.

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unlimited. Indeed, the part of the total budget funded follows a degressive curve, but there is no explicit cap. Also, the fund has a "first come first served" approach, so the amount granted depends on the remaining budget. Additionally, grants may come with specific requirements (e.g. hiring an intern, etc.).

6.2.2.3.1. Repayable loans

A repayable loan is very similar to a grant, except that the studio must repay a part (or the total) of the funds granted based on its profits. In the event of a commercial failure, no repayment is required, just like with a traditional grant. The advantage of repayable loans for public funds is that they allow the recovery of a portion of the allocated funds, which can be used to finance future projects. Additionally, repayable loans generally offer a higher maximum amount than grants, reaching up to EUR 500 000.

6.2.2.3.2. Tax incentives

Tax incentives are not direct financial support but are very attractive for both studios and investors in the video games industry. They enhance the overall appeal of a country or region by reducing production costs for game developers, or by attracting private financiers, by making investment opportunities more attractive.

Tax incentives can be categorised into two main types:

- **Tax shelters:** a tax shelter is a financial vehicle designed to minimise income tax. In the context of video games, it serves to attract potential investors, by offering a very attractive investment opportunity. While the studio does not benefit directly, this mechanism helps to attract capital more easily.
- **Tax credit or rebates:** this type of incentive allows for a tax reduction on game production costs. It can be refundable or applied as a deduction to current or future taxes.

6.2.2.4. Other funding opportunities (loans, guarantees, equity)

Other funding opportunities are much rarer but do exist in certain countries. These activities are more often associated with private companies, hence their absence in public funding policies. Loans and guarantees need to be contracted through accredited banking institutions, typically found with public banks. Equity can come from public investment funds or specific political decisions.

European public funds offer at least one funding option in one of the phases mentioned previously. However, it is important to note that the sector is still very young, and many European funds have appeared in the last ten years. Nevertheless, this categorisation is becoming less and less suited to the evolution of the video games sector. In fact, these phases and their associated financial instruments are well-suited to

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so-called "premium" games but much less so to "free-to-play" games,[279] where most of the development occurs after the product is marketed. One might expect public policies to evolve, yet there seem to be very few changes today. Based on active discussions with public funds, it appears that the reason for this is that most European public funds have a cultural vocation, whereas "free-to-play" video games are considered to be purely economic products rather than cultural ones.

6.2.3. Cultural versus economic objectives in public support

European policies to support video games tend to promote, in practice, cultural rather than economic objectives.[280] From a legal standpoint, many public funding programmes are subject to the same regulations as traditional industries, namely the "de minimis" rule, which allows exemptions from state aid control for small aid amounts that are deemed to have no impact on competition and trade in the single market.[281] According to Commission Regulation (EU) 2023/2831 of 13 December 2023,[282] de minimis aid is capped at EUR 300 000 over a three-year period for businesses. This measure, aimed at limiting member states' investment in their industries to maintain fair competition, means that a video game studio cannot receive more than EUR 300 000 every three years from various local public funds.

However, as previously seen, certain financial instruments can exceed this cap, offering up to EUR 500 000 or more. Such aid falls outside the de minimis rule and requires European Commission approval. To qualify for this higher level of funding, the aid must be framed as support to cultural development rather than economic development and applicants must pass a "cultural test". This test's criteria vary from country to country, but generally, it remains very broad in scope, potentially limiting access to funding. For example, in Wallonia (Belgium), applicants must meet requirements in two out of three main categories: cultural context and content; cultural/creative platform; and artistic, creative and technological innovations.[283]

The classification of video gaming as a cultural or economic product remains a subject of discussion among public funds, as there is an infinite variety of games. However, based on a few answers[284] to a survey conducted by Spielfabrique among the

[279] See Chapter 1 of this publication for more details on business models in the video games sector.
[280] Creative Europe Programme (CREA), Call for proposals, Video games and immersive content development, Section 8.
[281] Unlike audiovisual works, video games are not covered, at the date of publication, by the 2013 Cinema Communication and the General Block Exemption Regulation (GBER). These regulations provide exemptions for certain aid schemes supporting audiovisual works from the notification requirement outlined in Article 108(3) of the Treaty on the Functioning of the European Union. This exemption applies to larger amounts of aid, provided they meet specific conditions and support cultural products.
[282] COMMISSION REGULATION (EU) 2023/2831 of 13 December 2023 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to de minimis aid (Text with EEA relevance).
[283] Section 2.4.
[284] Out of the 10 public funds contacted, 6 replied.

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members of the Game Public Funds Network (GPFN),[285] the observed trend is that video games eligible for public funding are considered cultural products. Nevertheless, their impact on the local economy is significant, and the economic aspect of video games needs also to be taken into account.

6.3. Cultural fund schemes

Cultural funds account for the vast majority of public funding for video games. Their legal status is often associated with cultural promotion, and they are often attached to the Ministry of Culture. This section will take a closer look at the National Centre for Cinema and the Moving Image (*Centre national du cinéma et de l'image animée* – CNC) in France, a historic fund for video games. It will also look at the Art Support Fund (FPU) in Slovakia, which appeared more recently.

6.3.1. France

In France, the CNC[286] is the primary public entity supporting the development of video games. It operates under the Ministry of Culture and has been financing video game production since 2008 through two distinct mechanisms: the Video Game Assistance Fund (*Fonds d'aide au jeu video* – FAJV)[287] and the Video Game Tax Credit (*Crédit d'impôt jeu vidéo* – CIJV),[288] the latter being linked to the Ministry of the Economy and Finance.

6.3.1.1. The Video Game Assistance Fund (FAJV)

The FAJV provides direct funding for video game production through three distinct schemes, each covering different stages of production:

- **Aid for writing (Aide à l'écriture):**

  Exclusively intended for authors (i.e. individuals), this assistance supports the development of all or part of a video game's design bible[289] *(commonly known as the game design document), which outlines all the characteristics of the upcoming game: game mechanics, narrative elements, graphic "bible", programming principles, and other technical specifications.*[290]

[285] More information on the GPFN.
[286] CNC.
[287] FAJV.
[288] CIJV.
[289] The term "bible" is commonly employed in the video game industry.
[290] Translation from CNC's website

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The CNC funds up to EUR 10 000, covering 100% of eligible expenses for the concept phase.

- **Pre-production aid** (Aide à la preproduction):

This aid supports all preparatory work for creating a game: the final writing of the design bible, the creation of the artistic charter, the detailed technical study, and the creation of a prototype to address technical and conceptual challenges and serves as a presentation tool for potential financial partners.[291]

The CNC funds up to EUR 200 000, covering up to 50% of eligible expenses for the pre-production phase.

- **Production aid** (Aide à la production):

This aid supports the actual production phase, following the completion of the preparatory work and before the game's commercialisation. It is conditioned on the development studio retaining the intellectual property rights of its game. This preexisting condition specific to this assistance aims to encourage the development of independent studios that create cultural and heritage value from the games they produce.[292]

The CNC funds up to EUR 200 000, covering up to 50% of eligible expenses for the production phase.

6.3.1.2. The Video Game Tax Credit (CIJV)

As described by the CNC, the CIJV is a fiscal incentive that allows game creation companies to deduct a portion of their production expenses from their taxes. It is one of the mechanisms supporting creation and innovation, aiming to position France as a leader in video game production.

The tax deduction rate is 30% of eligible development expenses up to a maximum of EUR 6 million per fiscal year. Certain European subcontracting expenses are also included in the calculation. This not only supports French cultural production, but also increases the country's attractiveness to major international studios.

The financial instruments listed above are not subject to the de minimis rule, due to their goal of supporting French cultural promotion; however, passing the cultural test is mandatory.

The CNC's primary objectives are to support, regulate, and promote the French industries of cinema, audiovisual media, and new media, including video games. The CNC pays particular attention to the originality, artistic quality, narrative elements, and

[291] Non-official translation of the CNC's website
[292] Non-official translation of the CNC's website

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economic aspects of submitted projects. Additionally, there is a strong focus on socio-ecological issues, such as respecting diversity and the upcoming requirement to measure the environmental impact of video game production using the Jyros tool,[293] an environmental footprint calculator to evaluate the carbon footprint, as well as other environmental criteria.

All video game production support options are grants; thus, the CNC seeks no return on investment but aims for direct support of cultural promotion.

6.3.2. Slovakia

There are other European funds with a strong cultural focus, such as the Art Support Fund (*Fond na podporu umenia* – FPU)[294] in Slovakia. Attached to the Ministry of Culture, it has been providing support to video games since 2016. Two funding options were on offer at the time of writing:

- **Creation of a Multimedia Game (pre-production):** The fund offers a grant of up to EUR 60 000, or 95% of eligible expenses for the pre-production phase.
- **Creation of a Multimedia Game (production)**: The fund offers a grant of up to EUR 100 000, or 90% of eligible expenses for the production phase.

Most European public funds co-finance a project up to a maximum of 50%. This is usually a standard limit, so project holders need to secure the remaining 50% from private investors and/or a publisher. Getting the approval of private stakeholders can be an indicator of significant economic potential for the game. However, the FPU offers a much higher ceiling. This allows for the support of projects with a very high artistic and educational value, which are less aimed at generating revenue, but rather at promoting Slovak culture and being used in an educational context (gamification). This higher funding ceiling helps to foster cultural and educational projects that might otherwise struggle to find financial backing due to their lower commercial appeal.

6.3.2.1. Other countries

As mentioned above, most funds have a cultural legal basis. In fact, most of the national ones are dependent on the Ministry of Culture, such as:

in Norway: the Norwegian Film Institute,[295] operating under the authority of the Ministry of Culture;

- in Spain: national funding managed directly by the Ministry of Culture and Sport;[296]

[293] Jyros.
[294] FPU.
[295] Norwegian Film Institute.
[296] Ministry of Culture and Sport.

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- in Denmark: the Danish Film Institute,[297] operating under the Ministry of Culture (Film Act of 1997);
- in the Netherlands: the Creative Industries Fund NL,[298] operating on behalf of the Ministry of Education, Culture and Science, and also of the Ministry of Foreign Affairs;
- in Croatia: the Croatian Audiovisual Centre,[299] operating under the authority of the Ministry of Culture and Media.

In some countries, it is possible to find both "economic" and "cultural" funds. This is notably the case in France, but also in Finland with Business Finland[300] (economic) and Finland's Promotion Centre for Audiovisual Culture (AVEK)[301] (cultural).

6.4. Economic funding schemes

A significant portion of European public funds are directed towards cultural objectives, yet some also prioritise economic development. Although video games are often categorised as cultural products, the video games industry holds a significant position in the market. Therefore, fostering its growth not only supports cultural expression, but also stimulates job creation and economic prosperity at the local level. This section provides examples in Belgium, Germany, Finland and France. There are other initiatives in Europe, but these tend to offer more general financing aimed at businesses rather than specific projects. Additionally, these funds are more generalist and often focused on tech and innovation.

6.4.1. Belgium

Wallimage,[302] the regional fund for the Walloon region in Belgium, established in 2001 to support the audiovisual industry, has been providing funding for the video games industry since 2014. Two support schemes are available to local studios, that is studios located in Wallonia. Almost all public funds limit the scope of their actions, at regional or national level, in order to support local companies or increase the attractiveness of their region. There are, however, some rare exceptions, such as Pro Helvetia in Switzerland.

[297] Danish Film Institute.
[298] Creative Industries Fund
[299] Croatian Audiovisual Centre.
[300] Business Finland.
[301] AVEK.
[302] Wallimage.

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6.4.1.1. Wallimage Gaming

Wallimage Gaming directly finances the development of Walloon video games. Two schemes, not subject to the de minimis rule, are available and both take the form of a conditionally repayable loan:

- **Pre-production funding**: Wallimage offers up to EUR 30 000 for the concept phase and up to EUR 100 000 for the development of a prototype (or pre-production phase).
- **Production funding**: Wallimage offers up to EUR 500 000 for the production phase.

To be eligible,[303] the applicant must propose a project which will have a structural impact on the video games sector in Wallonia; it must be based on a credible company with an established team, and have a relevant budget aligned with the proposed financing plan. The focus is on the economic aspect and its local impact. However, since the offer is not subject to the de minimis rule, the applicant must pass a cultural test.

6.4.1.2. Wallimage Enterprise

Wallimage also has a branch section dedicated to investing in audiovisual companies, including video game studios. Walloon studios can raise funds in the form of a loan, equity investment, or a mix of both. This measure supports the most promising local studios by providing an additional source of financing to attract potential private partners. Wallimage finances up to 50% of the identified needs.

6.4.2. Germany

There are other European funds with a strong economic focus, such as the Film and Media Foundation (*Film- und Medienstiftung NRW*) (Germany). Founded in 1991, this fund supports and promotes the audiovisual and media industries in the North Rhine-Westphalia region. It plays a pivotal role in fostering economic growth and cultural diversity within the North Rhine-Westphalia region through substantial support for the video games industry.

Support for video games began in the early 2000s, and today the fund ranks among Germany's largest in terms of financing. The Film and Media Foundation currently offers three distinct funding schemes for the video games sector.

- **Concept development:** the fund finances the concept phase with grants of up to EUR 20 000 or 80% of eligible expenses.
- **Pre-production development:** the fund supports the pre-production phase with grants of up to EUR 100 000 or 80% of eligible expenses.

[303] More details here.

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- **Production development:** the fund finances the production phase with grants of up to EUR 500 000 or 50% of eligible expenses. Unlike the previous two, this financial instrument takes the form of a repayable loan.

Similar to Wallimage, *Film- und Medienstiftung NRW*, in Germany, is no longer subject to the de minimis rule. Applicants must therefore undergo a cultural test to determine eligibility. It follows the same rules as the Wallimage test, i.e. applicants must fulfil at least two criteria from three main sections.

6.4.3. Finland

Business Finland[304] is a government agency dedicated to promoting the competitiveness of Finnish industries. Unlike most funds operating in the video games sector, Business Finland falls under the Ministry of Economic Affairs and Employment in Finland. They offer numerous financing options, some of which are applicable to the video games industry. These options include both grants and loans.

Finland already has a public fund (AVEK)[305] intended for the financing of audiovisual industries, including video games, but it is more geared towards cultural promotion. In contrast, Business Finland focuses on high-potential commercial enterprises, supporting their international ambitions.

[304] Business Finland.
[305] AVEK.

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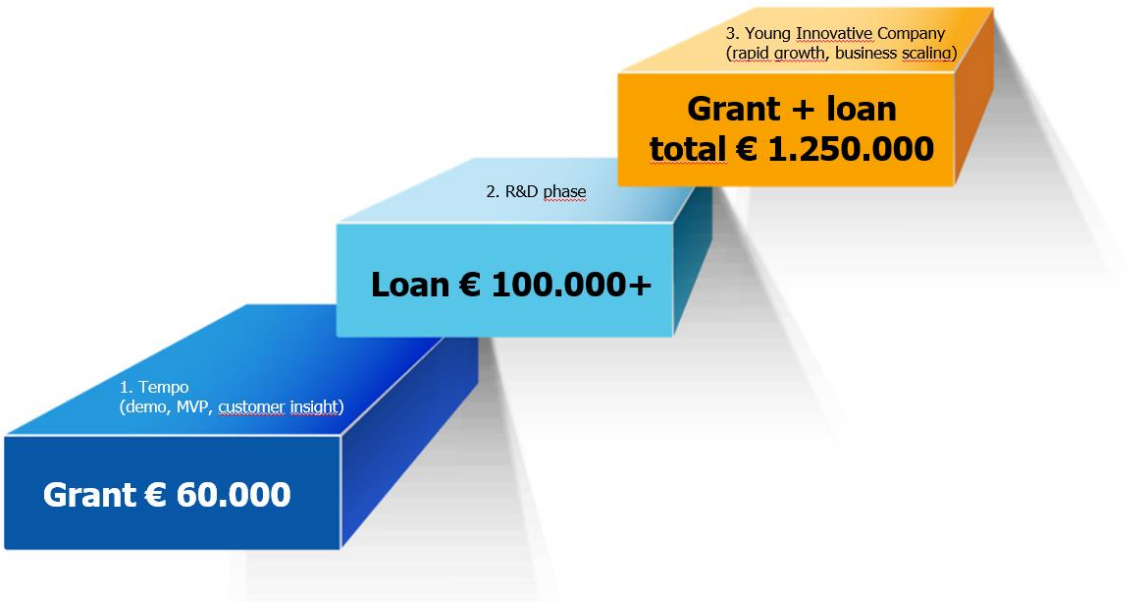
Figure 6. Example of funding options for video game companies



Source: Business Finland

Business Finland provides various funding offers, ranging from concept validation (testing the viability of the business concept, exploring demand in a new market and getting feedback from potential customers with Tempo funding),[306] to developing and piloting new products, services and business models (with funding for research, development and piloting)[307] and international business growth (strengthening the team and developing global growth strategy with Young Innovative Company funding).[308]

6.4.4. France

BPI France[309] is a French public investment bank. Although its resources come from various sources, including private ones, its capital is 100% public. BPI France is a fund particularly focusing on innovation, which includes video games. Similar to Finland, France has a public body (the CNC) dedicated to financing creative and audiovisual industries at the national level, as well as other funds at the regional level. BPI France, however, is more oriented towards technological innovation, financing innovative concepts such as virtual reality (VR) and blockchain.

[306] Tempo funding - Business Finland.
[307] Funding for research and development - Business Finland.
[308] Young Innovative Company funding - Business Finland.
[309] BPI France.

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6.5. Tax incentive schemes

Tax incentives are a significant draw for countries that implement them. There are two main types of tax incentive:

- **tax shelters**, which basically provide a tax deduction for investors, and
- **tax credits**, which basically correspond to a reduction/rebate in taxes.

Belgium is the only European country offering a tax shelter for the video games industry, introduced in 2023.

Regarding tax credits, the oldest video game tax credit in Europe was introduced in France in 2008 and is managed by the CNC on behalf of the Ministry of the Economy. The Video Game Tax Credit (CIJV), introduced in 2008, offers a tax reduction equivalent to 30% of eligible production expenses. Unlike other financing offers (which do not exceed EUR 200 000), the tax credit is very attractive for large studios, with a maximum amount that can reach EUR 6 000 000. Other notable examples include Italy (since 2021), which provides a 25% tax credit through the Ministry of Culture, Ireland (since 2022), where Irish Tax and Customs offers a 32% tax credit and Greece (since 2017), offering a 40% cash rebate through the National Centre of Audiovisual Media and Communication (EKOME).

The tax credit offers multiple advantages for a country. In the case of France, the objectives are as follows:

- **Offering a suitable option for the largest studios**

The CNC provides a range of funding schemes for video games. However, these schemes quickly become negligible when the total budget of the project exceeds EUR 1 million. In such cases, the tax credit emerges as a more suitable alternative. This mechanism does not incur direct costs to the public fund, effectively allowing for an uncapped budget for the largest studios. It is important to note that this financial support structure has limitations. The tax credit system imposes substantial and time-consuming administrative requirements, including extensive paperwork and associated costs. Consequently, for smaller-scale projects, the resources required to navigate this process often outweigh the potential benefits, rendering the system less advantageous for studios with more modest budgets.

- Making the country more attractive

Today, the largest video game publishers are constantly looking for new locations to establish studios. High-budget games often require the participation of about ten different studios worldwide. Thus, the tax credit allows the country to position itself as an attractive location for establishment. In the case of the CNC, subcontracting expenses can be included up to EUR 2 000 000, making it even more attractive to set up in France within the framework of developing a European game.

Unlike the tax credit, the tax shelter is not intended to help the studios directly but is in fact primarily aimed at investors looking for attractive financial placements. In

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the case of Belgium, the industry has a pool of ambitious studios but, like many countries, suffers from a lack of private investors. The tax shelter therefore makes investment in video games an attractive and low-risk placement, encouraging various local and foreign investors to finance the local industry.

6.6. Other approaches

6.6.1. Sweden

Sweden's video games industry stands out despite the absence of significant public funding initiatives. It is one of Europe's most vibrant and successful video game industries, boasting numerous international hits. The country leverages a robust network of private investors, often former founders of successful game companies, who actively support smaller studios.

Additionally, regional clusters have developed to nurture local talent and innovation. The Stockholm Stock Exchange[310] (Nasdaq Stockholm) has also become a hub for Initial Public Offerings (IPOs) of video game companies. According to the CEO of Media and Games Invest (IPO 2019), "Nasdaq First North has a well-developed gaming cluster and investors with extensive experience in the gaming industry".[311] Additionally, the success of previous IPOs further motivates successful companies to choose NASDAQ Stockholm over any other stock exchange at the end of the year.[312]

Sweden's strategy focuses predominantly on economic development by fostering private sector investments within the gaming industry.

6.6.2. Switzerland

In Switzerland, public funding for video games primarily flows through the Swiss Foundation for Culture, Pro Helvetia.[313] Established initially in 1939 to counter the Nazi propaganda, Pro Helvetia now promotes Swiss culture globally. According to discussions with their game department decision makers, grants allocated to video games emphasise cultural promotion rather than economic returns. Decision-making processes prioritise artistic and cultural value over financial profitability, reflecting

[310] Stockholm Stock Exchange.
[311] Nasdaq Stockholm Welcomes Media and Games Invest to Nasdaq First North Premier Growth Market, Nasdaq, 6 October 2020.
[312] Nasdaq Celebrates Innovative Gaming Company Embracer, The Largest Switch from Nasdaq's First North Growth Market to Nasdaq Stockholm, Nasdaq, 22 December 2022.
[313] Pro Helvetia.

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Switzerland's commitment to nurturing and showcasing its cultural heritage through digital mediums.

6.6.3. United Kingdom

Similar to France, the United Kingdom offers a diverse array of financial instruments through various public funds across the state, such as Creative UK, the British Film Institute, the UK Games Fund or British Business Bank. This multifaceted support system caters to studios of all sizes, backing projects that span both commercial viability and cultural significance. The availability of funding across different regions encourages geographical diversity in game development while fostering innovation in both creative and business aspects of the industry. Additionally, the UK has offered a tax credit since 2014, with a current rate of 34%, through the national taxing authority, His Majesty's Revenue & Customs[314] (HMRC).

6.6.4. Canada

Canada has been at the forefront of public funding initiatives for video games, establishing itself as a global leader in this sector. In the late 1990s, the region of Quebec decided to attract video games companies and voted, in 1996, for an attractive tax credit of up to 37.5% of the eligible expenditures. Coupled with their geographical proximity to the United States, their public funding policy ended up attracting international companies, such as Ubisoft.[315]

Nowadays, the Canadian government, as well as other regions, provides extensive support through grants, tax incentives, and funding programmes tailored to stimulate growth and innovation in the gaming industry. These initiatives have not only attracted major international studios but also nurtured a thriving ecosystem of indie developers across the country.

6.7. European Union initiatives

The European Union's involvement in funding for video games began to take shape in the late 1990s, initially with sporadic initiatives. However, it wasn't until 2014 that a dedicated and regular call for projects specifically targeting video games was established.

[314] His Majesty's Revenue & Customs.
[315] How subsidies helped Montreal become "the Hollywood of video games", NPR, 4 January 2022.

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6.7.1. Creative Europe – MEDIA programme

The Creative Europe – MEDIA programme[316] stands as a cornerstone initiative of the European Union, focused on bolstering the cultural and creative sectors. Since 2014, this programme has annually issued a call for projects accessible to all European countries participating in Creative Europe. It provides financial support in the form of grants aimed at fostering game development up to the production phase. However, the funding is primarily directed towards narrative-driven games that exhibit robust storytelling elements, highlighting high creative merit and cultural diversity.

The last call for projects[317] (ended in January 2024) had a budget of EUR 7 000 000. Video game studios could apply for a grant of up to EUR 150 000.

6.7.2. Horizon Europe

Horizon Europe[318] represents another crucial EU programme, primarily oriented towards funding research and innovation. Although traditionally targeting institutions and clusters rather than individual companies, Horizon Europe recognises the video games industry as innovative and has incorporated its new technologies into its targets.[319] Thus, eligible projects under Horizon Europe may encompass elements such as virtual reality (VR), artificial intelligence (AI), and other innovative technologies that enhance the gaming experience.[320]

6.7.3. European Investment Fund (EIF)

The EIF[321] plays a pivotal role in financing innovative SMEs across Europe, including those in the video games sector. EIF supports these businesses through guarantees on loans and investments in venture capital, thereby facilitating access to vital funding necessary for the growth and development of game studios. Furthermore, the EIF collaborates closely with financial institutions to offer more favourable loan conditions tailored to the needs of creative enterprises, thereby fostering within the industry an environment that is conducive to innovation.

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316 Creative Europe – MEDIA programme.
317 Video Game and Immersive content development, Call for proposals.
318 Horizon Europe.
319 Developing the video games and e-sports sector in the EU, European Parliamentary Research Service, June 2023.
320 AR/VR-empowered digital twins for modelling complex phenomena in new RI application areas, Call for proposal.
321 EIF.

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Table 3. Countries offering support and types of support at different stages

	Project Development				Other stages	
Funding Stages / Countries	Concept Phase	Pre-production Phase	Production Phase	Post-production Phase	Studio Investment (e.g. equity, growth financing…)	Tax incentives
Austria						
	Comments: Regional supports are mainly in Vienna region. The Studio Investment section is a generalist incubator.					
Belgium						
	Comments: Belgium's funding scheme is split in 2 major regions: Wallonia & Flanders.					
Croatia						
	Comments: Croatian support is quite recent, but other options are currently in discussions.					
Denmark						
Finland						
	Comments : Finland proposes large amounts for projects, through Business Finland					
France						
	Comments: France offers a wide a range of funding instruments. Options may vary from a region to another.					
Germany						
	Comments: Germany is composed of a network of strong regional funds. However, the question remains as to whether the federal fund will be maintained.					
Greece						
	Comments: Greece only offers tax incentives.					
Ireland						
	Comments: Ardán is the only regional fund in Ireland supporting video game projects; only the western regions have access to public funding in addition to tax incentives.					
Italy						
	Comments: Italy was previously funding projects through "First Playable Fund".					
Netherlands						
Norway						
Slovakia						
Spain						
Switzerland						
United Kingdom						
	Comments: The United Kingdom offers a wide range of funding instruments, both at national and regional levels.					

National

Regional

Both National & Regional

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PART III – Protecting users in the video games sector

As video games become increasingly integrated into everyday life, the protection of users and consumers has become as important as the protection of the games themselves. Part III of this report addresses several critical issues in this context, reflecting growing concerns about the impact and influence of video games on minors and other users.

First, the report highlights the crucial issue of privacy and cybersecurity risks, which are of paramount importance given the vast amount of personal data collected during gameplay. Second, it examines the protection of minors, recognising the particular vulnerabilities of minors and the various ways in which these are discussed and addressed. The third focus is on accessibility and inclusion of people with disabilities within the video games industry, recognising the importance of creating gaming experiences and environments that are accessible and welcoming to all players and developers. Finally, the last part of the report addresses the issue of national security, looking at hate and extremist activity in the video games sector and the challenges of detection, monitoring and investigation.

7. Data protection in the video games sector

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7.1. Introduction

The video games sector has become a multibillion-dollar industry with the number of online gamers worldwide set to surpass 1.3 billion by 2025.[322] At the same time, data protection has emerged as a critical concern in the digital age, particularly in this sector, where vast amounts of personal data are collected and processed. Personal data may be contained in user profiles, games preferences, purchase histories, and in-game behaviour, all of which can be used for targeted advertising, game development, and enhancing the user experience.

In the European Union, the General Data Protection Regulation (GDPR)[323] and the ePrivacy acts are key instruments of EU law for the protection of individuals' personal data and privacy. The GDPR, adopted on 27 April 2016 and in effect since 25 May 2018, sets rules for how personal data must be handled, ensuring individuals' rights such as the right to access, correct, and delete their data. The ePrivacy Regulation,[324] still under discussion, aims to replace the 2002 ePrivacy Directive.[325] It focuses on privacy in electronic communications, including rules for cookies, online tracking, and marketing communication. While the GDPR covers all personal data processing, the ePrivacy

[322] Clement J., "Online games - Statistics & Facts", *Statista*, 29 February 2024.
[323] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (GDPR).
[324] Proposal for a Regulation of the European Parliament and of the Council concerning the respect for private life and the protection of personal data in electronic communications and repealing Directive 2002/58/EC (e-Privacy Regulation).
[325] Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (ePrivacy Directive).

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Regulation specifically addresses online privacy issues. Together, these European acts work to protect players' privacy and to build trust in digital services across the EU. However, some researchers indicate that, a few years after the GDPR came into force, a significant number of game developers and publishers are encountering problems in embedding privacy into game productions using GDPR principles.[326]

This chapter examines some of the key legal and regulatory challenges faced by the video games industry in protecting personal data. It analyses the current legal framework and outlines the expectations for companies to achieve compliance with EU rules.

7.2. Privacy challenges on the video games battlefield

Understanding the different types of personal data potentially collected in games is crucial, both for compliance with regulations like the GDPR, and for enhancing user experience. Personal data in games can be included in anything from gameplay metrics such as play style and time spent in the game to more sensitive information like biometric data collected, for example, through advanced AR (augmented reality)/VR (virtual reality)/MR (mixed reality) headsets.

Other technological advancements, such as free-to-play (F2P) models, micro-transactions, and in-game advertising in game development also introduce significant data protection challenges. F2P games generate extensive data on player behaviours, including personal and financial information. The protection of this large volume of sensitive data presents substantial challenges. Furthermore, advanced tracking mechanisms, used to analyse player interactions and target advertisements, complicate privacy compliance, and require strict data handling procedures, especially when using external services for advertising and analytics. Obtaining informed consent from players in such circumstances, particularly from younger or less informed players, can be challenging. At the same time, game developers must implement privacy by design (Article 25 GDPR) and navigate privacy complexities to ensure lawful processing, safeguard user privacy, and provide transparency and clarity.

Neglecting to adequately consider privacy principles can have significant repercussions for developers. These include not only potential penalties but also negative feedback from users, each of which can independently lead to far-reaching consequences. *Civilization VI* may serve as a critical illustration of the heightened awareness and concern among players regarding privacy, as well as how insufficient transparency on the part of the game publisher can cause data collection measures to backfire. The game included a piece of software called Red Shell which was designed to measure the effectiveness of advertising, but many users decried it as spyware. Despite its intended purpose, the inclusion of Red Shell provoked a strong backlash from loyal *Civilization* fans who felt

[326] Alhazmi A. (2021), "I'm all Ears! Listening to Software Developers on Putting GDPR Principles into Software Development Practice", *Personal and Ubiquitous Computing*, pp. 879–892.

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betrayed and not sufficiently informed. In response to the outcry, the publisher announced that Red Shell had been removed from the game.[327]

7.2.1. Categories of data collected

According to Article 4(1) GDPR, personal data comprises any details relating to a specifically identified or identifiable natural person. This identification can be direct or indirect, using identifiers such as nicknames, online pseudonyms or location information.

During gameplay, given the specific conditions of interdependencies and linkages, personal data could even encompass various elements such as play style, calories expended, steps taken, and time spent engaging with the game. The specific data gathered depends on the nature of the game. Mobile games, for instance, may collect a diverse array of data stored on the player's device, including contact details and photographs depicting users and their relatives. Video game developers compile a spectrum of data into financial and non-financial categories. Financial data encompasses purchasing histories, spending patterns, and responses to tailored incentives. Non-financial information includes interactions with characters, completion times for tasks, and behavioural patterns during gameplay. Mobile games, virtual environments, and mixed-reality platforms gather extensive player information, including location data, interactions on social media, and lifestyle behaviours. AR/VR/MR headsets additionally capture biometric data such as posture, eye movements, gestures, facial expressions, and heart rate using audio, visual, and inertial sensors to monitor user positions and surroundings, potentially including bystander data. Since heart rate and similar biometric data falls into special categories of data under GDPR, their processing is subject to strict conditions, including the need for explicit consent and heightened protection measures.

7.2.2. Lawful bases for processing players' data

In compliance with Article 6 GDPR, any handling of personal data must be grounded in a lawful basis. Data controllers must justify processing personal data through one of the following six lawful bases:

- Consent: Article 6(1)(a) GDPR involves obtaining explicit permission from individuals to collect and use their personal data. Consent must be clearly given and cannot be assumed or bundled with other consents. Individuals must be fully informed about what they are consenting to and must have the option to withdraw their consent easily at any time.

[327] O'Connor A., "Civilization VI removes Red Shell ad-tracking software", *Rock Paper Shotgun*, 20 July 2018.

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- Contractual obligations: Article 6(1)(b) GDPR is justified when it is necessary to fulfil a contract with an individual. This includes any processing required to deliver agreed services or products.
- Legal obligations: Article 6(1)(c) GDPR applies when data processing is necessary to comply with legal or regulatory requirements. It excludes obligations arising from contracts and includes compliance with specific laws or guidelines that require data processing.
- Vital interests: Article 6(1)(d) GDPR allows data to be processed if it is essential to protect someone's life, particularly in emergency situations. This lawful basis is however rarely relied upon in video games.
- Public interest: Article 6(1)(e) GDPR is advised when it is necessary to carry out tasks that are in the public interest or under official authority. It is typically used by public sector organisations and its use is documented to ensure compliance with legal requirements.
- Data controller's legitimate interests: Article 6(1)(f) GDPR is a basis that allows processing if it is necessary for activities such as securing legal claims, fraud prevention or direct marketing, except where such interests are overridden by the interests or fundamental rights and freedoms of the data subject which require protection of personal data, in particular where the data subject is a child.

For game analytics, which often exceed the scope of contractual obligations, two primary bases are typically utilised: the video game company's legitimate interests and the explicit, informed consent of the data subject (player). For certain types of data, such as biometrics involved in analytics, video game companies must be very careful when designing their privacy procedures and choosing an appropriate lawful basis since, for example, legitimate interest may not always serve as a lawful basis.

In order to use the legitimate interest of the game developer or a third party as a lawful basis, game developers must ensure that the data processed is strictly necessary to fulfil those legitimate interests and is proportionate in relation to the interests of the data subjects. Instances where legitimate interests could be used include retaining player-developer communications for enhancing quality, gathering metadata to enhance server performance, and measuring in-game functionality to improve the product.

If relying on consent, it is essential to create user interfaces that clearly convey data practices and secure explicit consent in compliance with Article 6(1)(a) GDPR. Furthermore, users must have the option to decline data collection without compromising their gaming experience. Consent represents a widely used lawful basis for processing personal data, requiring the data subject to provide explicit, informed consent for a specific purpose. It must be freely given, specific, informed, and unambiguous. Once consent is granted, players retain the right to withdraw it at any time. The process of withdrawing consent should be as straightforward as giving it initially, ideally accessible through the same user interface, such as the game's settings or options menu. Withdrawal of consent must not disadvantage the player; it should be feasible without any cost or risk of reduced service quality. Relying on consent becomes problematic when processing personal data is crucial for the game's proper functioning, as consent under these circumstances may not be considered freely given but rather obligatory. Therefore,

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consent will not serve as the sole lawful basis for all processing activities, especially those not essential to the game's operation.

Yet, video game companies, in particular, may sometimes find these two lawful bases impractical or undesirable, prompting them to seek alternative lawful bases among the remaining four. Processing based on the performance of a contract (e.g. an end user licence agreement) should align closely with its purpose, notably in scenarios such as age validation mechanisms, financial particulars for transactions within the game, progression tracking within the game, and retention of email addresses for login purposes. Other bases, like protecting the vital interests of the data subject or another person as well as performing tasks in the public interest, may be less relevant to game developers.

Documenting and communicating the lawful basis for data processing to users, typically outlined in a game's privacy policy, is mandatory. Regular reviews ensure the basis remains appropriate and compliant with current regulations.

7.2.3. Transparency obligations

To ensure compliance with Articles 5 and 12, and eventually with Articles 13 and 14 GDPR, game developers must prioritise transparency in their data processing practices, particularly when actively utilising data analytics. Transparency requires providing data subjects with clear, concise, easily understandable information in a format that is readily accessible. This approach is crucial to mitigate legal risks associated with inadequate disclosure or ambiguous consent processes, which could lead to misunderstandings or objections from users regarding the handling of their personal data.

Central to GDPR compliance is the establishment of a comprehensive privacy policy tailored to the specific data processing activities undertaken by game developers. This policy serves as a foundational document that outlines essential details for data subjects.

The privacy policy must clearly articulate the purposes for which personal data is processed within the context of the game environment. This includes specifying the types of personal data collected, encompassing basic information and potentially sensitive categories. Furthermore, the policy should explicitly state the lawful basis under the GDPR that justifies the processing of personal data, ensuring alignment with one of the permissible grounds as discussed above.

In addition to detailing the data processing activities, the privacy policy must disclose any third parties with whom personal data may be shared. It should also address the transfer of personal data outside the European Union, specifying the safeguards in place to protect the data during such transfers.

Crucially, the policy must outline the retention period for personal data and the criteria used to determine this timeframe, ensuring transparency regarding data storage practices. Moreover, it should comprehensively explain the rights afforded to data subjects under the GDPR, such as the right to access (Article 15), rectify (Article 16), erase

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(Article 17), and restrict the processing of their personal data (Article 18). Clear instructions on how data subjects can exercise these rights should be provided as well.

In the event of concerns or complaints regarding data protection practices, the privacy policy should inform data subjects about the procedure for lodging complaints with the data controller or relevant supervisory authority. Lastly, the policy should describe how updates or changes to the privacy policy will be communicated to data subjects, ensuring ongoing transparency and compliance with GDPR requirements.

It is important to note that European privacy regulations often use legal jargon that may be difficult to understand for non-legal recipients, such as players and especially minors. Game companies face the challenge of communicating privacy notices clearly and effectively. One option to fulfil these obligations, although not that popular yet, is to gamify the relevant notices and present them in a simple manner when the player starts to interact with the game. There are many examples of game developers successfully adopting privacy policies that are user-friendly, e.g. Riot Games' privacy policy.[328] Furthermore, some legal documents of games companies are accompanied by concise, easy-to-read, and even humorous summaries of sections, which makes them much more attractive to read for the players. For example, CD Projekt RED's user agreement includes the full text and a summary written in a very casual manner.[329] The adoption of such an approach for privacy notices could potentially attract more attention from players, and could, in turn, contribute to a higher level of player awareness of privacy aspects.

7.2.4. Minors' data under the GDPR

When processing minors' personal data within the European Union, the GDPR establishes strict guidelines to protect their privacy (Recital 38 and Article 8) and addresses the need for heightened protection for children, who may be less aware of the risks involved in data processing, particularly in digital environments.

For video game companies collecting and processing the personal data of minors, the GDPR imposes a requirement to obtain verifiable parental or guardian consent or authorisation, especially when the player is under the age of 16. This applies to any personal data collected through gameplay, such as usernames, gameplay statistics, chat logs, or telemetry data. Individual EU member states may lower this age threshold to no less than 13 years, depending on local regulations. Parental consent must be explicit and ensure that the guardian fully understands how the child's data will be used, including for features like in-game purchases, social interactions, or player profiles. Video game companies are required to undertake reasonable efforts to verify that authorisation by the guardian is given.

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[328] Privacy notice written by Riot Games based in Los Angeles, a developer of such games as League of Legends or Valorant, 30 May 2024.
[329] User Agreement written by CD PROJEKT RED based in Warsaw, 20 July 2022.

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7.2.5. Transfer of personal data outside the European Union

Many video game companies operate on a global scale, with servers, development teams, and customer bases spread across different continents. Effective cross-border data management is essential for smooth operations and user experience.

A transfer of personal data to a country outside the EU (third country) may take place based on an adequacy decision, i.e. where the European Commission has decided that the third country in question ensures an adequate level of protection. In such a case, a transfer does not require any specific authorisation (Article 45(3) GDPR). If such a decision has not been issued, data may be transferred provided that appropriate safeguards are ensured, and on condition that enforceable data subject rights and effective legal remedies will be available (Article 46 GDPR). Consequently, when a video games company wants to engage a service provider from a third country, such safeguards will usually include signing standard contractual clauses (contracts between data controllers and/or processors in the EU and third countries, specifying the protection measures in place for data transfer). Other safeguards which are less frequently used include, for example, binding corporate rules (internal policies adopted by multinational companies to ensure data protection across their global operations), or explicit consent given by the data subject.

The transfer of personal data to the U.S. has been streamlined since 10 July 2023 when the European Commission announced a new agreement regulating data flow between the U.S. and the EU named the Data Privacy Framework.[330] The adequacy decision adopted concludes that the U.S. will ensure an adequate level of protection for personal data transferred across the Atlantic to U.S. companies participating in the EU-U.S. Data Privacy Framework.[331] By adhering to the framework, these entities can ensure compliance with EU data protection standards, thereby enabling smooth and compliant international data operations, fostering global collaboration, and enhancing player experiences.

7.3. Telemetry as part of data processing in the video games industry

Some forms of data processing in the video games industry may raise significant privacy concerns. One of them is telemetry – a key process for game analytics, referring to the collection, analysis, and reporting of data over a distance.[332] In the games industry, telemetry data covers various types of player behaviour and game performance information. This data is collected indirectly and includes metrics such as time spent

[330] The European Commission, "Data Protection: European Commission adopts new adequacy decision for safe and trusted EU-US data flows", Press Release, 10 July 2023.
[331] The list of participating entities can be found on the EU-U.S. Data Privacy Framework website.
[332] Drachen A., "What Is Game Telemetry?", *Game Analytics*, 23 August 2012.

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playing, session measurements, and in-game currency spending patterns. This type of data is considered personal data under the GDPR, if the player remains identifiable.

Behavioural data gathered for in-game telemetry purposes records how players interact with and respond to different elements within the game. This data conglomerate encompasses actions such as player movements, in-game transactions, duration of activities, and engagement with game elements like characters and interfaces. In well-known multiplayer games, players collectively produce about a terabyte of behavioural data daily.[333] This information aids developers in gaining insights into player interaction and game navigation patterns.

Based on documented patterns and empirical investigations, interactions within games can disclose details regarding a user's biometric identity classified as sensitive data, age and gender, emotions, skills, interests, consumption habits, and personality traits.[334]

The video games sector utilises telemetry for multiple reasons. Telemetry data is instrumental in enhancing game quality by identifying areas that need improvement. By examining aspects such as the difficulty of game levels, item popularity, and player attrition rates, developers can refine game mechanics to boost player engagement and retention. This detailed analysis helps in making informed adjustments to enhance the overall player experience. In addition to game enhancement, telemetry data helps to identify and address bugs and usability issues. By tracking player behaviour and identifying recurring patterns, developers can detect and rectify problems that may hinder the gaming experience. This proactive approach ensures a smoother and more enjoyable gameplay for users.

Another significant application of telemetry data is in maintaining the integrity of the game by detecting cheating behaviours. Analysing this data allows developers to uncover unfair practices, thereby enforcing fair play and ensuring a level playing field for all players. However, video game anti-cheat software has sparked debate due to privacy concerns. For example, *Valorant*'s anti-cheat tool faced a backlash from players who found it intrusive because it was allegedly operating continuously in the background, observing other activities even when the game was not active.[335]

Furthermore, telemetry data enables the personalisation of the gaming experience. For example, already in the 2009 horror game *Silent Hill: Shattered Memories*, an in-game system monitored players' choices and actions to construct psychological profiles.[336] These profiles then influenced the game's narrative and character interactions, creating a more tailored and immersive experience for each player.

Lastly, telemetry data may support the creation of targeted marketing campaigns by providing insights into player preferences and behaviours. This information allows

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[333] Rands K., "How big data is disrupting the games industry", *CIO*, 26 January 2018.
[334] Kröger J.L. et al., "Surveilling the gamers: Privacy impacts of the video game industry", *Entertainment Computing*, vol. 44, January 2023.
[335] Wilde T., "The controversy over Riot's Vanguard anti-cheat software, explained", *PC Gamer*, 8 May 2020.
[336] Silent Hill Wiki Fandom, Psych Profile Term, Online encyclopedia, 2019.

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developers to tailor in-game marketing efforts, determining optimal timings, content, and audience. Such targeted marketing, referred to as "profiling" under the GDPR, ensures that promotional activities are relevant and effective, enhancing the overall marketing strategy. Several marketing resources have released public statements promoting the use of targeted in-game advertising based on individual player data and larger demographic data.[337] However, video game stakeholders need to be cautious when collecting data and profiling it for marketing purposes, as non-compliance with the related privacy obligations may result in severe consequences. The French supervisory authority (*Commission Nationale de l'Informatique et des Libertés* – CNIL) imposed a fine of EUR 3 000 000 on 29 December 2022 on mobile games publisher VOODOO SAS.[338] The reason for the fine was a failure to obtain users' consent to process the user's technical identifier for advertising purposes. The CNIL audit showed that even when the user did not consent to tracking, the publisher still gathered information specific to the user's device and used it to deliver advertisements based on browsing habits.

Under Article 6 GDPR, video game companies are obliged to process telemetry data lawfully. Such processing activity is often unlikely to be considered necessary for the performance of the game itself. Depending on the level of profiling, developers may sometimes rely on legitimate interest as a lawful basis. Legitimate interest allows developers to process data for purposes such as improving gameplay, enhancing user experience, and ensuring game security, without requiring explicit consent from players. This can be particularly useful for routine data analysis and minor customisations.

However, when it comes to extensive profiling, the situation changes. Extensive profiling involves more detailed and possibly intrusive data analysis, which could significantly impact players' privacy. In some cases, telemetry data could also potentially be considered as biometric data which is classified as sensitive (a special category of data). Processing such data is generally prohibited unless specific criteria in Article 9(2) GDPR are met, such as obtaining the explicit consent of the players.

The bottom line is that the utilisation of telemetry data in video games ranges from game optimisation and bug detection to cheat prevention, personalised games experiences, and precision marketing. This comprehensive approach not only improves game quality but also enhances player satisfaction and engagement. Nevertheless, developers must carefully navigate the legal landscape, balancing the benefits of data analysis with the need to protect player privacy and comply with GDPR requirements. These activities ensure that the use of telemetry data is both effective and ethically sound, fostering trust and transparency between developers and players.

[337] Anzu, "How In-Game Advertising Is Reacting to Kid Safety Concerns in the Digital Realm", *The Drum*, 4 March 2024.
[338] *Commission Nationale de l'Informatique et des Libertés*, Decision No. SAN-2022-026, 29 December 2022.

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7.4. Appropriate safeguards against cybersecurity risks

7.4.1. Risks and safeguards

Due to the large amounts of personal data and confidential information which they possess, video game companies face numerous cyber threats that jeopardise both players' privacy and developers' business and reputation. Irrespective of the form of hacking attacks targeted at games companies, the resulting personal data breaches are a critical concern for them. These breaches can lead to the theft of sensitive information, including players' financial data, and the data is frequently sold on the so-called dark web or used for further attacks. The importance of data protection to prevent unauthorised access and potential misuse cannot be overstated.

One prominent type of attack is the phishing attack, which usually involves deceptive emails or websites designed to trick players into revealing their login credentials or personal information. These attacks can lead to account takeovers, the loss of valuable in-game items, and even malware installation on players' devices. For instance, in January 2022, a phishing attack enabled the attacker to seize control of around 50 prominent FIFA 22 players' accounts. The intruder then depleted the points and in-game currency from these hijacked accounts.[339] In the same year, a significant data breach occurred in the games industry involving Activision's internal servers. Initially, Activision assured the public that no game code, employee data, or player information had been compromised. However, subsequent reports indicated the potential theft of sensitive workplace documents and content release schedules.[340] Later, disclosures revealed that the breach might have included employee names, contact details, salaries, and other critical information. This incident highlights a persistent issue: it is often very difficult to determine the actual scale and consequences of an attack, while discrepancies between official statements and the actual severity of data breaches can potentially lead to legal consequences and have a very negative public relations effect.

In this context it is worth mentioning that a new piece of EU legislation has been proposed: the Cyber Resilience Act (CRA).[341] The proposal aims at raising cybersecurity standards for devices and software marketed in the European Union. Its goal is to ensure that digital products are less vulnerable to threats and meet specific quality standards. The CRA may also apply to the video game development industry, including game engines, like Unreal Engine, and the games themselves. Under the CRA, games and game engines would likely fall into the category of non-critical products, meaning they would

[339] IGN Entertainment Inc., "FIFA 22: EA Responds To High-Profile Accounts Being Hacked", Press Release, 11 January 2022.
[340] Toulas B., "Activision confirms data breach exposing employee and game info", *Bleeping Computer*, 21 February 2023.
[341] Proposal for a Regulation of the European Parliament and of the Council on horizontal cybersecurity requirements for products with digital elements and amending Regulation (EU) 2019/1020 (Cyber Resilience Act).

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face less stringent requirements compared to higher-risk software. Developers will be required to perform self-assessments to ensure their software complies with CRA standards. This includes ensuring the software has no known vulnerabilities, providing security patches, and maintaining a secure-by-default configuration. If vulnerabilities are discovered, especially those under active exploitation, obligations to report to the European Union Agency for Cybersecurity may apply. For critical software, an external EU-certified audit will be required, but non-critical software will only need self-certification.

To prevent breaches, protect players and maintain a secure gaming environment, game developers have to adopt proactive security measures. Adopting robust security practices includes encrypting player data, conducting regular vulnerability assessments, and promptly addressing any security weaknesses in games and servers. Maintaining transparent communication with players about security issues is as important as previously educating the player base on security awareness with regular publication of materials that highlight common cyber threats and scams, and stressing the importance of strong passwords, avoiding suspicious links, and downloading content only from trusted sources. By equipping players with knowledge, game companies can reduce the risk of cyber threats and enhance overall security.

7.4.2. When an incident does occur

When a data breach occurs, the general obligation (Article 32 GDPR) to take all appropriate security measures and to protect personal data and mitigate negative effects of the incident still applies. In line with Article 33(1) GDPR, a breach should also be reported to the supervisory authority without undue delay and, where feasible, not later than 72 hours after having become aware of it. An exception to that is when the data controller recognises that the breach is unlikely to result in a risk to the rights and freedoms of players. To avoid unjustified delay in this reporting, and thus any potential fine, companies should make sure they have efficient and robust reporting and incident response plans to investigate, address and report the breach promptly. In the games industry, where sensitive player information is at stake, the timely and accurate disclosure of data breaches is crucial as it is likely that the breach might result in high risk to the rights and freedoms of data subjects. In such a case, companies will often have to inform data subjects of the breach as well.

The substance of the breach notification is defined in Article 33(3) GDPR. In particular, a description of the nature of the breach should be provided to the authority, including, where possible, the categories and approximate number of data subjects and the categories and approximate number of personal data records affected by the breach, as well as the name and contact details of the Data Protection Officer or an indication of any other contact point from which further information may be obtained. The notification should describe the possible consequences of the personal data breach and describe the measures taken or proposed by the controller to address the personal data breach, including, where appropriate, measures to minimise its possible adverse effects.

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Breaches usually allow video games companies to learn from the incident, revise and continuously monitor the security of processing in the organisation. Thus, in relation to a reported breach, all measures should be implemented to minimise the risk to the rights and freedoms of individuals and to prevent similar breaches from occurring in the future. The practice of applying the GDPR since May 2018 is well-supported by numerous examples of data protection breaches but also with useful data protection guides. It is worth consulting Article 29 of the Data Protection Working Party's guidelines,[342] updated by the European Data Protection Board (EDPB) in 2023,[343] as well as the EDPB's guidance on examples of breach notification.[344] These include a very practical knowledge of the obligations in the event of a breach, which may be subject to potential ad hoc control by data protection authorities.

7.5. Conclusion

The video games industry is booming and expected to exceed USD 320 billion by 2026.[345] Amid this growth, the GDPR stands as Europe's cornerstone for data privacy, emphasising transparency and accountability. This sector's rapid technological advancements amplify concerns over data protection, particularly with the extensive collection of personal data like user profiles and gamers' behaviour.

With processes such as telemetry playing a pivotal role, players' data are a key component, including for in-game optimisation. However, game companies should be aware of the legal challenges raised by such procedures. From gameplay metrics to sensitive biometric data, compliance demands clear policies and lawful processing bases. Failure to adhere not only entails risks of legal repercussions, but also exposes games to cyber threats, disrupting gameplay and tarnishing games companies' reputations. In the face of these challenges, safeguarding user data and complying with the GDPR are paramount for sustaining player trust and industry growth.

At the same time, the European Union continues to expand its regulatory activities in the privacy field. The evolving landscape of privacy regulation presents a complex environment for game developers to navigate. The draft ePrivacy Regulation proposes expanded regulation of electronic communications data, which may, for example, impact in-game communication services such as chatrooms and instant messaging. Direct messaging between two or more players, accessible only by them, may fall within the scope of the regulation. Deriving any data from such messaging communications, for

[342] Article 29 Data Protection Working Party, Guidelines on Personal data breach notification under Regulation 2016/679, 3 October 2017.
[343] European Data Protection Board, Guidelines 9/2022 on personal data breach notification under GDPR Version 2.0, 28 March 2023.
[344] European Data Protection Board, Guidelines 01/2021 on Examples regarding Personal Data Breach Notification Version 2.0,14 December 2021.
[345] PricewaterhouseCoopers, Global Entertainment & Media Outlook report, 21 June 2023.

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example, for profiling, would be subject to conditions, including the requirement of players' consent.

Consequently, games companies must navigate complex regulations to balance data-driven innovations with player privacy rights under the GDPR and the upcoming privacy regulations. Successfully managing this balance can foster players' trust and loyalty, while enabling the development of personalised and engaging game features.

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8. Industry-led tools and solutions for the protection of minors in video games

Dirk Bosmans, Director general at PEGI S.A.

8.1. Introduction

For as long as video games have been commercially available, there have been concerns about the impact of playing games on young people. Controversies about video game content and debates about spending time and money on video games are probably older than many people think. When video games innovated drastically in terms of graphic quality in the 1990s, their expanded reach also meant that the debates intensified and measures for the protection of minors were developed in order to address these concerns. Broad stakeholder consultations and participation form a key component of successful initiatives related to the protection of minors in videogames. This approach establishes a framework for continuous dialogue, which is often considered important in a rapidly evolving market.

As a leisure activity, playing video games is a widely adopted pastime among the European population. More than half of people between the ages of 6 and 64 play video games. And although three out of four players are over 18 years of age, it is no surprise that video games are wildly popular among children and teenagers, as more than 70% of them play such games. And rather than sticking to one particular device, they tend to play across multiple devices – mobiles, consoles and PCs.[346] Video game companies have tapped into that potential by improving access to their games, across platforms and across demographics, without the requirement of a particular spending budget, with some games being available for free, and without the need to be in a particular location. Video games are available to all, and it is exactly this that raises concerns and questions when it comes to the protection of minors.

[346] https://www.videogameseurope.eu/publication/2022-all-about-video-games-european-key-facts/.

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8.2. Positive aspects of video games

Video games are a modern expression of an instinct in human nature that goes back as far as we have been able to gather information.[347] The social purpose of play and its critical role in the development of culture had been described long before the first video games burst onto an unexplored entertainment scene, which may in part explain the instant success that video games had as soon as they became widely available. Today, a number of cognitive, psychosocial, physical, and educational benefits from playing video games, for both children and adults, are well-researched and generally acknowledged.

Cognitive:

- Various game genres challenge players of all ages to maintain focus, to think fast, to apply spatial visualisation, and to develop problem-solving strategies.[348]
- Simulators have become essential environments to learn and master complex skillsets (e.g. in medicine or aviation).[349]

Educational:

- Teachers use video games in classrooms as helpful tools to increase the involvement and enjoyment of pupils in specific subjects, merging problem-solving and self-management with narrative structures and social interaction.[350]

Physical:

- Exercise games (or exergames) challenge players of all ages to improve their physical fitness by moving, dancing, walking or performing a variety of sports.[351]
- Video games are used as a tool in physical therapy to recover or improve fine motor skills, for example for children with cerebral palsy.[352]/[353]

Psychosocial:

- Mental rehabilitation programmes battle conditions like post-traumatic stress disorder (PTSD)[354] or depression[355] with the help of video games.
- Online video game communities can develop into social tribes that provide members with a strong sense of identity and belonging, which contributes to their well-being, self-esteem, and ability to empathise.[356]/[357]

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[347] https://en.wikipedia.org/wiki/Homo_Ludens.
[348] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2871325/.
[349] https://www.makeuseof.com/simulation-games-used-in-real-life/.
[350] https://www.videogameseurope.eu/wp-content/uploads/2023/09/Guidelines-Games-in-Schools-2023_FINAL.pdf.
[351] https://www.wired.com/story/great-exercise-games/.
[352] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4688462/.
[353] https://pubmed.ncbi.nlm.nih.gov/23030054/.
[354] https://www.sciencedirect.com/science/article/abs/pii/S0277953618304763?via%3Dihub.
[355] https://link.springer.com/article/10.1007/s11920-022-01314-7.
[356] https://www.nationalgeographic.com/family/article/video-games-might-be-good-for-kids-now-coronavirus.
[357] https://www.liebertpub.com/doi/10.1089/cyber.2021.29211.editorial.

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- Games, regardless of their complexity, can provide stress relief and an immersion that fosters creativity and happiness (a state of "flow").[358]

Today, the child's right to play is internationally recognised and actively promoted.[359] Typical aspects of video games such as problem-solving, strategic thinking, and decision-making can have a positive impact on the development of children's physical science, technology, engineering and mathematics (pSTEM) skills. Research has shown how young girls who identify as avid gamers are three times more likely to pursue a pSTEM degree, which means that video games have the potential to serve as an important indicator and motivator to improve the gender balance in specific studies and later careers.[360] All of this has led to a more balanced and inclusive approach to the protection of minors in video games. If proper measures are taken to allow children to play games that are appropriate for their age, video games can be a force for good with benefits at an individual and societal level.

8.3. Concerns and risks

8.3.1. Video game content

Concerns about the impact of video game content dominated the public and scientific debates for a long time, and often went hand in hand with concerns about video game addiction (cultivating the stereotype of the socially isolated child playing violent games in their bedroom). The release of the popular yet controversial games *Mortal Kombat* and *Night Trap* in 1992 generated a political and academic discussion about the effects of video game content, and violence in particular, on children. One immediate effect of this was the founding in 1994 of the Entertainment Software Ratings Board (ESRB) in the United States, a self-regulatory content rating system for video games.[361]

Studies claiming that violence in video games had a harmful effect on players, particularly children, appeared frequently over the next two decades, until literature reviews, meta-analyses and new research[362] started pointing out contradictions and flaws

[358] Csikszentmihalyi M. (1990), *Flow: The Psychology of Optimal Experience*, Harper & Row.
[359] https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child#:~:text=her%20own%20language.-,Article%2031,2.
[360] https://www.sciencedirect.com/science/article/abs/pii/S0747563218304862.
[361] https://www.esrb.org/history/
[362] https://pubmed.ncbi.nlm.nih.gov/37975654/.

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in the existing research, and found that the impact[363] was much smaller than initially claimed, or even non-existent,[364] which led to some of these earlier studies being corrected or retracted.[365]

These evolving academic insights caused a shift in perception that diminished the attention on potentially harmful effects of video game content; the generation of young players from the 1990s and early 2000s are now grown up with children of their own, seemingly without any broad societal impact resulting from their pastime as kids. The introduction of efficient age classification systems further helped to alleviate concerns while new academic research recalibrated the debate in a different direction.[366]

Regardless of the developments in the academic debate, there is broad consensus that parents should continue to be notified about the content of video games, specifically because not all games have children as their target audience. For this reason, age classification systems like PEGI (Pan-European Game Information) are still actively used today, but they have pivoted their narrative from "harmful content" to "inappropriate content". Aspects like violence, frightening scenes, depictions of or references to sex, drugs, gambling, and inappropriate language are still highlighted to assist parents and carers in making an informed decision.

Due to the rapidly evolving nature of video games, the focus of concern nowadays is less on content-related matters. The games market underwent some drastic transformations: the rise of mobile video games, as well as the general shift from physical to digital distribution and from offline to online experiences have certainly broadened the appeal of games and brought along an expanded, more diverse audience (which in turn stimulated the development of a more diverse offering of and in video games). New developments, as always, come with new concerns as: parents still want to know what content is present in a game, but are also interested to learn about what their children are saying and hearing from others when playing (e.g. user-generated content, toxic behaviour), whether they can spend money in video games (e.g. virtual items such as in-game currencies, loot boxes), and how long children can play video games every day or week (e.g. excessive play, screentime debates).

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[363] Ferguson C. J. (2015b), "Do angry birds make for angry children? A meta-analysis of video game Influences on children's and adolescents' aggression, mental health, prosocial behavior and academic performance", *Perspectives on Psychological Science*, 10, pp. 646-666.

[364] https://link.springer.com/article/10.1007/s00278-023-00670-w.

- https://www.researchgate.net/publication/281861066_Finding_the_Middle_Ground_in_Violent_Video_Game_Research_Lessons_From_Ferguson_2015.
- https://pubmed.ncbi.nlm.nih.gov/30891250/.
- https://www.ox.ac.uk/news/2019-02-13-violent-video-games-found-not-be-associated-adolescent-aggression.
- https://www.sciencedirect.com/science/article/abs/pii/S2352250X20300038.

[365] https://retractionwatch.com/2017/01/20/boom-headshot-disputed-video-game-paper-retracted/.

[366] https://www.sciencedirect.com/science/article/abs/pii/S0022103115300093.

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8.3.2. Playtime

The debate about video game addiction has gone through various stages, following the technological trends in the sector.[367] It was studied in the era of video game arcades, it returned as a topic of interest when children started playing on home consoles in the relative isolation of their bedrooms, and it expanded when online games took off at the beginning of this century, particularly in the context of "massively multiplayer online role playing games" (MMORPGs). Mobile phones and the popularity of activities such as video games and social media have added a new chapter to that debate in recent years. Being "addicted" to games was and is an often-heard claim, not necessarily with a negative connotation. Because of this broad semantic application and without a clear definition, it can be difficult to distinguish between people being very passionate about video games and people requiring help to deal with an excessive use of video games.

It is very clearly a global concern, with organisations and governments across the world discussing the dangers and harms of excessive gaming, and seeking ways to address the issue. In 2011, South Korea banned children under the age of 16 from accessing online PC games between midnight and 6 a.m. in an effort to combat excessive gaming and sleep deprivation. However, the so-called "Cinderella Law" was repealed in 2021 after strong criticism and a lack of evidence that the measure was in any way effective.[368] It shows that a profound understanding of the phenomenon on the basis of long-term research is needed.

In 2018, the World Health Organization (WHO) included "gaming disorder" in the 11th edition of the International Classification of Diseases (ICD-11) by defining it as:

> *a pattern of gaming behaviour … characterised by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation or escalation of gaming despite the occurrence of negative consequences*.

It states that only a small proportion of people who engage in gaming activities are affected. Although assessments can vary strongly, a worldwide prevalence of 2-3% is often quoted.[369]

A growing body of research specialises in the effects of excessive gaming on minors, in particular on teenagers.[370] There seems to be a broad consensus that more (longitudinal) research is needed to distinguish the various internal and external risk factors that can lead to gaming disorder, and their interplay with other diagnoses (such as obsessive compulsive disorder, ADHD, etc.), as well as the impact on young people's development.

[367] https://irep.ntu.ac.uk/id/eprint/5976/1/211418_PubSub798_kuss.pdf.
[368] https://www.koreaherald.com/view.php?ud=20211115000803.
[369] https://journals.sagepub.com/doi/full/10.1177/0004867420962851.
[370] https://onlinelibrary.wiley.com/doi/10.1111/dmcn.13754.

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In the EU, players spend an average of 8.8 hours per week on video games. After a mild spike in the COVID-19 years, where it went up to 9.5 hours, it is now back to pre-pandemic levels.[371] Despite their broad popularity, this does not make video games the number one activity for most children: social media keep people entertained for an average of 14 hours per week, while television still tops the charts with 24 hour per week.[372]

When the WHO announced its intention to include gaming disorder, an international group of academics pleaded with them to postpone the inclusion, stating that the scientific basis for the decision was weak and that there was a genuine risk of abuse of diagnoses.[373] This debate is unlikely to be dropped, but further research can now be undertaken within the existing framework of the WHO diagnosis and international guidance can be developed regarding possible treatment for people who need help.

8.3.3. Social interaction

Social interaction in video games can lead to great experiences, forming dedicated communities and long-lasting virtual friendships. But, as in real life, inappropriate and harmful behaviour can also be found in online gameplay. Video game communities are in almost every facet a reflection of society in general, which means that certain groups are vulnerable to harassment, in particular women, people of colour and the LGBTIQ community, but age, religion, nationality, or simply their game skills can make people a target as well, and being underage makes them extra vulnerable.

Toxic communities cause people to turn away from the multiplayer games they love, while children may have encounters that are not appropriate for their age, even though the game itself may be. If the primary reasons for playing video games are to have fun and to relax,[374] online misbehaviour has the potential to make people lose interest in video games as a hobby. Toxicity in video games is multifaceted (trolling, bullying, doxxing, etc.) and inappropriate behaviour (e.g. cheating or griefing)[375] holds a risk of becoming normalised by players (it is seen as a part of competitive play)[376] while forcing others into coping strategies that are indirectly tolerant of the inappropriate behaviour.[377]

Most parents do not allow younger children to play online multiplayer games that lead them to interact with people they don't know or they closely supervise their

[371] https://www.videogameseurope.eu/wp-content/uploads/2023/08/Video-Games-Europe_Key-Facts-2022_FINAL.pdf, p. 11.
[372] EU Audiovisual Observatory, Yearbook 2022/2023, p. 31.
[373] https://osf.io/preprints/psyarxiv/kc7r9.
[374] https://yougov.co.uk/technology/articles/39610-why-do-gamers-game.
[375] https://en.wikipedia.org/wiki/Griefer
[376] https://www.researchgate.net/publication/351418087_Don't_You_Know_That_You're_Toxic_Normalization_of_Toxicity_in_Online_Gaming.
[377] https://www.researchgate.net/publication/355439660_Exploring_toxic_behavior_in_multiplayer_online_games_perceptions_of_different_genders.

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activities.[378] But teenagers, who have yet to fully develop their social skills, can also be particularly vulnerable to negative experiences in online gaming, which means that a particular layer of protection for underaged players is necessary (see section 4.2 of this chapter).

8.3.4. In-game monetisation

For a few decades, the video game business model was conventional: it was released on a physical carrier like a disc or a cartridge and distributed across markets via traditional retail channels. But the online and specifically the mobile revolutions of the last 20 years have caused a serious transformation of the way in which companies aim to make a profit from video games. Online games made it possible to deliver a continuous stream of content updates to a video game, significantly extending the lifespan of a video game title. Instead of a sequel, or a different game title, players can purchase additional downloadable content (DLC) or subscribe to content updates (season pass). When video games became apps on smartphones, they followed the business model of that environment: whereas both physical and digital releases for PC and console have a retail price that averages around EUR 70 today,[379] games apps are considerably cheaper, and most of the time free to download. Income from these games is generated primarily via two streams: in-game advertising and/or digital purchases – also known as microtransactions.[380] There are concerns about the ways in which players are invited or tempted to make purchases of in-game content, but also about the way in which the European video games sector can thrive and compete globally while adhering to the EU's consumer protection regulation. This specifically applies to (young) children as they may be less resilient to withstand marketing pressure or less savvy about the purchase value of products, especially if the settings in a game and/or platform allow for simple and quick purchasing of in-game items.

[378] Children and Parents: Media Use and Attitudes Report, Ofcom, 19 April 2024, p. 21.
[379] https://www.gamesindustry.biz/are-video-games-really-more-expensive.
[380] See Chapter 1 of this publication for more details on business models and revenue streams in the video games sector.

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8.4. Discussions and possible solutions

8.4.1. Content classification (PEGI)

8.4.1.1. History

The public debate that took off in the 1990s about the potentially harmful impact of violent video game content on children, as described above in section 3.1., was quickly met with a response by the industry. The UK trade federation, the Entertainment and Leisure Software Publishers Association (ELSPA), launched a voluntary rating system for video games in February 1994.[381] In September of that same year, the Entertainment Software Ratings Board (ESRB) was founded in the United States.[382] Also in 1994, the German sector federation set up the *Unterhaltungssoftware Selbstkontrolle* (Entertainment Software Self-Regulation Body – USK). Starting off as a voluntary system, ratings for video games became mandatory in Germany after an update of the German Youth Protection Act in 2003.[383]

In February 2001, the Swedish presidency of the Council of the EU organised a workshop to discuss self-regulation, harmonised across the European Union, as a solution to protect minors against unsuitable content in video games.[384] A working group of classification experts was brought together by the Interactive Software Federation of Europe (ISFE – currently Video Games Europe – VGE),[385] the European trade body representing the publishers of video games, to discuss the feasibility of a pan-European age rating standard for video games. A resolution by the EU Council from March 2002 further specified that consumers, in particular young people, should be better protected via an age labelling system for video games.[386]

PEGI[387] was founded by the ISFE in April 2003 and officially inaugurated by EU Commissioner Viviane Reding. Today, the PEGI rating system is used across all of Europe,[388] with the exception of Germany.[389] It has issued nearly 40 000 age classification

[381] https://playstation.fandom.com/wiki/Entertainment_and_Leisure_Software_Publishers_Association.

[382] https://www.esrb.org/history/.

[383] https://usk.de/alle-lexikonbegriffe/jugendschutzgesetz/.

[384] https://data.riksdagen.se/fil/81D9F8C0-1EFC-4A83-ADBE-3901BEF65DAE, p. 111-113.

[385] https://www.videogameseurope.eu.

[386] https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:065:0002:0002:EN:PDF

[387] https://www.pegi.info

[388] Game products with PEGI labels can be found in Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Kosovo, Latvia, Lithuania, Luxembourg, Malta, Moldova, Montenegro, the Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine and the United Kingdom.

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licences for video games. As a model of European harmonisation in the field of child protection, it has received the continuous support of the European Commission.[390]

8.4.1.2. Methodology

PEGI provides players and parents with two levels of information: five age labels, advising on the recommended minimum age of a player and eight content descriptors that explain why a specific age rating has been given to a game.

PEGI ratings consider the age suitability of a video game, not the level of difficulty. Games with a PEGI 3 rating do not contain inappropriate content, but some may be too difficult for younger players to master. Conversely, PEGI 18 games may be very easy to play, but they contain elements that make them only appropriate for an adult audience.

PEGI age classifications are determined by a set of content criteria which are translated into simple yes/no questions that publishers have to answer in a process of self-declaration. Two independent administrators, the Netherlands Institute for the Classification of Audiovisual Media (NICAM) and the Games Rating Authority in the United Kingdom, subsequently play through the game in order to confirm or alter the provisional rating that was generated by the publisher's responses.[391]

A licence with the relevant PEGI age rating and content descriptors is then issued to publishers who are required to display the information on video game packaging, digital storefront listings and in promotional campaigns. To ensure consistency and credibility, the PEGI system is built on a code of conduct, a set of rules that deal with age labelling, promotion, monetisation and online interaction to which a publisher using the rating system is contractually committed; sanctions can be enforced in the event of an

[389] USK is used instead of PEGI in Germany. The content classification applies to where it is sold, not to where it was developed: a German game needs a PEGI rating to be sold in e.g. Sweden or Austria. Likewise, Swedish and Austrian-developed games need a USK rating to be sold in Germany.

[390] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52008DC0207.

[391] https://pegi.info/page/how-we-rate-games.

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infringement.[392] It also offers the possibility of consumer redress as well as an appeals process for companies.[393]

Like other classification systems around the world, the PEGI system was built to handle a steadily growing stream of games that were released on a physical carrier (disc, cartridge or plug-n-play device). An examination prior to the release of the game ensured that the information provided to parents and players was robust and reliable. The swift rise of online gaming and the quick expansion of mobile platforms for gaming changed the landscape in such a way that other procedures to apply the same criteria had to be explored. To that end, the International Age Rating Coalition (IARC) [394] was founded in 2013: in cooperation with rating boards from Australia, Brazil, Germany, South Korea and the United States, a technical solution was developed to allow millions of digital-only apps and games to get a classification following a codified process similar to PEGI's. Since 2003, PEGI has issued between 1 600 and 2 400 licences per year to video game publishers. However, in order to deal with vast storefronts like Google Play where millions of mobile apps can be found, the international cooperation of IARC pools expertise and resources: when developers are about to release a mobile game (or any other mobile application), they need to complete a questionnaire that aggregates the classification criteria of every participating rating board. Consequently, the app can be published with an age classification for every region where it is made available. An app can therefore have a PEGI rating for Europe, a USK rating for Germany, a Games Rating and Administration Committee (GRAC) rating for South Korea, ESRB in the US, ClassInd in Brazil, etc. The administrators of the IARC rating boards perform continuous rating checks, both methodically (with a particular focus on the most popular titles) as well as at the request of game companies and players. The digital nature of mobile storefronts allows the rating boards to alter any inaccuracies immediately on-screen once these have been identified.

Video game console manufacturers (Microsoft, Nintendo, and Sony) require every game that is released for their devices to have a PEGI rating. Google requires publishers of apps to get a PEGI rating that is displayed to consumers in Europe. Apple has developed its own age rating system that publishers must use. Steam does not require the display of age rating information.

8.4.1.3. Organisation

It is not only the policies of the European Union that are reflected in the way the PEGI system has developed and expanded. With PEGI in use in almost 40 countries it is vital that the system stays in sync with social, political and legal developments in all of these countries. A specific body in the PEGI organisation, the PEGI Council, is responsible for

[392] The PEGI Enforcement Committee is an internal body, but there is a 50% representation by public officials (already active in other PEGI committees). See details at: https://pegi.info/page/complaints-and-enforcement-cases.
[393] https://pegi.info/pegi-code-of-conduct.
[394] https://www.globalratings.com.

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making recommendations to ensure that national developments are communicated and reflected in the PEGI system and its Code of Conduct. The Council gives the PEGI countries a voice, but it is equally important that the authorities in the PEGI countries stay informed about the rapidly developing games industry, ensuring a two-way flow of information. Members of the Council are therefore primarily recruited from authorities in the PEGI countries, working as civil servants versed in the protection of minors in Europe.[395] A growing number of countries have strengthened their official support for the PEGI system by integrating it into national law, giving PEGI the status of a co-regulatory system. Countries like Iceland, Lithuania, the United Kingdom, and the Vienna region in Austria have all provided a direct legal basis for the mandatory display of PEGI ratings on game products in retail sales. The position in national law is however very dependent on the structure of national legislation. Not all countries are legally able to refer to an international system without a particular national status. While some countries explicitly recognise PEGI in law, others officially approve the compatibility of PEGI with national requirements on labelling or endorse the system by means of official statements, written policy engagements, and direct representation in the Council. Finland, France, Italy and the Netherlands are examples of countries that explicitly recognise that games classified by PEGI are compliant with legal provisions without specifying PEGI in the law itself.

8.4.2. Parental tools

Context-related concerns deal with inappropriate things that may occur while children are playing a game, regardless of which game that may be; applying a mere descriptor or age label to a game in order to address these concerns is therefore not sufficient and unlikely to be efficient. Questions about playtime or online behaviour require a more finetuned approach.

Originally part of the settings menu of a console, video game platforms have further developed parental control tools, now even available as mobile apps,[396] making them easily accessible and customisable. These tools allow parents to monitor and, if necessary, limit or block access to certain features of a game. Parents and carers can:

- select which games children are allowed to play, based on the PEGI age ratings;
- define or limit the degree of social interaction in online multiplayer environments;
- monitor and control or limit entirely the option to make purchases of in-game content;
- control and customise when and for how long minors can play games;
- limit or block access to internet browsing by applying a filter.

[395] https://pegi.info/page/pegi-committees.

[396] https://www.xbox.com/en-IE/apps/family-settings-app.
https://www.nintendo.com/us/switch/parental-controls/.
https://www.playstation.com/en-us/parental-controls/.

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Empowering parents to take an active interest in video games is an important part of the aim to ensure that children can safely enjoy video games, and to teach them how to navigate a digital environment. By encouraging parents to talk or better, play together with their children,[397] so they can learn themselves what children find so appealing in video games, the stage is set for a broader conversation that can include setting certain rules. By fostering this dialogue between parents and children about video games, concerns can be mitigated and conflicts can be moderated, contributing to a better digital literacy in a broader context.

The challenge for solutions like parental tools is to ensure that parents make use of them. Improving the accessibility and ease-of-use of these tools is very important to ensure that people who are especially digitally vulnerable and their children can be reached. To achieve that, a great deal of continuous awareness-raising is required. National campaigns in local languages across Europe, in combination with constantly updated resources such as www.pedagojeux.fr, www.familygamingdatabase.com/, askaboutgames.co.uk, or pegi.info help to build the broadest possible userbase for these solutions.[398]

The European Data Protection Board[399] and the European Data Protection Supervisor[400] have, in a recent joint opinion, declared that parental tools can be used as a form of age assurance.[401] The term age assurance comprises the range of techniques that include age declaration, estimation, or verification, and in recent years it has taken a prominent place in the broader online safety debate, partly due to technological developments of methods that claim to be foolproof. Authentication for an online service should lead to the processing of only those data that are adequate, relevant and not excessive in order to grant access to that online service. The principle of data minimisation is particularly relevant in the context of children which, under the General Data Protection Regulation (GDPR),[402] merit specific protection in relation to the processing of their personal data.

In an attempt to prevent children from accessing age-restricted or age-inappropriate content online, various methods of age assurance have been developed: verification via e-mail, credit card details or government-issued identity card scans, biometric identification based on facial scans, etc. Age verification is particularly relevant in a data protection context, for online service providers that process children's data and in the fight against child sexual abuse online. From the perspective of protecting a child's

[397] https://www.familygamingdatabase.com/search/styleofplay/Co-Op+Local.

[398] https://www.videogameseurope.eu/responsible-gameplay/responsible-gameplay-in-your-country/.

[399] https://www.edpb.europa.eu/edpb_en.

[400] https://www.edps.europa.eu/_en.

[401] https://www.edpb.europa.eu/our-work-tools/our-documents/edpbedps-joint-opinion/edpb-edps-joint-opinion-042022-proposal_en.

[402] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), https://eur-lex.europa.eu/eli/reg/2016/679/oj.

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data, parental tools such as those developed by the video games sector are efficient in that they process only minimal information about a child but instead work on the basis of a parent's profile. Other important aspects when discussing age assurance are the right to access information and the need to avoid situations that could lead to a younger population being excluded from access to online services.[403]

8.4.3. Community moderation

Vibrant player communities are being cultivated around many video games; some have been around for more than two decades and some can boast millions of active users every day. In order to ensure that these communities remain (socially and economically) healthy, fun, and accessible, negative conduct by players – illegal, inappropriate as well as unsportsmanlike behaviour – cannot be consequence free.[404] Moderation, ground rules, and sanctions can be put in place to manage such communities. Scaling up these efforts to meet the volume of communications can be a challenge for video game companies, and technology proves to be a bit of a doubled-edged sword: it helps companies to combat in-game abuse (filtering, AI moderation), but cheating software makes it easy for players to ignore the in-game rules and spoil the fun for many others, including children.

Video game companies that look to combat toxicity in their games include clear and unambiguous wording in their terms of service about safety measures that help to maintain a safe online gameplay environment. In April 2024, PEGI updated its Code of Conduct, specifically Article 9 about online safety measures that require companies to maintain proper community standards by allowing players to report inappropriate content or behaviour and by ensuring that such content or behaviour is swiftly removed or addressed.[405]

8.5. Conclusion

The above paragraphs have provided an outline of what the industry and authorities of and in Europe have done to provide protection measures for minors who enjoy playing video games. In order to maximise the impact of these measures and guarantee the highest possible rate of success, parents and the players themselves play an important role as well. Helping parents to navigate today's online environment not only helps them be more comfortable about what choices to make, it also guarantees that existing solutions are more actively adopted by a broader share of the population.

Across Europe, many organisations participate in helping parents become more confident about digital and online activities, including video games. An extensive network

[403] For more details on the protection of minors from the data protection angle, please refer to Chapter 7.
[404] https://link.springer.com/article/10.1007/s10610-023-09541-1.
[405] https://pegi.info/pegi-code-of-conduct#onlinegameplay

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of organisations and enterprises that operate within an EU regulatory framework contribute to creating a digitally competent, inclusive, and safe online Europe, where children can enjoy video games in the best possible circumstances. Initiatives like Better Internet for Kids and Digital Europe[406] are set up to create a thriving, inclusive and safe digital climate. Individual game companies as well as organisations like PEGI subscribe to the goal to make the European economy and society technologically competent and make sure that all of their safeguards operate within this philosophy. It is a gargantuan task that needs constant repetition – Sisyphean might even be more appropriate – but not because it is pointless, only because it is never complete.

[406] https://www.betterinternetforkids.eu/nl/ and https://www.digitaleurope.org/

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9. Accessibility and inclusion in the video games industry

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9.1. Introduction

This chapter introduces accessibility and inclusion within the specific field of video games and the challenges faced notably by smaller studios due to resource constraints. As a point of departure, the chapter starts by explaining how video games differ from software in general. This is important to understand since accessibility in games has to be optimised so as not be in conflict with the game rules and how the game is played. Furthermore, the chapter explains how video games can also be tools for game development in themselves, where players, for instance, modify games into new games, or where the game itself is a sandbox, affording creativity and the sharing of new game experiences. Video game players are thus always somewhere on a continuum between play and work, as players and video game developers or designers share content created while playing, perhaps moving on to modifying games, and eventually starting to use more professional tools.

The dual player-and-developer role has consequences when thinking about inclusion and accessibility and what it means in the context of video games. Thus, this chapter focuses on inclusion and accessibility for players but also includes the game developer perspective, since inclusive, accessible design requires the representation of people with various capabilities in the design process. This, in turn, requires the game development environment to be accessible and inclusive. Furthermore, the chapter elaborates on universal access and design for all in mainstream games, as well as special access games that are more exclusively for particular groups, and why both approaches are necessary.

The chapter then presents a conceptual journey for players who need accessibility features. This can start with gaining awareness of existing resources and games, moving through the challenges of setting up hardware, starting and configuring a game, to experiencing barriers while playing a game alone or with, or against, others. It also includes being independent of aid from others, as well as collaborations with others while playing. Moreover, with the player-and-developer continuum in mind, the chapter

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introduces issues of inclusion in the workplace for disabled game developers. This includes a discussion of awareness and barriers in the game industry, such as the normalisation of adaptations both in games and in the game industry. In short, this chapter touches on a wide variety of aspects within the video game culture that can constitute barriers, to reveal opportunities for enabling more inclusive gaming experiences for all.

9.1.1. Defining video games versus other software

As introduced in Part II of this publication, "video games" is perhaps the most established term for what more generally can be described as digital or computer games. Digital games include, for instance, audio games and tactile or haptic games, i.e. where the feedback systems are primarily, or only, non-visual. In the future, we may also see user feedback (system output) in games relying on taste (gustatory) and smell (olfactory) as feedback.[407] There are also games specially designed for special types of controllers (system input), such as single-switch games,[408] i.e. games that can be played with just one button, or any type of binary input, and typically based on timing. A common single-switch game is included in the Google Chrome web browser, where in offline mode, there is a dinosaur that can be controlled with just the space bar. Furthermore, gaze control games are based on eye tracking technology that tracks the movement of the eyes as input, such as EyeMine,[409] which is a modification of Minecraft. Gaze control is often built on so-called "dwell click" where the user focuses on a button for a certain amount of time to click on the button. Dwell click is used to select various modes (such as "walk" and "look") in EyeMine but the camera direction is controlled in a way that is analogous to eye movement. In addition to the features of video games mentioned in Part I of this publication there is a range of more mainstream controllers such as joysticks, gamepads, mouses, keyboards, steering wheels, balance boards, dance mats and more, with various opportunities for inclusive game play. Furthermore, video games can be played in virtual worlds but also played in mixed or augmented reality settings, involving body gestures and movement in the spatial layout of the actual world.

Furthermore, the design process of video games involves a widely diverse mix of skills. Engström[410] uses the Krebs Cycle of Creativity by Oxman (2016), to explain how the fields of arts, science, design and engineering are building on each other. Video game development requires a scientific base with explicit knowledge to explain or predict, necessary for engineering solutions. Engineering involves creating a range from small, single-player apps to massive multiplayer experiences, with a wide variety of hardware and software challenges, such as network, real-time rendering and physics simulation

[407] W3C XR Accessibility User Requirements.
[408] OneSwitch.
[409] EyeMine.
[410] Engström H. (2020), *Game Development Research* (1st edn), University of Skövde, Sweden.

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issues across various platforms. In addition, video game design takes into account, for instance, user experience, usability and accessibility, which adapt the utility of engineered solutions to human behaviour. Video games are also an art form, with unique forms of expression where behaviour and the world can be questioned in interaction with a fictitious world. While science, engineering and design are also involved in software development in general, the arts are more unique to video game development. This means that game development requires artists to have technical competence, and engineers to understand visual arts, animation principles, sound design, adaptive music and much more, to create the experiences envisioned by game designers. Furthermore, game developers within these different areas of expertise must also all understand inclusive design in order to create game experiences where as many as possible can participate; this calls for education about this topic. The following sections will also explain how video games differ from other software in terms of end-user development and deliberate but also necessary barriers.

9.1.2. Inclusion, accessibility and universal design in games

The concept of usability is defined by the International Organization for Standardization (ISO) standard 9241-210:2019[411] as:

> *[the] extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use*.

Effectiveness is the "accuracy and completeness" required to achieve a goal, i.e. the "intended outcome", and efficiency is the "resources used" to achieve the accuracy and completeness, such as "time, human effort, costs and materials". In comparison, accessibility is defined by the ISO as:

> *[the] extent to which products, systems, services, environments and facilities can be used by people from a population with the widest range of user (3.1) needs, characteristics and capabilities to achieve identified goals in identified contexts of use.*

From this comparison it can be concluded that accessibility is literally wider in scope, where the specified users and contexts are more diverse. Another definition is that accessibility involves a "sequence of input and output actions which leads to successful task accomplishment".[412] Based on this definition it can be concluded that successful task completion is a prerequisite before it is meaningful to discuss effectiveness, efficiency and satisfaction. In other words, if a product or service is not accessible it is also not effective, efficient or satisfying to use. Thus, it is important to iterate the often expressed need to consider accessibility early on in the design process, when the design is still in

[411] International Organization for Standardization, Standard 9241-210:2019(en).
[412] Stephanidis C. (2014), "Design for All", in *The Encyclopedia of Human-Computer Interaction*, Interaction Design Foundation – IxDF.

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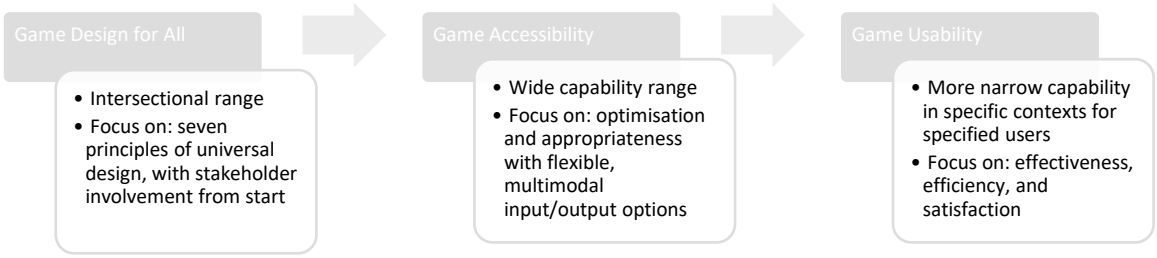
the form of sketches or early prototypes that are easy to change, and there is also time and funding left to make changes.

Accessibility is closely related to the concept of design for all, which recognises that all users are on a spectrum of ability and benefit from accessibility. There are several terms that are often synonymous, such as "universal design" or "inclusive design". The term universal design[413] was coined by Ronald Mace in 1985 based on the need to move from a minimalistic approach of compliance with the law on accessibility, to user involvement, democratisation and intersectionality. Universal design is guided by seven principles, developed in 1997:[414] 1) equitable use; 2) flexibility in use; 3) simple and intuitive use; 4) perceptible information; 5) tolerance for error; 6) low physical effort; and 7) size and space for approach and use. The closely related concept of inclusive design is often used interchangeably, but it is argued[415] that inclusive design (ID) is more pragmatic than universal design (UD), taking into account technical and economic limitations, relevant from the business perspective of game development. There are also academic findings of regional and domain differences,[416] where design for all was more common in Europe. In addition, inclusive design was more common than design for all in the UK within product design and in Canada for digital accessibility.

Error! Reference source not found. summarises the relationship between the i ntersectional concept of design for all (inclusive or universal design), and both accessibility and usability.

Figure 7. An overarching inclusive design process of digital applications and specifically for games



[413] Erdtman E., Rassmus-Gröhn K. and Hedvall P.-O. (2021), "Universal Design as Guiding, Striving and Unifying: A Qualitative Study about how Universal Design is Understood, Practised and Realised in Contemporary Sweden", *Scandinavian Journal of Disability Research*.
[414] Connell et al. (1997) "The Principles of Universal Design", Center for Universal Design, College of Design, NC State University.
[415] Benyon D. (2019), *Designing User Experience* (4th edn.), UK: Pearson Education Limited.
[416] Treviranus J. (2018) "The three dimensions of inclusive design: A design framework for a digitally transformed and complexly connected society", PhD thesis, University College Dublin.

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Video games are also a special type of software that *deliberately* challenges the user by means of the design of game rules and game mechanics. This can be explained using the Game Accessibility Paradox (GAP) model,[417] which illustrates the relationship between game rules, player performance or ability and unnecessary challenges to play. In short, the GAP highlights a fundamental tension between accessibility and game design. At its core, accessibility is about removing barriers, while game rules inherently add barriers or challenges. This paradox means that games in general can only be optimised for accessibility rather than made fully accessible, unless they are specifically designed to allow flexibility in game rules such as universally accessible games, or designed for specific groups such as audio games. A structured method with an appropriateness analysis to create universally accessible games has been developed in research.[418] Guidelines that aid developers designing accessibility are well established, i.e. used and recognised by the game industry.[419] On the other hand, even if a product such as a game is accessible for a person, it is not automatically satisfying. This is addressed through "accessible player experiences" (APX)[420] and the "attainable game experience" framework (AGE).[421] While many video games today excel in accessibility,[422] it is not possible to make all games accessible to all, as games are typically designed to challenge some aspect of each player's performance.[423] An inclusive way of thinking about design is to consider the capabilities of players. For instance, exclusive designs for blind players are found in audio games;[424] these are typically designed both by and for blind people, i.e. not designed for all, but nonetheless a vital part of design-for-all thinking within games.

Going beyond the individual level, the social dimension also needs to be discussed along with how players communicate and collaborate. Inclusion takes part in a social environment and through civic intelligence, where other people around the person playing are also necessary for inclusion to be deemed to have been achieved. As many disabled people are dependent on others, who may lack the digital skills needed to install and configure the technology, there must be an easy way for people around the person to make adaptations. Another dimension is the sociality of playing games. The co-pilot mode in Microsoft Xbox where controls can be shared with a friend to collaborate in controlling a game character based on each person's capability is an example of this approach. The concept of "parallel game universes"[425] is another approach for multiplayer games, where each person plays a variant of the game, against others but on their own terms. Design for

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[417] Westin T. (2024), "Game accessibility course design modules in higher education", *Frontiers in Computer Science* 6(1182541), pp. 1-9.
[418] Grammenos D., Savidis A. and Stephanidis C. (2009), "*Designing universally accessible games*", Computers in Entertainment, Vol. 7(1): pp. 1-29.
[419] Hamilton I. et al. (2012), *Game Accessibility Guidelines*.
[420] Able Gamers Foundation, Accessible Player Experiences.
[421] Palmquist A., Jedel I. and Goethe O. (2024), *Universal Design in Video Games: Active Participation Through Accessible Play*, Springer International Publishing AG.
[422] Game Accessibility Conference Awards, 2023.
[423] Westin T. et al. (2018), "Game Accessibility Guidelines and WCAG 2.0 – A Gap Analysis" in *ICCHP 2018*. Springer International Publishing AG.
[424] AudioGames.net.
[425] Grammenos D. et al. (2006), "Access Invaders: Developing a Universally Accessible Action Game", in *Computers Helping People with Special Needs*, pp. 388-395.

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all and accessibility are the foundations for inclusion in games and game culture. Thus, to achieve inclusion and not only accessibility, it is also important to approach game design from a more inclusive point of view, where games are designed while considering both capabilities and disabilities, including both individual and social perspectives of games and game play.

9.1.3. Inclusion of both players and game developers

Similar to the classic Aesop's tale where the grasshopper must play in order to be a grasshopper and the ant must work in order to survive and be an ant, for a player, ongoing engagement in play is crucial to maintaining their core identity as player (akin to the grasshopper). This philosophical reflection[426] illustrates the contrasting mindsets of a player and a worker, highlighting the inherent tension between these two roles.

However, as explained earlier, video games can also be quite similar to, or include, tools to produce games, thus integrating play and work. For instance, related to software development (Part II of this publication), many popular games stem from modifying games (so-called "mods"), and some games include modding tools such as game or level editors.[427] Furthermore, Minecraft[428] or more generally "sandbox games", give players command over their environment and allow them to modify the game they are playing, almost like game developers. Thus, the step towards becoming a developer is always a possibility for players, making a fuzzy line between work and play. In short, it can be argued that video game players are always in transition between two roles: player and game developer.

The dual role where the stakeholder or user is both player *and* developer at the same time to some extent, creates a situation where both roles have to be considered to achieve inclusion in games. In addition to the field of the arts and deliberate barriers introduced by game rules discussed earlier, this end-user development perspective is also clearly different to software in general, where developers typically develop the application, and users are the users of the application. Enabling an inclusive "play--workplace" (where you both play games and work) encompasses accessibility in games, and also, design processes where disabled developers can work and feel comfortable. This includes accessible production tools for creating art assets such as music and animation, which also go beyond what developers of other software typically have to consider.

[426] Suits B. (2005), *The Grasshopper: Games, Life and Utopia*, Broadview Press.
[427] "Level editors allow for the customization and modification of levels within games".
[428] Minecraft, developed by Markus Persson, Mojang, 2011.

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9.2. A player's journey of accessibility and inclusion in video games

This conceptual journey is divided into three milestone sections: 1) discover accessible games; 2) get started playing the discovered game; and 3) manage issues while actually playing the game.

9.2.1. Awareness of accessibility and inclusion in video game culture

Accessibility in gaming has its origins in the earliest days of the game industry during the 1970s.[429] Still, one of the most common issues with accessibility and inclusion in video games is a lack of awareness of available possibilities in terms of accessible games or assistive technologies that can help overcome barriers to play.

To remedy this, there have been efforts in the game industry to include accessibility information in storefronts (e.g. the game Hellblade on Steam).[430] Also, the use of a game accessibility icon[431] (**Error! Reference source not found.**) originally developed by S pecialEffect in the UK in 2011, is a clear way to communicate what games or solutions can be used. Organisations such as SpecialEffect[432] (UK), Capgame[433] (France), and AbleGamers[434] (USA) are all working hard to spread the word, developing solutions and helping in various ways.

[429] Westin T., Hamilton I. and Ellis B. (2020), "Game Accessibility: Getting Started", in *The Digital Gaming Handbook*, Dillon R. (editor), CRC Press.
[430] CanIPlayThat?, Hellblade: Senua's Sacrifice now lists accessibility information on Steam
[431] SpecialEffect (2011), *Game Accessibility Icon*, OneSwitch.
[432] SpecialEffect.
[433] Capgame.
[434] AbleGamers.

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Figure 8. The game accessibility icon

9.2.2. Barriers to starting to play video games

In the early days of the games industry, playing a video game was quite straightforward. There were some arcade machines available in shops, bars or amusement parks, where you put a coin into a slot and the text "Press start to play" or a similar simple option appeared. While there certainly were accessibility issues with these machines (for instance, requiring the player to stand up), the immediacy between coin and play by simply pressing a button to start, was probably vital to their success.

During the eighties, with the mainstream acceptance of home computers, you either went to a shop, or ordered via phone or mail. You then had to type a load-command with correct syntax and wait for a few minutes for the game to load from a tape or floppy disc. There were also plug-and-play cartridges but, for home computers at least these were not very popular as they were expensive, whereas for consoles, this was the only way to load a game. The start menus remained fairly simple. The systems were also quite robust in terms of hardware configurations and games were released fairly free of bugs as there was no way of updating them online.

Since the advent of the world wide web in the early nineties, PC gaming has become increasingly popular and the process has often become too complex for many potential players who lack the technical skills and understanding needed to even consider playing a game. The complexity differs between platforms but the following may be a somewhat universal description. To buy a game, you typically need to register and enter the details of a credit card in some online storefront, which in turn may require different forms of authentication and further apps. Then you have to find what game you want to play and know what accessibility features it has and what hardware is needed, with technical information about things such as processors, memory, and disc space for PC gaming. Smartphones, tablets and game consoles have more uniform hardware, which reduces the need for technical knowledge somewhat. After this, you need to get the

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game, which is often a large file that can take hours to download and install, depending on the available Internet speed and device performance. Finally, when the game has been downloaded and installed, it may need further updates, and hardware drivers or the entire operating system may also need to be updated for the game to run smoothly. Along the way, you may also need to log in to several different services, requiring you to remember passwords or other login options, and also manage system restarts. All of these steps (and this is not an exhaustive list) require quite a high level of technical skills and understanding, not to mention patience and dedication on the part of all potential players.

9.2.3. Barriers while playing video games

When the game has been installed and the hardware has been set up, the player is often met with a complex start menu, with animations that lack practical functions, deep hierarchical structures and many options that can be rather technical. Sometimes the menu requires the player to use a different controller to navigate it from the one used for the game itself. The player then needs to press a specific key (often very small) or menu item in order to play. The player may consider trying to configure the game to play the way he or she wants or needs it to be set up. However, this can be even more complex than the process of finding, buying and installing the game described above, due to the complex menu and the need to understand technical details. Games with built-in accessibility may also fail when it comes to the menu, for instance, with an on-screen button to open the accessibility settings that can be hard to find and see, that may be too small to hit easily and have a hard-to-understand icon. On the hardware side, accessibility has improved with adaptive controllers and related special peripheral input devices. However, these can also be hard to understand, lacking proper instructions or intuitive symbols, where you need to press special keys to switch between different modes, use special software such as mods that can be challenging to install, and understand how to set up the correct mapping in the game or platform menus. Online tutorials can be created to aid others to get them started playing, but this may be ruined by an update of the game where settings or layouts are changed. The concept of a Global Public Inclusive Infrastructure (GPII)[435] described by academic researchers Vanderheiden, Treviranus, and Chourasia[436] is an interesting approach involving a universal, transferrable user profile across platforms and applications to ease the personalised setup.

There are also different challenges depending on whether the game is played as a single player or in multiplayer mode. In single-player mode, the player can choose to use adaptations without considering other players' perception of breaking or bending the game rules. Playing with others differs according to whether you are playing on the same

[435] "Raising the Floor", Global Public Inclusive Infrastructure.
[436] Vanderheiden, G.C., Treviranus J., and Chourasia A. (2013), "The global public inclusive infrastructure (GPII)", in *Proceedings of the 15th International ACM SIGACCESS Conference on Computers and Accessibility*, Association for Computing Machinery: Bellevue, Washington. Article 70.

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local machine (with a shared keyboard or multiple controllers), on a local area network (LAN), or via the Internet. Playing locally on the same machine is perhaps something done mostly at home with friends, whereas LAN gaming can extend the range to include other people that you do not know at LAN parties or big game events. These different social contexts imply different challenges and opportunities for inclusion. The co-pilot mode in Xbox means that you share control between multiple controllers, and the players can control different parts of the locally played game together; for instance, in a football game, one player can control the shooting, the other the steering. Furthermore, inclusive competitive games played together in a two or multi-player game (locally or online), require players to accept different adaptations to be used for each person, which is similar to the idea of the "handicap" system in golf.

Online Internet-based gaming can be another challenge as players often may not know each other in person; this can create a toxic environment where some players question whether disabled people should even play the game.[437] Many women are treated in a similar way in online games, and this calls for an intersectional approach to inclusion.

All of these issues, including the barriers to starting the game, may fall on family members or other people around the person to solve, and these people may or may not be interested in technology or skilled in games. This can result in a situation where a game can have great accessibility features and the person can have all the hardware available, but still be unable to play since there is no one around to set things up in a way that is accessible to the person. Furthermore, a lack of robustness in systems where settings interfaces change, means that educational tutorials easily become outdated. This situation can be frustrating where the game is *almost* accessible, just beyond reach, as the designers have not considered "proxy players", that is, people near the player, on whom the player may be dependent.

9.3. Inclusion in workplaces in the video games industry

This section presents some of the developments that have taken place over the last 20 years in the game industry, including the effects of legislation in the US and in Europe. Also, different approaches to game accessibility, by making mainstream games accessible versus making special games specifically for or by disabled people, as well as guidelines, books and websites.

[437] Ellis K., Leaver T. and Kent M. (2022), *Gaming Disability: Disability Perspectives on Contemporary Video Games*, Taylor and Francis.

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9.3.1. Industry awareness and support

Probably the first scientific paper about game accessibility was published by Karen Hughes in 1981.[438] However, looking at the Accessible Gaming Museum online resource by Barrie Ellis,[439] there were already examples of adaptations during the 1970s or even earlier.[440] Developments continued to be made by both individuals and the industry during the 1980s and 1990s. Still, at the Game Developer Conference (GDC) in 2003, which is still one of the largest industry events, there was nothing on the schedule of sessions about accessibility or inclusion. Thus, after the GDC 2003, the International Game Developers Association (IGDA)[441] Game Accessibility Special Interest Group (GASIG)[442] was co-founded by a small group of volunteers in the USA and Europe; these volunteers co-wrote a white paper about game accessibility to raise awareness.[443]

During the first decade of the new millennium (2000-2010), there were also several other efforts emerging around the world, for instance: the OneSwitch.org[444] website was established by Barrie Ellis in the UK, as "a fun resource for switch users and for anyone looking to find game accessibility solutions and information". The AGRIP[445] project created AudioQuake, a modification of Quake. AudioQuake was created as an innovative modification of the game Quake for blind and visually impaired players, with "single-player, co-op and deathmatch play; tools to modify the game and even a basic Level Description Language to allow people to describe, rather than visually design, new levels for the game". The AbleGamers[446] charity was founded in the USA, "creating opportunities that enable play in order to combat social isolation". In the Netherlands, the AudioGames.net[447] site was created "as a community portal for all things to do with audio games". In Greece, universally accessible games[448] were researched, designed and developed at ICS-FORTH. A modification of the game Doom3 called Doom3[CC][449] was created with both colour-coded closed captioning and a "visual sound radar" to also show distance and direction to sounds and voices. Around the same time, the game Half-Life 2 was published by Valve with closed captioning built in. Still, it is safe to say that the topic of game accessibility did not receive significant attention at video game conferences or within the industry until the mid 2010s.

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[438] Hughes K. (1981), "Adapting Audio/Video Games for Handicapped Learners: Part 1", *Teaching Exceptional Children*, (Volume 14, Issue 2), pp. 80-3.
[439] OneSwitch, Accessible Gaming Museum.
[440] OneSwitch, Game Accessibility: Past, Present and Possible Futures.
[441] https://igda.org/.
[442] https://igda-gasig.org/.
[443] IGDA Game Accessibility SIG, *Accessibility in games: motivations and approaches*.
[444] OneSwitch.
[445] AGRIP.
[446] AbleGamers.
[447] AudioGames.net.
[448] ICS FORTH, Universally accessible games.
[449] Doom3[CC].

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To some extent, awareness remains an issue; for example, a recent detailed report from the Neogames Finland association[450] about the state of the European game industry addresses sustainability primarily from an environmental perspective, but not from a disability perspective, and also not regarding gender and ethnicity, in a broader, more inclusive intersectional view.

9.3.2. Legislation overview

Since around 2010 there has been an evolution in the legislation about accessibility, first with the Communications and Video Accessibility Act (CVAA)[451] in the United States, and more recently, the European Accessibility Act (EAA)[452] in Europe.

In January 2019 the video games industry came fully under the umbrella of the CVAA. In particular, a series of waivers that had been granted by the US Federal Communication Commission (FCC) since 2012 for necessary R&D time expired at the end of 2018.[453] Since then, all video game software and hardware featuring online communication must comply with the accessibility expectations outlined in the CVAA. This required a significant shift for the industry as the legislation covers a wide range of accessibility accommodations.

In particular, Title I of the CVAA includes accessibility rules for product manufacturers and service providers who offer advanced communication services (ACS). ACS includes functionality such as two-way, human-to-human, real-time or near real-time voice over Internet Protocol (VoIP) communication, text communication (e.g. e-mail, instant messaging, chat), video conferencing, as well as browsers (including mobile browsers). In gaming, ACS functionality could be enabled by console hardware or accessories, game title software, or other technology products or services (e.g. apps that support gamer-to-gamer communications using text, voice or video).

In addition, Title II of the CVAA includes accessibility rules for devices, such as game consoles, that offer a way to play back or record full-length video programming content provided over the Internet. Playback requirements include: proper display of captions, video description information and access to emergency information. Devices that can record full-length video programme content must properly store and play back

[450] Neogames Finland Association (2024), "The state of the European game industry and how to unleash its full potential".
[451] FCC, Communications and Video Accessibility Act.
[452] Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services.
[453] IGDA-GASIG, GDC 2019: Industry discussions on game accessibility

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accessibility information (e.g. captions, video description). Also, a simple means of activating the accessibility features of the device must be provided.[454]

At the European level, the EAA is an EU directive (Directive 2019/882) that establishes accessibility requirements for products and services to ensure equal access for people with disabilities. The EAA must be transposed into national law in all 27 EU member states and will take effect on 28 June 2025.[455] The EAA underscores the commitment to accessibility made by the EU and the member states as part of ratifying the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD).[456]

While the EAA does not explicitly mention video games, its broad scope and reference to earlier directives suggest significant implications for the gaming industry. Recitals 46 and 47 EAA are particularly noteworthy. They aim to extend the application of Directive (EU) 2016/2102 on the accessibility of the websites and mobile applications of public sector bodies[457] to private actors. This extension emphasises the importance of interface accessibility across all digital platforms, including video games.

In particular, the 2016 directive, referenced in the EAA, mandates compliance with the EN 301 549 standard[458] for EU countries and European Free Trade Association (EFTA) countries (Article 6). This standard is crucial for digital accessibility in the EU, as it

- applies to video game interfaces (as specified in Table 10.2 and Table 11.2 of the standard);
- adopts Web Content Accessibility Guidelines (WCAG) principles;
- applies to both public and private sectors.

In this context, it is reasonable to conclude that video game interfaces, regardless of whether they are developed by public or private entities, must adhere to European accessibility standards. However, should this be the case, it could potentially lead to significant consequences for the video games industry, which may not always align with the best interest of disabled players. This complex situation is partly attributable to the game accessibility paradox.

Regardless of the actual impact the EAA will have on games and game platforms, the effects of the CVAA have already meant that many games and platforms have improved far beyond the requirements of the CVAA, as explained by the FCC in its presentation at the Game Accessibility Conference 2018.[459] The last decade has seen a marked increase in interest in game accessibility, both in research, with a greater number of citations of papers, and in the industry, with attendance at the IGDA Game Accessibility Special Interest Group (GASIG) round tables at the GDC, going from around 10 to over 100

[454] AbleGamers.
[455] https://ec.europa.eu/social/main.jsp?catId=1202
[456] UN Convention on the Rights of Persons with Disabilities.
[457] Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies.
[458] https://accessible-eu-centre.ec.europa.eu/document/download/f096e2b7-06b5-47aa-935d-5be981b642ab_en?filename=plantilla%20referencias_UNE_2.pdf
[459] IGDA Game Accessibility SIG, About CVAA

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people, every year. Also, the GASIG members now number more than 2000 (GASIG Discord, March 2024), compared to around 10 in 2004. Furthermore, the Game Accessibility Conference[460] is well attended, and the industry is delivering new games with innovative solutions in both hardware and software. In addition, there are many communities, consultants, YouTubers, developers, review sites, game awards, researchers and more that contribute to the field today.

While accessibility has been explored for almost as long as the game industry has existed, the CVAA legislation has had a clear and positive impact. Still, there is still a long way to go in practice to make all games more accessible and inclusive, to reach a place where the approach of universal design is properly embraced, and where providing accessibility is seen as more than just a box-ticking exercise designed to comply with laws and regulations. It is equally important to have an intersectional perspective and realise that accessibility is simply good design for all players.

Smaller game companies may lack the resources to address game accessibility and inclusion. In 2011 in Australia, Film Victoria, now VicScreen,[461] and their games funding programme partnered with the IGDA GASIG for accessibility guidance in their funding application form. They found a successful approach: "We didn't say that accessibility for games was required, we said that it would be looked favourably upon when we were giving out funding".[462] Throughout this chapter a number of other resources have also been included but these are still only a small fraction of examples.[463]

9.3.3. Notes on the current state of inclusion and game accessibility in the game industry

During the IGDA GASIG round table at the GDC 2024,[464] attendees expressed a need to involve management to normalise adaptations in the workplace. The point was that the person in need of an adaptation should not fear any barrier in their careers by asking for an adaptation, such as working hours, time to finish tasks, working from home, accessible tools used for game development and the built environment. Clarity, structure and long-term planning is also required. There was also a request for the provision of more software libraries to ease the implementation of accessibility in games. From a more social point of view, the risk of burnout among advocates for game accessibility was explicated and internal support was requested in order to avoid this. These examples point to a need for more work on inclusion, not only in games as such, but also in the game studios where games are created. These work environments range from large, international companies to small home studios, and everything in-between. Similar to

[460] IGDA GASIG, Game Accessibility Conference.
[461] Vicscreen, Victorian Government's creative and economic screen development agency.
[462] IGDA GASIG, Film Victoria update – a game accessibility success story.
[463] For more in-depth analysis, the Game Accessibility Conference publishes all talks for free, both live and after the conferences on YouTube. Please see at: IGDA GASIG, YouTube Channel.
[464] IGDA-GASIG, GDC 2024 Roundtable

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how the game industry came together during the last decade to create accessible games and game controllers, sometimes with aid of funding from the likes of VicScreen, there is a clear need to expand this effort to also support other game companies, especially the smaller ones, in providing more inclusive workplaces; this will enable the development of more inclusive games which in turn will benefit all video game players.

9.4. Concluding remarks

This chapter has introduced accessibility and inclusion and explained how games differ from other software, with reference to arts, deliberate barriers introduced by game rules, and end-user development. Furthermore, the dual roles of player and developer were discussed in the game play-workplace, to enable a better understanding of the need for accessibility and inclusion, as well the tools needed to achieve them, both in the games themselves and in the game industry and game culture as a whole. Both special and mainstream approaches to game accessibility were also explained, followed by a description of the journey a player needs to undertake to be able to play a game. One of the largest barriers that has so far largely been left out of the equation is the role of people close to the player, and how more robust and easy-to-use hardware and settings can be designed to better support them to aid players with disabilities. Following this, current issues of inclusion and accessibility in workplaces in the game industry were discussed, where the need for the normalisation of adaptations has been highlighted by game developers. In short, the future holds many opportunities for inclusive design and accessibility in games, but it also holds risks and challenges, especially for smaller businesses who may lack the necessary resources.

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10. Hate and Extremist Activities in the Video Game Sector

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10.1. Introduction

Recent years have seen a stark increase in interest surrounding a potential nexus between gaming and extremism.[465] Not only have several terrorist attacks been linked to gaming communities but there is growing evidence that extremists' exploitation of video games and gaming-related content is widespread and manifold. Consequently, the phenomenon has received heightened attention from academics, counter-extremism professionals, and policymakers on both the EU and the international level, such as the EU Commission, the EU Internet Forum, the EU Counter-Terrorism Coordinator, the United Nations, the Global Internet Forum to Counter Terrorism (GIFCT), and the newly founded Extremism and Gaming Research Network (EGRN).[466] The issue has sparked even more concern over the last months as both Russian disinformation and content related to the war in Gaza have surfaced in online gaming spaces.[467] Evidently, the video games sector is a new frontier for political conflicts, extremist activities, and related security considerations.

However, the gaming sphere is still largely uncharted territory. Research, monitoring, and investigative efforts to understand how malevolent actors are exploiting gaming are still in their infancy. Currently, many open questions remain, and systematic,

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[465] For an overview, see Schlegel L. and Kowert R. *Gaming and Extremism: The Radicalization of Digital Playgrounds*, Routledge, New York, 2024.

[466] EU Counter-Terrorism Coordinator, 9066/20: Online gaming in the context of the fight against terrorism, 2020.
Schlegel L. and Amarasingam A. "Examining the Intersection Between Gaming and Violent Extremism", United Nations Office Of Counter-Terrorism, 2022, https://gifct.org/year-four-working-groups/https://extremismandgaming.org/

[467] Marcus, C. "Pro-Palestine video game accused of promoting terrorism and anti-Semitism is blocked in Australia: 'Straight out of the Hamas playbook'", *Sky News*, 10 April 2024.
Olaizola Rosenblat M. "How Russia is Using Online Video Games to Promote the War in Ukraine", *Just Security*, 15 August 2023.

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large-scale, empirical evidence is lacking. Therefore, this chapter should be read as a snapshot of a young, highly dynamic field. It first provides an overview of the current state of knowledge on gaming-related extremist activities before detailing both challenges for investigations and preliminary counter-measures related to this new phenomenon.

10.2. Hate and extremist activities in the video games sector

Extremist actors use the video games sector in several ways. These activities may be grouped into four categories: the production of bespoke video games, the exploitation of existing video games, the use of gaming (-adjacent) platforms, and the appropriation of video game aesthetics and culture.

10.2.1. Production of bespoke video games

For decades, extremist actors have developed and disseminated their own video games. Already in the late 1980s, right-wing extremists created games such as *KZ Manager* (Concentration Camp Manager) to express their hateful views. Since then, dozens of video games have been developed by right-wing extremists, jihadist groups, and, most recently, individuals who belong to the so-called incel movement (an abbreviation for "involuntary celibate").[468]

Perhaps the most prominent example of the 'Gaming Jihad' is the smartphone game *Huroof*, developed by the so-called Islamic State (IS).[469] It is aimed at children learning the alphabet and prompts players to match letters with depictions of objects - but instead of presenting B for ball or E for elephant, players must match letters of the alphabet to the depictions of weapons and extremist symbols. Seeking to reach young target audiences via video games has a long tradition in jihadist groups. Hezbollah, for instance, has produced a whole series of first-person shooter video games over the last 20 years, in which players must complete various quests to fight Hezbollah's adversaries. Video games are also a popular medium in far-right and right-wing extremist circles.[470] A

[468] Prinz M. "Extremist games and modifications – the "metapolitics" of anti-democratic forces", *in* Schlegel L. and Kowert R. (eds.), *Gaming and Extremism: The Radicalization of Digital Playgrounds*, Routledge, New York, 2024, pp.57-71.
The Soufan Center, "Incels and the Gaming-Radicalization Nexus", 2024.
[469] Lakomy M. "Let's Play a Video Game: Jihadi Propaganda in the World of Electronic Entertainment", *Studies in Conflict & Terrorism 42*, 2019, pp.383-406.
Schlegel L. "Jumanji Extremism? How games and gamification could facilitate radicalization processes", *Journal for Deradicalization 23*, 2020, pp.1-44.
[470] Selepak A. "Skinhead Super Mario Brothers: An Examination of Racist and Violent Games on White Supremacist Web Sites", *Journal of Criminal Justice and Pop Culture 17*, 2010, pp.1-47.

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recent example is the video game *Heimat Defender: Rebellion*, developed by several organisations affiliated with the Identitarian Movement.[471]

Whether bespoke video games can contribute to radicalisation processes is currently the subject of controversial discussions. [472] It is clear that video games by themselves do *not cause* radicalization and that mere exposure to propaganda is not enough to radicalise someone. Radicalisation is a multifaceted process and always an interplay of personal, social, and circumstantial factors. However, it is currently unclear what role video games (can) play in digital radicalisation processes and more research is needed to understand their impact.

10.2.2. Exploitation of existing video games

Because the production of bespoke video games is complex and requires not only financial resources but game design expertise, the exploitation of existing video games occurs more frequently. Existing video games are used for propagandistic purposes in various ways, including the creation of propaganda content within the game itself, the development of modifications (so-called 'mods'), the exploitation of in-game communication features, money laundering, and, particularly in the case of Russian propaganda, a presence in the esports scene.

Extremist actors and radicalized individuals have created content in commercial digital games to express their ideology, particularly 'sandbox' games allowing users to create their own world. Researchers have uncovered, for instance, concentration camps in *Minecraft*, a playable version of the Storm on the US Capitol 2021 in *Fortnite*, and the creation of both a digital 'caliphate' and a white ethno state within *Roblox*.[473] There are also reports of openly right-wing usernames located in several popular online games, featuring names such as HeilHitler or WhiteLivesOvrBlk (White Lives Over Black), which suggests the presence of radicalised individuals in these spaces.[474] In addition, recent investigations identified an election simulator on *Roblox* featuring Adolf Hitler as a

[471] Schlegel L. "No Child's Play: The Identitarian Movement's 'Patriotic' Video Game",

[472] Kowert R., Martel, A. and Swann, W. "You are What you Play: The Risks of Identity Fusion in Toxic Gamer Cultures", *Games Research and Practice 1*, 2023, pp.1-3.
Robinson N. and Whittaker J. "Playing for Hate? Extremism, Terrorism, and Videogames", *Studies in Conflict & Terrorism*, 2021, online first.

[473] D'Anastasio C. "How Roblox Became a Playground for Virtual Fascists", Wired, 10 June 2021.
Ministry of Home Affairs Singapore "Press Release: Issuance of Orders Under the Internal Security Act Against Two Self-Radicalised Singaporean Youths", 21 February 2023.
Miller C. and Silva S. "Extremists using video-game chats to spread hate", BBC News, 23 September 2021.
Global Project Against Hate and Extremism "Fortnite's Political Content Encourages Violence and Allows Players to Stage a Capitol Insurrection", 2024.

[474] Anti-Defamation League "Hateful Usernames in Online Multiplayer Games", 2023.

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candidate and slogans such as "dictataorship [sic!] is great", "eliminate all the LGTQ [sic!] people" and "bring back slayveri [sic!]", which potentially include misspelled words to avoid automatic detection of banned keywords - a tactic used frequently by extremist actors online.[475] Extremist content on *Roblox* is particularly concerning, because nearly 60% of *Roblox* users are under 16 years old with 21% under the age of nine.[476]

Recently, there has also been an uptick in Russian propaganda and pro-Russian disinformation in popular online games, particularly in relation to the war in Ukraine. For instance, players on *Minecraft* could re-enact combat actions of the occupation of Ukrainian territory that displayed Ukrainians as Nazis.[477] Furthermore, a Russian official has allegedly streamed *Minecraft* content in celebration of Russia Day, indicating that officials are well-aware of the popcultural appeal of the game.[478] Ukrainian officials, on the other hand, have openly called for a banning of commercial games used to spread pro-Russian propaganda content, including *Atomic Heart*, which incorporates pro-Soviet Union narratives, KGB glorification, as well as Russian military elements.[479] There are also efforts to combat Russian disinformation within video games directly. For instance, a Ukrainian fundraising site has collected money to develop counter-content against pro-Russian disinformation in *Minecraft*.[480]

Radicalised users have also created mods of popular video games with propaganda content for over 20 years, including new visual elements (e.g. Nazi memorabilia for the avatar), new narratives (e.g. the opportunity to play the Wehrmacht and win the Second World War), new environments (e.g. a world in which everyone is white and women are enslaved), or new playable content (e.g. the opportunity to re-enact terrorist attacks). These mods are a popular instrument to express and disseminate ideological content without the need to create full bespoke propaganda games and are often shared and discussed with other users in designated mod forums.[481] It is possible that these mods are developed by radicalised individuals of their own accord rather than being part of a deliberate strategy by extremist organisations, but more research is needed to adequately assess this assumption.

In addition, there is increasing concern that extremist actors may be actively seeking to exploit in-game communication and networking features such as voice- or text-based chats within digital video games. This exploitation could take several forms.

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[475] Global Project Against Hate and Extremism, "Roblox's Election Simulator is Swarming with Fascists", 2024.

[476] Statista, "Distribution of Roblox audiences worldwide as of December 2023, by age group".

[477] Olaizola Rosenblat M. "How Russia is Using Online Video Games to Promote the War in Ukraine", *Just Security*, 15 August 2023.

[478] Getahun H. "Russian propaganda making its way into popular kids' games like Roblox. One Russian official even hosted a concert in Minecraft", *Business Insider*, 31 July 2023.

[479] Pamment, J., Falkheimer J. and Isaksson E. "Malign foreign interference and information influence on video game platforms: Understanding the adversarial playbook", 2023.

[480] Sriram, A. "Ukraine opens new front in Minecraft game to tackle alleged Russian misinformation", *Reuters*, 21 March 2024.

[481] Winkler C. et al. "Streaming, Chatting, Modding: Eine Kurzexploration extremistischer Aktivitäten auf Gaming- und gaming-nahen Plattformen", 2024.

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In-game communication features offer the opportunity for private covert interactions with other radicalised individuals, which are extremely hard to detect when embedded within a video game. Extremist actors might also start bilateral chats with gamers, who they believe to be susceptible to extremist influence in an attempt to introduce them to ideological content before inviting them to join extremist chat groups or forums on other platforms.[482] Larger chat groups and forums inside digital video games are also used to spread hate and extremist narratives, potentially affecting thousands of gamers, including minors. In recent surveys, a majority of gamers reported that they have witnessed or been subjected to hate when engaging with other users in these in-game communication features.[483] For instance, surveys by the Anti Defamation League (ADL) found that more than half of the participants had been verbally attacked within video game chats based on their ethnicity, gender, or sexual orientation, and more than 25% had encountered content denying the holocaust. Alarmingly, three out of four minors (ages 10-17) reported that they have been subjected to hate in digital gaming spaces.[484]

There are two additional areas of concern that deserve to be mentioned but currently lack an adequate research basis: money laundering and the instrumentalisation of esports. There are concerns surrounding the possibility that extremist and terrorist actors could engage in money laundering by using in-game currencies to purchase and re-sell in-game items before exchanging the in-game currency into cryptocurrency.[485] There are also reports of alleged fundraising through the livestreaming of gaming tournaments by extremist actors.[486] Another area of concern revolves around esports and gaming tournaments: There is anecdotal evidence of extremist actors hosting and streaming gaming tournaments to draw attention to themselves.[487] Allegedly, Russia is also planning on exploiting esports to spread propaganda, similar to its sportwashing efforts, to improve its reputation.[488]

10.2.3. Use of gaming (-adjacent) platforms

Extremists are also active on gaming- and gaming-adjacent platforms. Gaming platforms are digital platforms directly linked to gaming, such as the game store *Steam*, the gaming platform *Roblox*, or mod forums. Gaming-adjacent platforms are platforms with an indirect

[482] Radicalisation Awareness Network "Digital Grooming Tactics on Video Gaming & Video Gaming Adjacent Platforms: Threats and Opportunities", 2021.
[483] Schlegel L. and Amarasingam A. "Examining the Intersection Between Gaming and Violent Extremism, United Nations Office Of Counter-Terrorism, op.cit.
Olaizola Rosenblat M. and Barrett P. "Gaming The System: How Extremists Exploit Gaming Sites And What Can Be Done To Counter Them", 2023.
[484] Anti-Defamation League "Hate is No Game: Hate and Harassment in Online Games 2023", 2024.
[485] Lamphere-Englund G. and White J. "The Online Gaming Ecosystem: Assessing Digital Socialisation, Extremism Risks and Harms Mitigation Efforts", 2023.

[487] Thomas E. "The Extreme Right on DLive", 2021.
[488] Khimiak A. "Cyberpropaganda: How Russia Exploits The Gaming Industry?, *Ukraine Crisis Media Center*, 25 November 2023.

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link to gaming, e.g., because they host a large amount of gaming content or are frequently used by gaming communities such as the chat platform *Discord* or the livestreaming platform *Twitch*.

Gaming (-adjacent) platforms have been used by extremist actors in various ways. This includes, for instance, the livestreaming of attacks such as the attack in Halle, Germany in 2019, the planning and organisation of attacks and protests such as the Unite the Right Rally 2017 in Charlottesville (USA) or the attack on the US Capitol in 2021, but also internal communication with other radicalised individuals, the vetting of new group members, and propaganda distribution.[489] Systematic research efforts have only just begun, but preliminary findings suggest that a range of extremist and hateful content, including right-wing, Islamist, jihadist, incel, misogynistic, and conspiracy content can be found with relative ease on nearly all gaming (-adjacent) platforms.[490] Particularly content related to right-wing extremism and white supremacist narratives seems to be pervasive and shared overtly in these digital spaces.[491] Hate speech and toxicity also seem widespread on gaming (-adjacent) platforms. For instance, a UNOCT study found that a majority of gamers report being frequently exposed to slurs, hate, and even demands to "go kill yourself" in these spaces.[492] Antisemitism, islamophobia, racism, anti-LGBTQ hate, and other identity-based verbal attacks are seemingly omnipresent.

It is likely that there are both strategic and organic reasons for extremists' presence on gaming (-adjacent) platforms.[493] It is strategically beneficial for these actors to be active on these platforms, because they can potentially reach millions of users - *Discord*, for instance, has 190 million active users per month.[494] Content moderation may be another factor rendering gaming (-adjacent) platforms strategically useful for extremists. Although in-game communications are subject to moderation according to PEGI Code requirement since 2007, moderation differs per platform, and is often less strict than moderation on other social media platforms, particularly because many gaming (-adjacent) platforms offer the opportunity to run one's own private, self-moderated groups, which are difficult to moderate. In fact, gaming (-adjacent) platforms are often multi-purpose platforms and afford extremist actors the full range of both public and

[489] Schlegel L., Radicalisation Awareness Network "Extremists' use of gaming (adjacent) platforms – Insights regarding primary and secondary prevention measures", 2021.
[490] Winkler C. et al. "Streaming, Chatting, Modding: Eine Kurzexploration extremistischer Aktivitäten auf Gaming- und gaming-nahen Plattformen", 2024.
Institute for Strategic Dialogue "Gamers Who Hate" series.
[491] Anti-Defamation League "Free to Play? Hate, Harassment, and Positive Social Experiences in Online Games", 2019.
Anti-Defamation League "Hate is No Game: Hate and Harassment in Online Games 2022" 2022.
[492] Schlegel L. and Amarasingam A. "Examining the Intersection Between Gaming and Violent Extremism", United Nations Office Of Counter-Terrorism, op. cit.
[493] Schlegel L., Radicalisation Awareness Network "Extremists' use of gaming (adjacent) platforms – Insights regarding primary and secondary prevention measures", op. cit.
[494] Campbell S. "How Many People Use Discord?", 12 March 2024.

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private communication opportunities, ranging from one-to-one chats and semi-private groups all the way to livestreams and large forums with thousands of participants.[495]

There may also be organic reasons why radicalised individuals flock to gaming (-adjacent) platforms without a strategic directive from an extremist group.[496] This pertains, first and foremost, to the atmosphere in some gaming communities. While extremist views are rejected in many social spaces, they are condoned rather than sanctioned.[497] This may in turn contribute to further radicalisation: "The overlap between misogyny and racism creates a volatile mix that can amplify vulnerabilities to violent extremist recruitment. Those who exhibit a combination of misogyny, racism, homophobia, or ableism may be particularly susceptible to extremist narratives that validate their toxic worldviews. Extremist groups [may then] exploit the emotional resonance of shared toxic beliefs."[498] Consequently, gaming (-adjacent) platforms are crucial for counter-extremism efforts.

10.2.4. Appropriation of video game culture and aesthetics

Extremists also appropriate and instrumentalise elements of video game culture and aesthetics to create appealing and 'cool' propaganda. These references can be visual or verbal in nature and may appear in propaganda content across all digital spaces, not only on gaming (-adjacent) platforms.

Verbal appropriation of gaming-related content is common and includes direct references to popular video games or gamer language. An IS recruiter, for example, sought to motivate his followers to travel to Syria by publishing the following tweet: "You can sit at home and play call of duty or you can come and respond to the real call of duty … the choice is yours," making a direct reference to the popular video game *Call of Duty (CoD)*.[499]

Extremist actors also appropriate visual references to video games and replicate video game aesthetics. IS has been at the forefront of this trend, using footage of *CoD* in its propaganda videos and employing helmet cameras to recreate the popular first-person shooter game perspective, in which players view the world through the eyes of their avatar, often seeing merely the hands holding the weapon rather than the whole body.[500] Similarly, several right-wing extremist attackers appropriated this visual style during their

[495] Schlegel L., Radicalisation Awareness Network, "Extremists' use of gaming (adjacent) platforms, op. cit.
[496] Ibid.
[497] Ibid.
[498] Wallner C., White, J. and Regeni, P. "Building Resilience to Extremism in Gaming: Identifying and addressing toxicity in gaming culture", 2023, p.15.
[499] Schlegel L. and Kowert R. "Introduction: Extremism in Digital Gaming Spaces", in: Schlegel, L. and Kowert R. (eds.) *Gaming and Extremism: The Radicalization of Digital Playgrounds*, Routledge, New York, 2024, p.5.
Dauber C. et al. "Call of Duty: Jihad – How the Video Game Motif Has Migrated Downstream from Islamic State Propaganda Videos", *Perspectives on Terrorism 13*, 2019, pp.17-31.
[500] Schlegel L. "Jumanji Extremism? How games and gamification could facilitate radicalization processes", *Journal for Deradicalization 23*, 2020, pp.1-44.

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livestreamed attacks and the Halle perpetrator allegedly addressed the viewers of his livestream as if he was commenting on a video game.[501] Both jihadists and right-wing extremists have also spread video-game related memes and screenshots online.[502] For instance, a user on a chan-board shared an altered graphic of the popular video game *Grand Theft Auto*, changing the slogan to Grand Theft Auschwitz and replacing the images from the game with images of Hitler, Anne Frank, and concentration camps.[503]

In addition, extremist groups and radicalised individuals have transferred game elements such as points, levels, leaderboards, quests, and achievements to non-game contexts - a practice referred to as gamification. Already in the early 2010s, some jihadist online forums featured game elements, such as the opportunity to collect points for each comment they posted to reach the next 'level', and only granting users achieving a high 'level' access to certain parts of the forum.[504] British right-wing extremists have used a similar approach offline by distributing flyers detailing a point system for attacking Muslims, such as: "Pull the head-scarf off a Muslim 'woman'" (25 points); "Beat up a Muslim" (100 points); and "Burn or bomb a mosque" (1,000 points)".[505] Some right-wing extremist attackers have also included video game elements in their manifestos.

10.3. Challenges for detection, monitoring, and investigations

Several high-profile cases of terrorism and extremism have been linked to digital gaming spaces. This includes, most prominently, the livestreamed attacks in Christchurch, Halle, El Paso (USA) and Buffalo (USA) and the livestreamed storm on the US Capital in 2021, but also the Munich attack in 2016 as the perpetrator was part of anti-immigrant *Steam* groups. As mentioned above, the Unite the Right Rally in Charlottesville (USA) 2017 which left one person dead and several injured was planned via *Discord*.[506] In addition, over the last years, several arrests have been made in relation to content posted on gaming (-adjacent) platforms, which indicated potential violent radicalisation or plans for violence. This includes, for example, an individual arrested by US authorities in 2019 who posted threats against Jewish targets, including "Wanna see a mass shooting with a body count of over 30 subhumans?" on *Steam* as well as the arrests of several minors in Germany and

[501] Böhm M. "Terroranschlag in Halle: Was das Attentat mit Videospielen zu tun hat - und was nicht", *Spiegel*, 11 October 2019.
[502] Kingdon A. "God of Race War: The Utilisation of Viking-Themed Video Games in Far-Right Propaganda", 2023.
Kingdon A. "Beauty is Power: The Use of Gaming References and Gaming Aesthetics in Extremist Propaganda", in: Schlegel L. and Kowert R. (eds.). *Gaming and Extremism: The Radicalization of Digital Playgrounds*, Routledge, New York, 2024, pp.130-147.
[503] Kowert R. and Kilmer E. "Extremism in Games: A Primer", 2023.
[504] Schlegel L. "Working Paper: The Role of Gamification in Radicalization Processes", 2021.
[505] Lakhani, S. "When Digital and Physical World Combine: The Metaverse and Gamification of Violent Extremism", *Perspectives on Terrorism XVII*, 2023, p.116.
[506] Schlegel L., Radicalisation Awareness Network, "Extremists' use of gaming (adjacent) platforms, ibid.

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Singapore after engaging with right-wing and jihadist content on *Roblox* respectively and displaying signs of radicalisation.[507]

However, digital gaming spaces could potentially pose several challenges that make detection, monitoring, and investigations of hateful content, potential radicalisation processes, and attack planning extremely difficult. Firstly, with millions of users engaging in digital gaming spaces every day, the sheer volume of data makes it impractical to monitor all activities. Finding hints of radicalisation in this digital environment could be like searching for a needle in a haystack. Secondly, automatic language detection and processing tools might struggle in gaming environments for two main reasons: First, the prevalence of voice-based communication via livestreams or voice chats, which are difficult to monitor and often disappear as soon as the chat or stream ends; and secondly, traditional keyword searches tracing mentions of weapons or attacks might fail in gaming spaces, because many video games include violent content and automatic detection cannot differentiate whether a user is posting about in-game or real-world violence.

In addition, human-led detection of content in digital gaming spaces is also challenging due to issues of access. Since in-game chats can only be accessed when playing the game, law enforcement personnel would have to spend their working hours playing video games and trying to locate illegal content. This could be impractical and raise ethical, legal, and data protection concerns, as it would involve the surveillance of thousands of innocent users' communication in digital gaming spaces, including those of minors. Furthermore, such a blanket investigation would be incredibly resource-intensive. Surveys with gamers also found that most of them do not report or flag hateful and extremist content when they encounter it.[508] This lack of reporting could mean that neither gaming companies nor law enforcement and prevention practitioners know where relevant content is most prominent, potentially hindering targeted monitoring and investigation efforts.

10.4. Counter-measures

Just like research into gaming and extremism, counter-measures related to this phenomenon are also still very much in their infancy. Nevertheless, the last few years have seen progress in this area. On an international level, the Christchurch Call, an initiative to combat hate and extremism online, was established in the aftermath of the livestreamed attack in Christchurch (New Zealand) in 2019. The initiative includes not only national governments and civil society organisations, but several tech platforms and

[507] Köhler D., Fiebig V. and Jugl, I. "From Gaming to Hating: Extreme-Right Ideological Indoctrination and Mobilization for Violence of Children on Online Gaming Platforms", *Political Psychology 44*, 2023, pp.419-434
Anti-Defamation League, "This is Not a Game: How Steam Harbors Extremists", 2020
Ministry of Home Affairs Singapore, "Press Release: Issuance of Orders Under the Internal Security Act Against Two Self-Radicalised Singaporean Youths", 21 February 2023.
[508] Schlegel L. and Amarasingam A. "Examining the Intersection Between Gaming and Violent Extremism", United Nations Office Of Counter-Terrorism, op. cit.

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online providers, including gaming-related platforms such as *Discord*, *Roblox*, *Amazon* (which owns *Twitch*), *Meta*, and *Microsoft*.[509] Similarly, several gaming-related companies are members of GIFCT. The organisation supports cross-platform counter-extremism efforts and research on extremist activities within the gaming sector and has established a working group specifically focused on gaming.[510] In addition, networks such as EGRN seek to encourage further dialogue and cooperation between policymakers, international organisations, law enforcement agencies, tech and gaming companies, civil society organisations, and researchers to improve knowledge sharing and joint counter-measures.[511]

Furthermore, the gaming industry and gaming (-adjacent) platforms have increased their own counter-measures.[512] Not only do the community guidelines of most gaming-related platforms explicitly forbid extremist and hateful content, several companies have also improved their moderation efforts. *Discord*, for instance, has deleted thousands of right-wing extremist groups on the platform and *Roblox* recently removed games connected to the Russian invasion of Ukraine.[513] *Twitch* too has increased its counter-extremism efforts and successfully removed the livestream of the Halle and Buffalo attacks while they were still ongoing - in fact, it took *Twitch* merely two minutes to block access to the stream of the Buffalo attack after it had begun.[514] Nevertheless, there is much room for improvement, particularly because representatives of the gaming industry report that they still lack adequate tools and strategies to address extremism.[515]

Another issue is that content removal is a game of Whack-A-Mole. Deleted content, groups, and users often re-appear under a new name or on a different platform. The livestream of the Halle attacker, for instance, re-appeared and spread on *Telegram* after being blocked on *Twitch*.[516] Extremist content spreads everywhere online and not all of it can be deleted quickly and efficiently. Therefore, reactive measures are not sufficient and need to be complemented by proactive measures. These proactive initiatives are often led by civil society organizations and prevention practitioners and include a variety of different approaches: among others, the production of bespoke video and mobile

[509] https://www.christchurchcall.com/
[510] https://gifct.org/year-four-working-groups/
[511] https://extremismandgaming.org/
[512] Saltman E. and El Karhili N. "Level Up: Policies, Practices, and Positive Interventions to Counter Terrorism and Violent Extremism in Gaming Spaces" in Schlegel L. and Kowert R. (eds.). *Gaming and Extremism: The Radicalization of Digital Playgrounds*, Routledge, New York, 2024, pp.163-184
[513] Including a game that allowed players to bomb Mariupol - however, the game was still played over 90 000 times in less than two weeks before it was deleted.
Guhl J. "Discord & Extremism", 2023
Pamment, J., Falkheimer J. and Isaksson E. "Malign foreign interference and information influence on video game platforms: Understanding the adversarial playbook", 2023.
[514] Grayson N. "How Twitch took down Buffalo shooter's stream in under two minutes", *Washington Post*, 20 May 2022.
[515] Kilmer E. and Kowert R. "Empowering The Gaming Industry: Strategies for Addressing Hate, Harassment, and Extremism in Online Communities", 2024
Kowert R. and Schlegel L. "The Radicalisation of Digital Playgrounds: The Need for Multistakeholder Dialogue", 2024
[516] Schlegel L., Radicalisation Awareness Network, Extremists' use of gaming (adjacent) platforms,op. cit.

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games to increase resilience against extremist messages, combat hate speech and conspiracy narratives, or increase awareness about radicalisation; digital youth work on gaming (-adjacent) platforms; the appropriation of video game aesthetics in video messages against extremism; and the incorporation of gamification elements to motivate volunteers to debunk fake news or combat hate speech.[517] There are also collaborative initiatives such as *Keinen Pixel dem Faschismus!* (No pixel for fascism!), in which civil society organisations cooperate with gamers and game developers to combat hate and toxicity.[518] Many of these preventative approaches could have a positive impact on digital gaming communities. However, they are still in their infancy, very limited in scope, and lack a robust framework to determine which measures are most promising and effective. More efforts are needed in the future to fully utilise the opportunities for gaming-related prevention initiatives and evaluate their impact.

10.5. Conclusion

This chapter summarised the current state of knowledge on extremist activities in the video games sector. As shown above, extremist actors seek to exploit gaming in various ways to spread their hateful ideologies: by making use of video games, gaming (-adjacent) platforms, and references to gaming culture. However, this does not mean that gaming is *inherently* dangerous or that gamers are more susceptible to radicalisation than other groups. Rather, extremist actors seek to exploit the gaming sector to benefit from the affordances of gaming-related platforms, to cease the opportunity to meet their target audience in familiar digital spaces and potentially reach millions of users with their messages, and to make their propaganda content as attractive as possible.

Large-scale systematic empirical research efforts into extremist activities in the video games sector to determine the exact role gaming may play in radicalization processes have only just begun.[519] Insights on important challenges as well as effective counter-measures are also still largely anecdotal and in need of more examination. For now, many open questions remain and it is likely that our perception of extremist activities in the video games sector, the challenges regarding monitoring and investigation, as well as counter-measures will change and become more nuanced as research efforts advance in the next years. Therefore, this chapter should be understood as a snapshot of a highly dynamic field with lots of room for development. What is clear already at this point in time, however, is that the video games sector has become an important area for political discourses, security considerations, and counter-extremism efforts, and should be treated as such by all relevant stakeholders from the areas of policy, academia, industry, and counter-extremism.

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[517] Schlegel L. "Preventing and Countering Extremism in Gaming Spaces", op. cit., in Schlegel L. and Kowert R. (eds.). *Gaming and Extremism: The Radicalization of Digital Playgrounds*, Routledge, New York, 2024, pp.185-199.

[518] https://keinenpixel.de/

[519] See, for instance, https://www.radigame.de/en/

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11. Concluding remarks

Over the past 50 years, the video games industry has witnessed remarkable expansion. Major players have established themselves in the U.S. and China, while Europe shows strong dynamics in countries such as France, Germany, Poland, Spain, Sweden, or the UK. This growth has also revealed the unique characteristics of the industry's value chain.

As video games continue to evolve, their dual nature, at the crossroad between technology and creativity, presents ongoing considerations, particularly as online gaming becomes increasingly prevalent. This digital shift has heightened concerns about intellectual property protection, prompting the industry to develop multifaceted strategies to safeguard their assets. These approaches combine legal, commercial, and technological solutions to address potential infringement risks. In addition, the perception of the cultural importance of video games varies across regions, influencing the way in which they are supported. This disparity affects the availability of funding opportunities for game developers and publishers. In some areas, financial support may be tied to the perceived cultural value of video games, while in others, it may be based solely on commercial potential.

Risks also arise within the gaming context itself, highlighting the importance of protecting players and their rights. In particular, online gaming has raised a number of new concerns, including the protection of players' personal data, where large amounts of data, including sensitive data can be processed. Additionally, the protection of minors online has evolved, with risks shifting from content-related to context-related issues, such as playtime, social interaction, and monetisation. Tools like age classification, parental control, and community moderation have been developed to address some of these issues.

In addition, ensuring accessibility and inclusion for minorities, including people with disabilities, is making its way into the video games industry, for both players and developers. National security concerns have also emerged, with the potential exploitation of video games and gaming-related content for extremist activities and the spread of hateful ideologies, calling for various types of countermeasures. Finally, the sector, like others, is facing new challenges linked to the ecological transition, advances in artificial intelligence, and emerging market players.

Navigating this complex legal and regulatory landscape is becoming increasingly intricate and resembles a quest from 'Zelda'—filled with puzzles, a few dragons, and the constant feeling that one might have missed something important.

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12. List of abbreviations

ACS	Advanced Communication Services
ADL	Anti-Defamation League
AGE	Attainable Game Experience
AI	Artificial Intelligence
APX	Accessible Player Experiences
AR	Augmented Reality
AVEK	Finland's Promotion Centre for Audiovisual Culture
CDSM	Copyright in the Digital Single Market Directive
CIJV	Video Game Tax Credit (Crédit d'impôt jeu vidéo)
CJEU	Court of Justice of the European Union
CNC	National Center for Cinema and the Moving Image
CNIL	National Commission for Information Technology and Civil Liberties *(Commission Nationale de l'Informatique et des Libertés – French supervisory authority)*
CRA	Cyber Resilience Act
CVAA	Communications and Video Accessibility Act
DLC	Downloadable Content
DSA	Digital Services Act
EEA	European Economic Area
EAA	European Accessibility Act
EDPB	European Data Protection Board
EFIGS	English, French, Italian, German and Spanish (widely used languages into which software is often translated)
EFTA	European Free Trade Association
EGDF	European Games Developer Federation
EGRN	Extremism and Gaming Research Network

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EIF	European Investment Fund
EKOME	National Centre of Audiovisual Media and Communication *(Greece)*
ELSPA	Entertainment and Leisure Software Publishers Association
EPC	European Patent Convention
ESRB	Entertainment Software Ratings Board
EU	European Union
EULAs	End-Use Licence Agreements
F2P	Free-to-play
FAJV	Video Game Assistance Fund *(Fonds d'aide au jeu video - France)*
FCC	Federal Communication Commission (US)
FPU	Art Support Fund *(Fond na podporu umenia - Slovakia)*
GaaS	Games as a Service
GAP	Game Accessibility Paradox
GASIG	Game Accessibility Special Interest Group
GDC	Game Developers Conference
GDPR	General Data Protection Regulation
GIFCT	Global Internet Forum to Counter Terrorism
GPFN	Game Public Funds Network
GPII	Global Public Inclusive Infrastructure
GRAC	Games Rating and Administration Committee
GUI	Graphic User Interfaces
HMRC	His Majesty's Revenue & Custom (UK national taxing authority)
IARC	International Age Rating Coalition
ICCs	Creative and Cultural Industries
ICD	International Classification of Diseases
ID	Inclusive Design
IFSE	Interactive Software Federation of Europe (currently Video Games Europe - VGE)
IGDA	International Game Developers Association
InfoSoc Directive	Directive on Copyright and Related Rights in the Information Society

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IP	Intellectual property
IPOs	Initial Public Offerings
IS	Islamic State
ISO	International Organization for Standardization
ISPs	Internet Service Provider
LAN	Local Area Network
LGBTIQ	Lesbian, gay, bisexual, transgender, intersex, queer
LGBTQ	Lesbian, gay, bisexual, transgender, queer
MMO	Massively Multiplayer Online
MMORPG	Massively Multiplayer Online Role-Playing Game
MR	Mixed Reality
OSA	Online Safety Act
PEGI	Pan-European Game Information
pSTEM	Physical science, technology, engineering and mathematics skills
PTSD	Post-traumatic stress disorder
TDM	Text and Data Mining
TFEU	Treaty on the Functioning of the European Union
ToS	Terms of Service
TPMs	Technological Protection Measures
TRIPS Agreement	Agreement on Trade-Related Aspects of Intellectual Property Rights
UD	Universal design
UGC	User Generated Content
UNCRPD	United Nations Convention on the Rights of Persons with Disabilities
USK	Entertainment software self-regulation
VC	Venture Capital
VGE	Video Games Europe
VoIP	Voice over Internet Protocol
VR	Virtual Reality
VSEs	Very Small Enterprises
WCAG	Web Content Accessibility Guidelines

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WHO	World Health Organization
WIPO	World Intellectual Property Organization

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