



European  
Commission

# Understanding the value of a European Video Games Society

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## Abstract

This summary provides findings of a study on **understanding the value of a European video games society**. The study considered the **economic, social and cultural impacts** that video games have in Europe and aimed to deepen the understanding of the video games sector in the EU.

The study was commissioned by DG Communications Networks, Content and Technology (DG CNECT) of the European Commission and undertaken by Ecorys and KEA. Over 400 sector representatives, mainly from video games companies themselves, took part in the research through workshops, interviews and a survey which, together with a literature review, informed the findings of the study. The report was published in October 2023.

The EU27 video games market generated **EUR €23.48 billion** of revenue in 2022, with revenues in the sector being **4.3 times** higher than digital music and **1.8 times** higher than video-on-demand. The sector is an important part of the Cultural and Creative Industries (CCIs) ecosystem, and it has seen **significant growth**, with revenues expected to reach an estimated EUR 34.28 billion by 2027 (a 45% increase on current levels). The **EU market share of the global video games market has seen a slight decline** from 8.7% in 2017 to a predicted 7.3% in 2027.

The number of European gamers increased significantly over the COVID-19 pandemic, and now **over half of the European population regularly play video games** (people aged between 6-64 years old).

**70% of companies in the EU video games sector employ fewer than 10 people**, but the diversification of distribution platforms beyond consoles and PCs has created a space for indie games from smaller companies to flourish. Still, capital-intensive parts of the market such as hardware manufacturers are generally located outside the EU and only two of the 19 largest games developers in the world are EU27 based. There is a **private financing gap** in the European market which makes it harder for smaller companies to raise the necessary capital from private investors to scale up their operations.

The **complex nature of video games is reflected in the breadth of the regulatory framework** applicable to the industry. This affects creative content, hardware and software, or games as a product or service. As such, the sector is subject to various regulations which smaller companies find hard to understand.

The video games sector in Europe employs around **74,000 people across 5,000 game development and publishing studios**. In the EU27, 40% of firms report **difficulties in recruitment** and finding the skills that they need. Many small companies lack the resource and capacity to both recruit new staff and retrain existing staff. **Inclusion and diversity within the video games sector has improved in recent years**, but there are still improvements to be made.

Video games are an **important part of Europe's cultural landscape**, as their artistic and creative dimension distinguish them from other technological products. This growing recognition is clear in terms of policymaking as video games become prevalent in key cultural and creative policy documents.

Any future EU strategy should aim to **increase the competitiveness of the video games sector to enable future growth. This would bring a broad set of benefits for the EU**. The overachieving goal recognises that the sector will continue to grow in the years to come, but that the EU's competitiveness at a global scale can be strengthened. The report puts forward nine recommendations to enable the best conditions for maximum economic, social and cultural impacts of video games in and for Europe.



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## Executive Summary

This report provides the findings of a study on **understanding the value of a European video games society**. The study was commissioned by DG Communications Networks, Content and Technology (DG CNECT) of the European Commission and undertaken by Ecorys and KEA.

The study has considered the **economic, social and cultural impacts** that video games have in Europe and aimed to deepen the understanding of the video games sector in the European Union (EU). It has reviewed challenges and issues faced by the video game industry and workforce - topics that have been generally under-researched across the sector. A total of 460 sector representatives, mainly from video games companies themselves, took part in the research through workshops, interviews and a survey which, together with a literature review, have informed the findings of the study.

### Market overview

Standing at **€179 billion in revenues 2022**<sup>1</sup> the **global video games** market is significantly larger than the combined revenues of other digital media sectors including video-on-demand (with revenues of €126 billion) and digital publishing (€47 billion).<sup>2</sup>

The EU27 video games market generated **€23.48 billion** of revenue in 2022.<sup>3</sup> Since 2021, revenue levels have grown by 15%, and is expected to reach €34.28 billion by 2027, representing a 45% increase on current levels. The EU market share of the global market is shrinking, **with a slight decline in its share from 8.7% in 2017 to a predicted 7.3% in 2027**. This can in part be explained by **faster growth in competing markets**, mostly in North America, Asia and Africa.

Video games are an integral part of the cultural and creative industries (CCI). In 2020, revenues for the EU video games sector were **5.5 times** higher than in e-Publishing, **4.3 times** higher than digital music and **1.8 times** higher than video-on-demand.

Video games are now first and foremost digital. Since the advent of smartphones, the sector has seen significant growth from both digital video games and in particular **mobile games**.<sup>4</sup> The latter accounted for 73% of total revenues in the sector in the EU27 in 2022. Physical games still exist, but only constitute 17% of the European sector's total revenues.<sup>5</sup> The digital shift has introduced millions of new people to video games, through the use of smart phones as gaming devices.

The number of European gamers increased significantly over the COVID-19 pandemic, and now **over half of the European population** (237 million users aged between 6-64 years) **regularly play video**

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<sup>1</sup> Newzoo (2022) 2022 Global Games Market Report. [https://newzoo.com/resources/trend-reports/newzoo-global-games-market-report-2022-free-version?utm\\_campaign=GGMR2022&utm\\_source=press](https://newzoo.com/resources/trend-reports/newzoo-global-games-market-report-2022-free-version?utm_campaign=GGMR2022&utm_source=press)

<sup>2</sup> Digital Media – Worldwide (data retrieved in June 2023), from <https://www.statista.com/outlook/dmo/digital-media/worldwide?currency=EUR>

<sup>3</sup> From Statista Video Games - EU-27. (data retrieved in June 2023), at <https://www.statista.com/outlook/dmo/digital-media/video-games/eu-27?currency=EUR>. The data encompasses B2C enterprises. Figures are based on the Games segment, which is divided into Physically Sold Video Games and Digital Video Games. Physically Sold Video Games comprises revenues associated with in-person purchases of video games in retail stores. All monetary figures refer to consumer spending on digital goods or subscriptions in the respective segment. This spending factors in discounts, margins, and taxes.

<sup>4</sup> Mobile games are video games designed for mobile devices, such as smartphones, pocket PCs or personal digital devices such as a tablet.

<sup>5</sup> Physically sold video games are sales of physical console and PC games associated with in-person purchases of video games in either retail stores or in online-shops as CDs, DVDs, or other solid storage media.

**games.** There are no significant gender differences among players in Europe, but some variances between ages exist. For example, whilst 35% of 45-64 regularly play video games, 80% of 11-14-year-olds are video game players.

In the EU27, 70% of companies in the sector employed fewer than 10 people, but the **diversification of distribution platforms** beyond consoles and PCs has created a space for indie games from smaller companies to flourish. Still, capital-intensive parts of the market such as hardware manufacturers are generally located outside the EU. The dominance of smaller firms in the EU sector is also highlighted by the fact that only two of the 19 largest games developers in the world are found in the EU27.

Different segments are growing at different speeds. **Gaming Live Streaming<sup>6</sup> and Cloud Gaming<sup>7</sup> are the fastest growing.** The first is expected to grow by 220% from 2017 to 2027, and will soon become the most popular segment in the video games industry. **Cloud gaming** is predicted to have a growth rate of 600% from 2020 to 2024.

**Technological innovations could impact the EU's video games sector in areas such as VR/AR and virtual worlds.** Major investments in these fields are mainly driven by large tech companies (often from North America and Asia), with smaller companies waiting for a clearer market uptake before venturing into the application of these novel technologies.

There is a **private financing gap** in the European market. This makes it harder for smaller companies to raise the necessary capital from private investors to scale up their operations. The potential consequence is that the small companies that make up much of the EU video games sector will remain SMEs or micro-companies, and be constrained in their capacity to grow and innovate.

## The regulatory environment

The **complex nature of video games is clearly reflected in the breadth of the regulatory framework** applicable to the industry. This affects creative content, hardware and software, or games as a product or service. As such, they are subject to various rules and regulations:

- ▶ **Cultural content and original creations:** the regulatory framework applicable to **Intellectual Property (IP) protection** in Europe is robust and the video game sector can adequately protect the various creative elements constitutive of video games. The actual enforcement of these rules is challenging in some cases where the speed of (mobile) games replication may outpace legal proceedings.
- ▶ **Video Games as a market: anticompetitive behaviours in the video games sector are scrutinised as part of EU antitrust law.** While the video game market is generally competitive and composed of a diversity of market players, competition risks can potentially arise in relation to emerging market trends and new technologies. **The video games sector does not benefit from a particular State aid exemption** in the same way as other cultural and creative sectors do, but more European countries are acknowledging the value of supporting video games, especially through tax shelter schemes.

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<sup>6</sup> The live streaming of video games is an activity where people broadcast themselves playing games to a live (usually online) audience.

<sup>7</sup> Cloud gaming is a method of playing video games using remote servers in data centres which means the user does not have to download and install games on their device.

- ▶ The consumer protection legal framework in Europe offers a **high level of protection for users and consumers**, especially minors. Self-regulation is quite important in the industry (minor protection, parental control tools, moderation of online exchanges). Nonetheless, several challenges linked to harmful online behaviours are also affecting the video games sectors in the EU, such as gaming addiction, online misbehaviour (including the sharing of inappropriate content), and online grooming.

## Employment, Education, and Skills needs

The video games sector in Europe employs around 74,000<sup>8</sup> people across 5,000<sup>9</sup> game development and publishing studios. This employment number has been steadily increasing over recent years, despite cycles of layoffs being a general characteristic of the industry. In most cases, workers enter the sector by combining knowledge acquired through formal 'traditional' education with experience acquired independently (including through self-learning via online training).

Employees often work flexibly across different job roles in the video game sector, combining functions of different sorts. This is particularly the case in small companies which may lack capacity to recruit and train staff. Temporary or freelance staff are a feature of the sector, which limits opportunities for ongoing training and development, and contractual security within the workforce.

The EU market attracts staff by offering creative opportunities and positive working conditions and labour protection practices compared to elsewhere in the global market. Increasing unionisation in the sector has increased levels of employee representation, especially on legal and contractual issues.

The talent pipeline could be improved **to better support the future video games workforce**. There is for example **not enough collaboration between educationalists and the video game industry**. This challenge is exacerbated by the fast-changing needs of a rapidly developing sector that can make it difficult for educationalists to design training provisions that remain relevant.

This limits the industry's **access to high quality talent across a variety of skills domains**. In the EU27, 40% of firms report difficulties in recruitment and finding the skills that they need. Many small companies (the majority of the industry) lack the resource and capacity to both *recruit* new staff and *retrain* existing staff.

**Inclusion and diversity within the video games sector has improved in recent years**, but there are still improvements to be made. The sector could clearly communicate the opportunities of employment to a wider demographic, particularly when it comes to gender. Evidence from other industries shows that employing staff with a wide range of perspectives is a proven way to support innovation and competitiveness.

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<sup>8</sup> <https://www.videogameseurope.eu/news/europes-video-games-industry-publishes-annual-key-facts-report-authoritative-data-and-engagements-from-2021/#:~:text=Key%20Facts%20from%202021%20%E2%80%93%20highlights&text=Global%20revenue%20exceeded%20%E2%82%AC1,published%20the%20Guide%20to%20Esports>

<sup>9</sup> EGDF, Report on the European game development industry in 2019 (EGDF, 2019).

## Cultural, social and educational dimensions

Video games are an **important part of Europe's cultural landscape**, as their artistic and creative dimension distinguish them from purely technological products. This growing recognition is clear in terms of policymaking as video games are becoming more prevalent in key cultural and creative policy documents<sup>70</sup>.

From a cultural perspective, video games in the EU are used in various ways as **art forms** and are regularly part of Europe's museums and cultural institutions' curatorial practices, being increasingly seen as tools to engage with cultural heritage in an enhanced way. **Cultural heritage video games** are an important tool for heritage education as they provide an engaging and interactive way to educate people about the importance of preserving Europe's cultural heritage. Video games are a powerful way to interact with a topic, and they can provide insight into a particular culture or place. **Video games themselves are also clearly part of cultural heritage in the EU**, but safeguarding the complex software, content and hardware combination of video games raise several intellectual property and technical issues.

The EU's video games industry is generating a broad range of **economic and social spillovers**. Video games are becoming platforms to promote creative content from other cultural and creative sectors, ranging from fashion and design items to live concerts. Conversely, films and TV productions in the EU use video games IPs and are increasing both in number and perceived quality.

Video games can also generate important health benefits, and can be used to enhance health recovery, improving brain function and motor coordination, and promoting stress reduction and relaxation. Online gaming communities also enable millions of Europeans to interact with one another. Nonetheless, online interactions (and anonymity) in gaming can also subject to inappropriate and harmful behaviours.

## Overarching policy recommendations

Any future EU strategy in this area should aim to **increase the competitiveness of the video games sector to enable future growth. This would bring a broad set of benefits for the EU**. The overarching goal recognises that the sector will continue to grow in the years to come, but that the EU's competitiveness at a global scale can be strengthened. This would then enable the best conditions for maximum economic, social and cultural impacts of video games in and for Europe.

The research has resulted in a set of recommendations. These build on the evidence presented in the report. They highlight what should be done to address the key challenges to the EU sector's future growth and competitiveness. The recommendations are tailored and selective, focusing on a set of key issues raised across the four thematic areas of 1) economic and investment aspects, 2) regulatory aspects, 3) workforce aspects including skills and education, and 4) cultural and social aspects. The recommendations do not address every challenge, but highlight where future targeted and strategic action could have a meaningful impact.

### Recommendation 1: Strengthen mechanisms to support structured policy dialogue within the sector

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<sup>70</sup> See [European Media Industry Outlook](#) from the European Commission which provides market overviews, technology trends and emerging production and consumption patterns at EU27 level in key sectors including the video games sector.

The potential for innovation and growth within the video game sector justifies an increased level of policy involvement and attention. There is currently a **lack of structured dialogue between the video games industry and policymakers on all levels**. There is a particular need for a united forum for the sector since the video game sector is multifaceted and falls under the scope of a range of policies and regulatory frameworks.

**National level governments** should create a forum to facilitate discussion between video games industry representatives and policymakers. This should focus on understanding country level sector needs and priorities, in order to inform national level video games policy.

It is recommended that the **European Commission** creates a forum for discussion, information exchange and mutual learning between industry representatives, and policy stakeholders across Europe and between Member States. These forums (national and EU) could take the form of online communities (such as the online Communities of Practice set up by the European Commission for vocational education practitioners) which can build a membership, and host virtual and physical conference style events several times a year.

**Recommendation 2: Channel targeted financing solutions to strengthen the competitiveness of video games, with a focus on scaling up emerging and small game developers.**

**Access to finance is one of the main barriers to growth** for the small games companies. They make up the majority of the market, and there is a need for **more targeted financial support** to help them scale up. Access to finance is important to invest in infrastructure for growth, and in activities such as monetising unique creative intellectual properties through adaptations across formats. Three actions are recommended to address this.

Firstly, **Private investors** develop financial tools suited for the investment into the IP intensive industry, both in the form of loans (for bridge financing to support the completion of a game) and equity (to build the human and technical resources to produce new games more quickly and respond to consumer demands).

Secondly, **video game trade associations** should facilitate opportunities for private investors and video game companies to connect, for example at networking and pitching events including at existing video game conferences and events.

Thirdly, the **European Commission** should work to maximise access to existing EU funding opportunities. This can be done by making explicit reference to video games across relevant instruments, and raising awareness of existing opportunities. The European Commission should also examine how existing EU instruments can be leveraged to scale up small video games companies (e.g. SME and start-up instruments such as the European Innovation Council accelerator programme, or the Knowledge and Innovation Community on culture and creativity).

**Recommendation 3: Encourage cross-sector collaboration between the EU video games sector and other EU sectors to maximise innovation and social benefit.**

Collaboration between the EU's video games sector and other economic sectors is currently limited. More collaboration should be facilitated in **order to maximise innovation and technological spillovers**. Leveraging technological advancement in video games could enable progress in other sectors.

**Representative bodies across a range of sectors** (e.g. health and social care, education, environment, transport) could better showcase innovation, product development or efficiency benefits that cross-sectoral collaboration with the video game sector has brought. These bodies should feature use cases on their websites and at industry events. This could inspire a range of sector and industry stakeholders to invest in building connections with the video game sector.

National and European Government, along with video sector trade associations should work together to encourage and advise representative bodies in implementing this action. In addition, **video games sector representatives** should actively promote relevant events run by other sectors to their members in order to encourage video games sector representation at key industry forums.

**Recommendation 4: Improve data and insight on the European video games sector to enable evidence-based policy interventions.**

There is **limited data on the video games sector**. This is a barrier for policymakers to sufficiently understand economic and workforce development trends. The Statistical Classification of Economic Activities in the European Community (NACE) currently only covers Games Publishing. The result is that multiple dimensions of the sector are not reflected in available statistics (including software development), a challenge in the development of informed and effective policy for the video game sector.

**Existing NACE industrial codes should be reviewed and broadened to cover the full range of industrial activity connected to the video game sector.** This action should be progressed by the **European Statistical System** which is responsible for the development, production, and dissemination of European statistics.

This action is a medium-term ambition to achieve over the next 3-5 years, given the existing review processes in place. In the short-term, **Member State governments** should actively support and promote the development of accurate sector data and intelligence through commissioning research and profiling of workforce circumstances. **Sector representative bodies and organisations** should focus on facilitating the exchange of national level data collection approaches. They should work to compile and compare national level evidence, also reviewing how gaps in European level evidence can be plugged through new research. The role that the European Audiovisual Observatory could play in data collection on the video game sector should also be analysed.

**Recommendation 5: Strengthen the education and training offer to support the sector's future workforce.**

Lack of skills is a key barrier to future growth in the EU's video games sector. To address this, the **quality and relevance** of education provisions need to improve and keep pace with the changing needs of the workforce. Strategic dialogue between those designing and delivering education provisions and the industry itself should be developed. The aim is for the provision to better fit the skills need of the industry.

**Companies across the video game sector** should invest more resources to develop education and training provisions to help address talent shortages. **Representative sector bodies and larger video games companies** should facilitate opportunities to bring the education and video game sector together so they can cooperate to understand and respond to the key needs of the sector. They should also gather insight and information on skills needs on an ongoing basis so that education (and ongoing training and development) can respond to needs. This might be achieved through carrying out surveys

with a representative sample of EU video-game companies, or commissioning bespoke pieces of research to shed light on how the relevance of provision can improve.

The **video games sector** should also increase engagement with existing education and skills initiatives taking place at the local, national and EU level. For example, at the EU level this includes the [Digital Skills and Jobs Coalition](#), the European Alliance for Apprenticeships, and Large-scale skills partnership for the Cultural and Creative Industries ecosystem under the EU Pact for Skills (aimed at developing concrete upskilling and reskilling initiatives in the cultural and creative industries).

#### **Recommendation 6: Promote inclusion and diversity in the video games workforce.**

Despite an increasing number of initiatives to promote inclusion and diversity across the sector, available evidence suggests that there is still progress to be made. **The diversity of the workforce could better reflect society and the wider player community.**

The **industry** should proactively share and communicate information on positive role models within the industry. These role models should include sector representatives who will inspire and attract new workers to the sector, especially those that have protected characteristics (for example role models with disabilities, who are female, or who are older). **Companies** could also provide focussed training to the existing workforce to raise awareness and promote more inclusive practices.

**Member States and European Agencies including the European Commission** could support this by identifying and facilitating the exchange of good practice on the design and delivery of inclusion and diversity initiatives by EU companies. This may include partnering with industry to identify and promote good practice, and providing forums and opportunities through which industry representatives might come together to exchange information and learning from each other.

#### **Recommendation 7: Develop a policy and regulatory 'lighthouse' for small business to navigate regulatory requirements.**

Mixing creative content and new technologies, video games are complex products. The regulatory framework is inevitably complex with provisions and requirements relating to copyright, intellectual property, consumer protection and technological development. The regulatory framework provides necessary protection but **requirements can be hard to navigate for businesses, especially small companies with limited resource.**

It is recommended that **video game trade associations (with cooperation from national and European government)** provide **clear guidelines to help small businesses identify and understand the regulations that apply to them.** This should take the form of an online resource which can be updated over time, and which is hosted on a shared platform. This platform should be endorsed and signposted to video game companies by trade associations and government across a range of levels. Guidance should include 1) Consumer protection rules and the potential evolution of requirements 2) E-privacy provisions 3) The Digital Services Act and Digital Markets Act. Advice and support targeted at businesses in an early stage of their growth will help to reduce the resource needed to navigate requirements, and to ensure that they have processes in place to ensure compliance as they grow.

#### **Recommendation 8: Review State Aid Provision for the sector**

In order to **create more favourable conditions for growth across the video game sector**, the **State Aid provisions for video games should be reviewed.** Industry stakeholders (across a range of

company sizes and specialisms) engaged in this research report that this would help to remove barriers to their growth.

Many Member States are setting up State aid measures for video games (such as tax incentive schemes), since other non-EU countries offer more favourable conditions for game companies at the international level. State aid measures are particularly challenging to establish as video games are not covered by the General Block Exemption Regulation for State aid and State aid support to the video games sector requires a formal notification procedure.

It is recommended that the **European Commission** facilitates the following 1) review of the General Block Exemption Regulation to cover Video Games and therefore facilitate the approval of State aid schemes for the sector; or 2) extending the scope of the Communication on State Aid for films and other audiovisual works to video games.

In order to test the feasibility and relevance of these options, the **European Commission, supported by Sector representative bodies (e.g. Video Games Europe)** should establish a structured dialogue with industry to understand the main needs and issues and then to explore whether existing State aid provisions could be adapted to the sector. This dialogue should help to define the criteria for the cultural test of video games, the type of eligible expenses, and maximum ceilings for State Aid.

#### **Recommendation 9: Facilitate the safeguarding of video games as cultural heritage**

To preserve and safeguard video games, it is necessary to consider its different components: from the game code to the storylines to the technical tools necessary for its operation, requiring migration and emulation techniques. Directive 2019/790 (the CDSM Directive) introduced new rules on the conservation of cultural heritage.

The **video game sector, gaming community, and cultural heritage institutions** should work in partnership to preserve video games (e.g., identifying and preserving the source codes of older games). This should be facilitated through existing networks like the European Federation of Video Game Archives, Museums and Preservation projects. Meanwhile, the **European Commission** should monitor the implementation of the CDSM Directive and case law should appraise the extent to which this facilitates video game preservation in practice (for instance as part of an evaluation of the Directive).



**01**

**Introduction**

## 1.0 Introduction

This report provides findings for a study on **Understanding the value of a European video game society**. The study was commissioned by DG Communications Networks, Content and Technology (DG CNECT) of the European Commission and was undertaken by Ecorys and KEA between January 2022 and August 2023.

The study aimed to review the cultural, financial, and social impacts that video games have on society. Its underpinning objective was to inform a deepened understanding of the video games sector in the European Union (EU), in terms of both the challenges and the issues that it faces. The study has been arranged around a set of four themes including: 1) economic and investment aspects, 2) regulatory aspects, 3) workforce aspects including skills and education, and 4) cultural and social aspects.

The approach to the study responded to the limited existing evidence base concerning the video game sector. The study draws together evidence from a **review of existing secondary sources, an online survey** undertaken with stakeholders across the sector, a set of **thematic workshops and a programme of interviews** undertaken with a range of experts and representatives.

Overall, the work has consulted over 200 secondary sources, engaged with over 300 sector representatives through workshops, surveyed over 135 sector stakeholders and undertaken in-depth interviews with over 30 industry representatives with expertise or specialist knowledge of the sector. In engaging directly with stakeholders from the sector, this study in many ways represents the first study of its kind and represents a valuable addition to the existing evidence base. As part of the approach, a network of sector actors and stakeholders has been developed, which can continue to be built as a basis for ongoing dialogue and collaboration.

Reflecting its breadth of focus, the study does not constitute a detailed data audit and does not intend to fill all gaps in understanding at a granular level. In some cases the study has served to identify persistent gaps in evidence and understanding. Chapter 6 of the report therefore identifies some recommendations around how future work and initiatives might build on this study and further contribute to evidence-based policy making through deepening understanding of the sector.

This report is mindful of the European Parliament report on esports and video games (Motion for a European Parliament Resolution 2022/2027 (INI)).<sup>17</sup> Much of the research undertaken as part of Understanding the value of a European Video Games Society reinforces and reflects the findings of the Resolution. Both recognise the scale of the video game sector's potential to contribute to future growth and innovation (including through cross-sectoral collaboration).

### 1.1 Project aims and strategic questions

This project has been underpinned by four key aims, all of which seek to help policymakers and industry players to have a stronger insight into the issues affecting the EU's video games sector. Ultimately the study intends to facilitate informed policy making and initiatives through expanding awareness and understanding of the issues across the sector. The four aims are as follows:

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<sup>17</sup> European Parliament, Committee on Culture and Education. Motion for a European Parliament Resolution on esports and video games. [https://www.europarl.europa.eu/doceo/document/A-9-2022-0244\\_EN.html](https://www.europarl.europa.eu/doceo/document/A-9-2022-0244_EN.html)

**Aim 1:** To understand the **issues and opportunities** facing the video game sector in the EU. Although the sector has enjoyed steady and extensive growth over recent years (which will be explored across this report), there has been limited primary research into the needs of the sector, and the state of the EU video gaming sector and the issues it faces remains relatively under-researched.

**Aim 2:** To understand the **impact of the video games sector across a number of key EU policy areas**. This aim revolves around understanding how the sector impacts upon and relates to various policy agendas including those linked to cultural, financial and social issues. This aim is underpinned by the rationale that regulation and interventions to support the video game sector into the future need to be informed by an understanding of how the sector relates to a range of policy areas and agendas.

**Aim 3:** To understand how the EU could play a targeted and active role in supporting the sector through specific policy approaches. This third aim reflects on the needs of the sector and highlights the added value which the EU can play to support the sustainable growth of the video games sector in the future.

**Aim 4:** To nurture a network of actors and experts in the EU video game sector, in order to facilitate future exchanges. This final aim will lay the foundation for future collaboration with the sector by identifying a group of actors and stakeholders from within the sector which the EC can collaborate with going forward.

This study was framed around a set of **eight strategic research questions** (presented below) which were informed by DG CNECT's initial Invitation to Tender, and which reflect and build on the four aims mentioned above.

- ▶ What are the main characteristics of the videogame industry ecosystem in the EU? How does it differ from other global markets?
- ▶ Who are the main EU-based game creators and video game companies (including those smaller and independent players), what are their key characteristics, what are their main needs and what are their goals in the EU (and global) market?
- ▶ What is the cultural, financial and social impact of videogames and the video games industry in the EU?
- ▶ What is the current regulatory context and policy agenda (per policy area) at the EU level and Member State level for the videogame sector in the EU, its current gaps, challenges and opportunities?
- ▶ What are the main support instruments available at EU and Member State level to the video game industry, its current gaps, challenges and opportunities? Are there any best practices?
- ▶ What are the major trends in EU gaming market, in what ways they can impact the key EU market players and how can the EU support the industry to adapt to these changes?
- ▶ How can we promote and nurture an EU-wide network of pertinent actors and experts in fields related to the video game industry?
- ▶ What is, according to the different market players and stakeholders active in the videogame industry, the best course of action for the EU to support the future of the industry in Europe?

The objective for the study was to consider the value and potential of video gaming for the European economy, its society and culture – focusing particularly on the opportunities ahead for the sector and the ways in which these might be facilitated into the future (for instance through policy actions or collaboration between industry and the sector). Although consumer protection is considered in Chapter

3 concerning the regulatory environment, this study does not focus substantively on potential harms associated with video gaming and how these might be mitigated.

## 1.2 Methodological overview

This report presents the evidence gathered across a range of methodological strands.

Firstly, the study involved a **desk-review strand**. This element of the work consulted over 200 secondary sources of information overall, as part of a review undertaken between February 2022 and March 2023. This included drawing on the following range of sources:

- ▶ EU policy papers and studies in the field of video gaming and cultural and creative sectors, to understand the issues from a strategic, legal and political standpoint.
- ▶ Papers and studies providing analysis of various issues in the sector at EU and country level. It is useful to note that the most informed sources have come from the European Game Developers Federation (EGDF) and the Interactive Software Federation of Europe (IFSE).
- ▶ International reports on the status of the video games sector, providing data at a global and regional level. Of particular importance in this regard are Newzoo reports and surveys conducted among developers, organised for instance by the International Game Developers Association (IGDA), and the State of the game industry reports authored by the Game Developers Conference (GDC).
- ▶ National reports from national associations (usually representing businesses) and studies from trade associations (for example, reports from Game Workers Unite (GWU), and from French video game trade unions).
- ▶ Databases collecting quantitative sources such as Statista.
- ▶ Academic articles from scholars and researchers conducting scientific research on aspects relevant to our research.
- ▶ News articles available online from sectoral publications, blogs, and newspapers.

The sources reviewed were useful in establishing what evidence already exists in relation to the video game sector, but also highlighted quite piecemeal data and coverage in relation to key issues. Thus, there are particular limitations which need to be born in mind when weighing up and applying the evidence, particularly around the validity of existing data sets. These are set out later in this section.

The final section of the report (Chapter 6) identifies recommendations for EU stakeholders to consider, drawing on the findings from the research, and also reflecting on the gaps in the evidence base which the research has highlighted.

Secondly, a series of **thematic workshops** were undertaken with stakeholders and representatives across the sector. These workshops were held in order to understand the perspectives, insights and experiences of those working in, or connected to the video game sector, either as industry players, sector representatives (such as membership organisations) or policy makers. Overall, 11 workshops were undertaken attended by over 300 people, including a number undertaken virtually and several delivered on a face-to-face basis. These workshops adopted a range of formats, but generally involved a presentation from thematic experts on a particular topic and creating a forum for participants to share their questions, perspectives and experiences. Most workshops sought to facilitate some cross-fertilisation of inputs as participants shared their inputs and views across a range of thematic areas,

reflecting their various experiences and the national contexts which have shaped their interaction with the sector. The workshops also represented an effective opportunity to build awareness of the study, and a basis for developing and establishing a network of stakeholders across the sector. The below table sets out the workshops delivered through the study:

Table 1: Workshops and themes

Workshop theme	Date	Format	Number of attendees
The value of a European Video Games Society	31/03/2022	Online	30
Challenges and opportunities in the video game sector	26/04/2022	Online	35
Education, research, and skills' needs in the video games sector	17/05/2022	Face to face	16
Games as cultural and artistic expression	16/06/2022	Online	31
Regulatory Framework for Video Games	12/07/2022	Online	31
Health, Wellbeing & Video Games	23/08/2022	Face to face	23
Greening the Video Games industry: Winning solutions for the environment	22/08/2022	Face to face	20
Rules in Play – Regulatory framework enforcement in the video games industry	20/10/2022	Online	40
Fuelling a growing market – Financing and investments in the video games sector	15/11/2022	Online	30
Market trends in the video games sector: today and tomorrow	17/11/2022	Online	25
Policy actions for boosting the EU video games sector	08/12/2022	Online	20

Thirdly, an **online survey of sector representatives** was undertaken between September and November 2022. Overall, 134 responses from stakeholders were received. The survey questions are attached to this report as an annex. The survey was not undertaken with a fully representative sample of the sector, rather was used to gather perspectives and views from a range of stakeholders. The survey was disseminated to the full list of contacts developed across the course of the study, as well as stakeholders taking part in the workshops and engaged across the course of the study, for example at industry events.

Finally, a programme of **stakeholder interviews** was undertaken as part of the study. Overall, 33 interviews were undertaken as part of this strand of the work and sought to deepen understanding

across the study's thematic areas of interest. The interviews built on the evidence gathered through the desk-research phase, but also provided insights where the secondary evidence is limited. The interview questions were tailored to the particular specialisms or experience of the stakeholders, although were framed around a question topic guide (which is attached to this report as an annex).

A study advisory board has also guided the progress of the study and has signposted the research team to relevant sources and stakeholders to include in the research. The feedback and insights from these experts has also helped to shape the direction and coverage of the study, as well as the triangulation of findings and generation of recommendations.

### 1.3 Limitations of the research

A wide range of secondary sources have been consulted as part of the work, but a number of limitations should be held in mind as to the degree to which secondary data can be taken as representative, robust and consistent. Much of the literature sourced through the desk research provides insights and commentary on various topics but is more limited when it comes to offering robust evidence based on quantitative data. Here we present some details on some of the core sources that have been consulted through the work, noting the focus and contribution of each, but also the limitations which should be noted.

- ▶ **European Game Developers Federation (EGDF) and Interactive Software Federation of Europe (IFSE)** market reports. EGDF and IFSE are sectoral membership-based associations representing game studios and publishers in various EU member states. Their yearly reports are one of the most readily available and detailed sources of EU-level and structured data on the video games sector, which summarise findings from studies commissioned at the national level. While extremely useful for providing a snapshot of the EU video games market, these reports cannot be considered entirely independent pieces of research due to the mission and membership of the associations promoting them. Moreover, the methodology used in these reports mostly relies on data collected from national sources (which are only partially comparable) and has not been subject to peer-review – which complicated the efforts of the research team to verify data.
- ▶ **Statista database:** a German online portal collecting and visualising secondary statistics and quantitative figures and conducting primary research on a variety of digital economy and industrial sectors. Statista provides access to a wide variety of different sources, which has been purchased for this study, and which allows for relatively straightforward triangulation between sources. Collecting statistics from other reports, it includes information regarding many aspects of the video games ecosystem, ranging from market size numbers to indications of hours played, to users per segment. However, most figures provided by Statista are not drawn from primary research but are rather collected from other existing reports and sources. This means that, while facilitating the research process, Statista typically does not provide new primary data.
- ▶ **Newzoo reports:** conducted by a Dutch company leading provider of video games and e-sports analytics, these sectoral reports present mostly global figures and trends for the video games sector. Reports clearly present the methodology used, mostly based on primary research conducted by the team involving over 75,000 respondents and are entirely dedicated to the video games market. The open access version of Newzoo data has been accessed for this study (free of charge), with limitations, reflecting that the data does not tend to focus on Europe and on the European market specifically. Access to additional data sets can be purchased, although with costs in the region of EUR 40,000, they have not been reviewed as part of this study.

- ▶ **Eurostat based on NACE** (Statistical classification of economic activities in the European Community) classification: these industry codes are the standard classification system for European industries. NACE categories do not include the whole video games ecosystem, and associated statistics only partially represent the activities and circumstances across the sector. The only direct reference is category J58.21, “Publishing of computer games”, which refers to a single aspect (publishing) and disregards the rest of the activities conducted in the sector (development, artistic direction, music creation, distribution, etc.). Eurostat includes 2019 statistics for category J58.21 relating to the number of enterprises, turnover or gross premiums written, production value, value added, gross operating surplus. NACE categories that could be of relevance, namely Section R (Arts, entertainment and recreation) and Section J (Information and Communication) do not make further references to video games.

Considering the remit and focus of this report, we have been primarily interested in European level data. EU-27 has been the preferred geographic level for the analysis, and in cases where data is not available specifically for the EU-27 territory, data has been included which includes the UK and other European countries not in the EU). Where EU-27 data is limited in its availability, so country specific examples (European) are referred to in some cases to explore broader trends. At the same time, bearing in mind the overall limitations discussed above and the lack of data on the video game industry, international sources are drawn on were useful. Whilst there are some distinctions around revenue growth data, global and US data sources are helpful in assessing the positioning of the EU in the context of the global marketplace. Examples and data about the US market are preferred, since it, in many ways can be seen to be connected to, and reflective of the EU market.

## 1.4 Structure of the report

The report is structured as follows:

- ▶ **Chapter 1** provides an **introduction to the research**, its key research questions, and an introduction to data sources and limitations.
- ▶ **Chapter 2 ‘Market overview and financing’** looks at macroeconomic data and key market trends in Europe and beyond. The chapter also provides an overview of typical business models, value chains and funding mechanisms for the sector, both public and private.
- ▶ **Chapter 3 ‘The regulatory environment for video games in Europe’** analyses the legislative frameworks existing in Europe which have an impact on the running of the video game market (copyright, intellectual property laws, competition laws and a focus on artificial intelligence regulations), as well as the framework protecting video game users.
- ▶ **Chapter 4 ‘Employment, Education and Skills needs** in the EU video game sector’ considers the employment and labour market aspects of the sector. The chapter looks at roles, skills, working conditions, diversity/ inclusion and education and training.
- ▶ **Chapter 5 ‘Cultural, social and educational dimensions of EU video game sector’** analyses the multi-faceted dimension of video game and their impact on society, creativity, health, and heritage.
- ▶ Finally, **Chapter 6** summarises the core messages and recommendations presented throughout the report.

The annexes at the end of this report contain further detail and context linked to the study. **Annex 1** summarises key themes from the 11 workshops run by the team between March and December 2022.

**Annexes 2 and 3** report the names of interviewees and sector experts that have been consulted during the research. **Annex 4** lists the academic and grey literature used by researchers as secondary data sources. **Annexes 5 and 6** present the questions asked in the survey and discussed in the interviews.

## 1.5 Orientation to terminology used in this report

This section introduces and explains some of the key terminology and concepts referred to in this report.

### 1.5.1 Main Actors in the value chain:

- ▶ **Game creators or developers:** the Video Game Industry would not exist without the hundreds of video game artists (2D and 3D), composers, writers, (voice) actors, and programmers that conceptualise, design, write and programme the video games that are sold (or openly shared) in the global market. Many of these video game creators operate within the studio and publisher system (either as hired staff or freelancers) but a sizeable number of them also operate independently from this, as part of the independent game (Indie Game) scene.
- ▶ **Game studios:** these are the main companies responsible for hiring video games creators and the most visible side of the industry for the consumer. In the console market, game studios can be further sub-divided into first-party studios (for example are part of the console development company and develop exclusively for them), second-party studios (develop only for a particular console but are not part of the console company) or third-party studios (develop for any console in the market).
- ▶ **Hardware and Peripheral developers:** aside from PC and Mobile gaming, which uses third-party hardware (such as graphic cards and Mobile phones) to run video games, a sizable proportion of video games (44% of revenues in 2021 in EU key markets according to the ISFE) is experienced through consoles and other dedicated devices. The market is dominated by three major players: Microsoft (Xbox), Nintendo (Switch) and Sony (PlayStation) which represent the entirety of the console hardware market.
- ▶ **Game Publishers:** Publishers are the rights-holders for video games. Once the game is delivered by a game developer (first-party, second-party or third-party), the publisher is responsible for marketing the product launch and the manufacturing process. The publisher is also the main investor for game development. Depending on its level of investment, it owns part, or all of the Intellectual Property of a video game. Some publishers can be generalist and publish a wide variety of video games (such as Ubisoft (France)) or be specialised in specific types of video games such as strategy (e.g., Paradox Interactive (Sweden)).
- ▶ **Distribution and Retail:** Distributors and retailers are responsible for the physical and digital storage and delivery of the product, and usually for the sales to consumers. As mentioned by Limpach (2020), games distribution and retail were dominated by physical copies of the video games being sold in traditional brick and mortar stores such as Micromania or GameStop until 2000. With the move to digital games and mobile games, app stores such as Google Play (Alphabet) or App Store (Apple) and the emergence of digital retail and distribution platforms such as Amazon, Steam, Epic Game Store have changed the way that video game sales operate.
- ▶ **Gaming platforms:** This refers to the electronic delivery system used to launch or play an interactive game, and which includes mobile applications.

## 1.5.2 Monetisation models

Monetisation models is a broad term referring to various methods game developers and publishers have to derive income from their games, including:

- ▶ Game purchases: where the game is sold at a given price by the gaming company.
- ▶ In-app purchases: the game is accessible for free, but it pushes users to buy either digital goods or premium versions and upgrades of the game.
- ▶ Ad-supported: the game is accessible for free, and monetisation passes through advertisement within the game.

New models include:

- ▶ Microtransactions: such as in-game purchases, downloadable content (DLCs), season passes, loot boxes.
- ▶ Subscription models to access a catalogue of games: both by console and hardware manufacturers (PlayStation Now and Xbox Game Pass, Apple Arcade, Nvidia Geforce Now), digital services (Amazon Prime Gaming, Google Stadia), and game publishers (Ubisoft's Uplay Plus and Electronic Art's EA Access and Origin Access). These are becoming increasingly popular as cloud gaming becomes more feasible and widely adopted, offering players a wide library of rotating games to play. This issue demonstrates how the video game sector is constantly changing and growing, spurred by developments in technology and digital media.
- ▶ Linking to the above, GaaS (Games-as-a-service) is a business model that allows game developers to monetize video games after release in the long run. It's achieved by the games being updated frequently with new experiences and offered to the players on a subscription basis or in the form of in-game purchases. Single game subscription models on the other hand are especially used for massively multiplayer online role-playing game (MMORPG, including major titles such as Final Fantasy XIV, World of Warcraft, or Dofus).

## 1.5.3 Other important terms in the video game sector

The following list sets out some common acronyms and terms used across the Video Game sector, and which are also referred to in our report.

- ▶ **'AAA' or 'triple A'**: This informally applied classification is used to refer to video games produced and distributed by a medium-sized or major publishing company, and which have higher than average development and marketing budgets than other tiers of games. The term began being used in the 1990s and was borrowed from the credit industry, reflecting that AAA games represented a safe investment opportunity, likely to yield high levels of returns for investment<sup>12</sup>. Meanwhile 'AA' refers to games produced by a team of developers outside of the large first-party studios of the major developers (usually with involvement from indie developers or indie studios).
- ▶ **AR**: Acronym referring to 'augmented reality'. These are physical world experiences enhanced with computer-generated input. Pokémon GO is undoubtedly one of the most recognisable

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<sup>12</sup> Bernevega, A; Gekker, A (April 2021). "The Industry of Landlords: Exploring the Assetisation of the Triple-A Game". *Games and Culture*. 17: 47–69. doi:10.1177/15554120211014151

examples, which overcasts digital representation of Pokémon into the physical world through a mobile phone camera.

- ▶ **ARPPU**: Acronym referring to average revenue per paying user. This is a measurement of revenue according to paying users over a period of time.
- ▶ **Casual (games)**: These are games targeting a mass market audience, rather than hobbyist gamers. Casual games are not restricted by gameplay, rather involve simple rules, shorter sessions, and are mechanically accessible to players of all skill ranges. However, casual games share similarities with hyper-casual games, but have more complex elements and mechanics.
- ▶ **Cloud gaming**: Also known as gaming-on-demand, this is a method of playing online games using remote servers. As titles reside on a company server, cloud gaming removes the need to download and install full games. Restrictions including internet bandwidth and server capacity are less prominent in mobile gaming.
- ▶ **NFT**: an initialisation for non-fungible token. A unique, irreplaceable, and inimitable digital ticket most often used to denote ownership of a specific digital asset or file. NFTs are typically held on the blockchain, most commonly the Ethereum blockchain, to verify ownership.
- ▶ **Soft launch**: The release of a new app or game to a restricted audience in advance of a full launch. Similar to beta releases, soft launches allow for the removal of bugs but extend to mechanical and economical balancing or even fundamental alterations to the game.
- ▶ **Clone**: a game that is similar in design to another game in its genre (e.g., a Doom clone or a Grand Theft Auto clone). Sometimes used in a derogatory fashion to refer to an inferior copy of a more successful title.
- ▶ **Console**: a video game hardware unit that typically connects to a video screen and controllers, along with other hardware. Unlike personal computers, a console typically has a fixed hardware configuration defined by its manufacturer and cannot be customized. Sometimes includes handheld consoles, to differentiate them from computers, arcade machines, and cell phones.
- ▶ **Downloadable content (DLC)**: Additional content for a video game that is acquired through a digital delivery system.
- ▶ **Game engine** is a [software framework](#) primarily designed for the development of [video games](#) and generally includes relevant [libraries](#) and support programmes.<sup>13</sup> There are different subsets of engines, such as specialised ones for physics and graphics. Often the game engine is only middleware which game specific behaviours are built upon, though end-users do not tend to make this distinction.
- ▶ **indie game (or independent video game)**: Loosely defined as a game made by a single person or a small studio without much financial, development, marketing, or distribution support from a large publisher.
- ▶ **Mod**: a third-party addition or alteration to a game. Mods may take the form of new character skins, altered game mechanics or the creation of a new story or an entirely new game-world. Some games (such as Fallout 4 and Skyrim) provide tools to create game mods, while other games that

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<sup>13</sup> Valencia-Garcia, Rafael; et al. (2016). Technologies and Innovation: Second International Conference, CITI 2016, Guayaquil, Ecuador, November 23-25, 2016, Proceedings. ISBN 9783319480244.

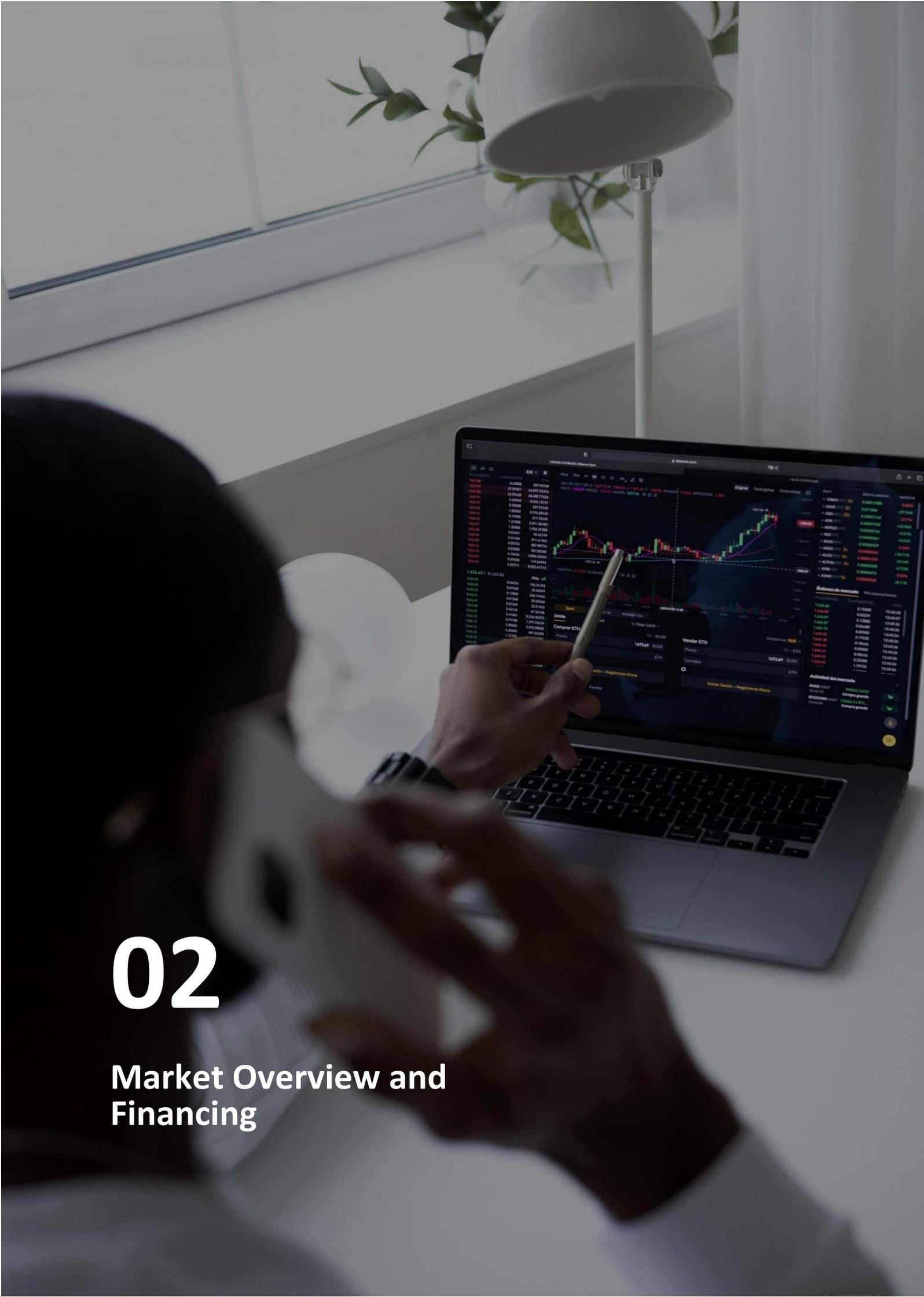
do not officially support game modifications can be altered or extended with the use of third-party tools.

- ▶ **Developers:** these are video game studios or individuals that specialise in managing the process and carrying out the technical, creative, artistic, and managerial activities needed to create a video game. According to EGDF estimates, there are around 5,000 game developing studios in Europe.<sup>14</sup>
- ▶ **Publishers and distributors:** these are generally bigger companies that publish (i.e., support game development through funding, marketing and promotion) and distribute (i.e., deliver and sell physical and digital video games into store) video games developed within the company itself or by external developers. The role of publisher and distributor can be played either by the same or by different entities. The same EGDF report mentioned above, the only one providing EU-level figures on the distinction between developers and publishers, identified 203 game publishers in Europe.<sup>15</sup>
- ▶ **Hardware manufacturers:** these actors provide the industry with the hardware necessary to run video games and with accessories used by gamers to enhance their gaming experience. The video games industry sees three main categories of hardware required to game: home and mobile consoles (electronic devices specialised in video games experiences), Personal Computers (PC, multi-purpose computers used also for gaming), and smartphones used for mobile, casual forms of gaming. In terms of accessories, these include, for instance, headphones, controllers, PC mouse and keyboard, etc.
- ▶ **Video games ecosystem:** These stakeholders include, for instance, service and tool providers, retailers, consultant companies, law firms specialised in or managing video games-related cases, industry associations and organisations, companies and research centres working on the R&D allowing for technological progress, academia and education establishment.

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<sup>14</sup> EGDF, [Report on the European game development industry in 2019](#) (EGDF, 2019).

<sup>15</sup> EGDF, [Report on the European game development industry in 2019](#) (EGDF, 2019).



# 02

## Market Overview and Financing

## Chapter Summary

The video games market has developed into a major cultural and creative industry, globally generating EUR 179 billion in revenue and reaching a record number of 3.09 billion players in 2022. The European market is well-established, but smaller than its North American and Asian counterparts. The EU video games market generated EUR 23.48 billion and reached approximately 220 million users in 2022 (EU-27). This is a relatively steady market share in the global context but is expected to decrease from 8.7% to 7.3% over the 2017-2027 period due to the faster growth of competing markets, mostly in America and Africa.

### Key findings

The analysis of market and financing available data reveals several key findings which are currently shaping the European Video Games industry, namely:

- ▷ The dominance of digital Video Games and, more specifically, mobile games as the fastest growing market segment;
- ▷ The emergence of new technology-driven market segments (e.g., metaverse, AR/VR, cloud gaming). These new segments are mainly fuelled by investments from non-European companies, but preliminary market results are not convincing yet. The future developments of such trends and the industry-wide uptake across the video game sector are highly uncertain;
- ▷ The emergence of games-as-a-service (GaaS) business models, which allow developers to perform soft launches and monetise games in the long-term after their release;
- ▷ The European competitive advantage relies on its creative potential, with a large number of small to medium studios owning and releasing creative IP, a crucial asset in a content driven industry such as Video Games.
- ▷ The European market is comparatively weaker on value chain segments that require higher amounts of investments, namely: hardware manufacture (with no single major console manufacturer being European), and technology-driven market developments as noted above.
- ▷ A private financing gap in the European market, especially for scale-ups, and the prevalence of public funding schemes (project funding and tax incentives).
- ▷ The relative lack of scaling and growth financing opportunities for European Video Games companies increases the appetite for seeking other sources of financing. This partly explains the high number of merger and acquisition (M&A) activities in the sector, also fuelled by the increasing interest shown by large tech companies in the European Video Games industry.

## Chapter Summary

The Video Games industry lacks uniform and comprehensive data on its trends and performance. This is mostly due to the absence of a granular NACE classification for Video Games companies which all fall under the same code (J58.2.1 - Publishing of computer games). This leads to a lack of transparency in data and analysis and to Video Games companies often registering under other classifications. In this context, learning from the classifications adopted for other CCIs (such as the Movie and TV one which adopt different codes for activities at different stages of the value chain) could strongly increase the possibility of providing robust industry statistics and therefore allow for sound evidence-based policies and business strategies.

### Main trends

Current market data illustrates the shift from Physically sold to Digital Video Games, with the former accounting only for 17% of total market revenues in 2022, and with average revenues per user for digital video games rapidly increasing at a faster pace than the ones for Physically sold video games. Through a closer look at the broader digital segment, it can be noticed that Mobile games in particular are driving the growth rates of the digital segment. At the same time, new technologies are thought to have the potential to shape future market trends. Recent years have seen the growth rates of cloud gaming. It is debated to which extent cloud gaming will develop in terms of revenues and uptake. While it is highly innovative and expected to grow, several barriers still exist (e.g., the widespread availability of very high-speed internet) and recent industry setbacks such as the shutdown of Google Stadia are making experts more sceptical on the segment's future potential.

On the other side, the metaverse and virtual worlds are drawing growing investors' interest and opening the door to interesting crossovers between video games and other CCIs, such as the Fortnite case, turning the Video Games industry into an interesting medium for the development and monetisation of other CCS as well. Similar to cloud gaming, AR/VR applications to the video games market are underperforming industry's expectations. Although several hardware manufacturers are investing in VR headsets, players are lamenting the lack of high-profile games and the segment has not yet picked up in terms of significant market share. Finally, esports are drawing higher and higher numbers both in terms of revenues and audience, respectively with a 24% and 28% CAGR in the 2016-18 period and an estimated market value of EUR 560 million in 2022 but, according to industry experts interviewed for this report, both from the publishers and the teams/tournament organisers perspectives, the market is far from being profitable for all the typologies of stakeholders involved and the industry is considered to be still in a start-up investment phase.

While the digital transformation has radically reshaped the industry and Digital Video Games have become the current norm, other more recent technological advancements have still to demonstrate their potential and available information is not sufficient to determine accurate forecasts on their future development and impacts on the industry. In this context, European players seem to be waiting for more consolidated market trends before venturing into the application of novel technologies, with major investments in AR/VR and the metaverse coming mostly from foreign companies, especially in the North American market.

The industry has been significantly impacted by the digital shift, mostly in terms of business model

## Chapter Summary

according to industry experts interviewed for this report, both from the publishers and the teams/tournament organisers perspectives, the market is far from being profitable for all stakeholders involved and the industry is considered to be still in a start-up investment phase.

While the digital transformation has radically reshaped the industry and Digital Video Games have become the current norm, some recent technological advancements have not fully demonstrated their market potential yet. The information currently available is not sufficient to determine accurate forecasts on their future development and impacts on the industry. Major investments in technologies such as AR/VR and the metaverse are coming mostly from non-EU companies, especially in the North American market, with smaller European video game companies waiting for a clearer market uptake before developing games for these novel technologies.

The industry has been significantly impacted by the digital shift, mostly in terms of business model, where the traditional one of selling consoles at cost and make revenues out of the sale of games has left its place for games-as-a-service (GaaS) business models, allowing developers to monetise video games after the release for a longer time period. Free-to-play (F2P) is also becoming increasingly popular, together with similar models of freemium models. At the same time, focusing on EU industry players, survey results show that among various monetisation models, the preferred one remains paid apps/games, and that subscription and in-app transactions-based business models are more used by non-indie stakeholders; signalling that the European market might be running behind on monetisation capacities from the most recently emerged business models. This becomes even more important when considering the European industry landscape is mostly made up of SMEs with lower investment capacities, widening the gap between European indie developers and multinational corporations in terms of capacity to compete on the latest technological advancements.

European game developers state that the main barrier to growth is the lack of financing, particularly funding for small and medium developers looking to scale up. Survey results also show the relatively small prevalence of private financing for video games projects in Europe, especially for indie developers. Game developers may therefore work for larger studios or publishers instead of developing their own creations, or seek additional funding through merger and acquisitions.

From the information collected for this report, it emerges that the European competitive advantage relies on its creative potential, with thousands of big or small studios owning and releasing creations. This is definitely an important asset in the content-driven video game industry.

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The European market is less present on those value chain segments that require higher amounts of investments, namely: hardware manufacture (with no single major console manufacturer being European), innovative technology driven market segments (such as VR/AR and the metaverse) and online content distribution (with no major European cloud gaming service nor live streaming platform).

In this context, whilst private financing has a key role, public funding is also important for the sector's development and indeed public support schemes are among the most used sources of financing for European companies, with clear preferences towards tax incentives and grants. Several countries have started in recent years to focus their attention on the video game industry, creating ad-hoc funding schemes, such as in Germany with its Games Hub strategy and funding programme.

Funding opportunities are available also through European programs, most notably through Creative Europe with a budget of EUR 6 million in 2022. At the same time, the majority of public funding grant schemes, mostly the ones that take the form of grants, are directed at financing projects rather than studios. Some financial instruments backed by public institutions are available, most notably the EIF guarantee facility, aimed at facilitating finance investments through public guarantee schemes. Channelling private financing towards video games remains a challenge: survey results show that industry members do rely on private financing (in the form of VC and equity) for corporate development projects but face a financing gap in the private sector and a difficulty to convince investors of the potential returns of the Video Games industry.

## 2.0 Market Overview and Financing

This section of the report provides an initial overview of the EU video games sector. It describes the definitions adopted throughout the report, both in terms of market segmentation and value chain actors (since these are useful to establish and refer to in the analysis of overall market and finance trends). It then highlights key aspects of the sector's size and composition and provides an overview of financing issues attached to the sector. This chapter particularly draws on data made available by Statista and Newzoo and it should be held in mind that the data from these sources is slightly different, mainly due to the parts of the video game sector that the data represents. For completeness, the report refers to data from both sources but explains the reasons for the discrepancies between their respective data.

Regarding market segmentation, given the extremely rapid transformations that continuously change the EU's video games sector, no fixed taxonomy can be found in the literature. The segments definition adopted throughout this report is the one provided by Statista in the 2022 Digital Media Report – Video Games<sup>16</sup>, which divide the market by the following categories:

- ▶ **Physically Sold Video Games** comprises revenues associated with in-person purchases of video games in retail stores (e.g., at GameStop, Walmart, and Target) or in online-shops as optical discs, ROM cartridges, or other solid storage media.
- ▶ **Digital Video Games** encompasses revenues associated with the digital game sales (e-shops such as Steam, Origin, GoG, and Blizzard's Battle.net for PCs and the Xbox Games Store, PlayStation Store, and Nintendo eShop for consoles). Additional downloadable content (DLC) and subscription services are included. The definition covers subscription-based games, e.g., World of Warcraft, as well as free-to-play games with in-game purchases for additional premium content or functionalities, e.g. Fortnite.

Furthermore, according to Statista segmentation, Digital Video Games are further divided into:

- ▶ **Mobile games:** mobile games are defined as gaming applications for smart devices such as smartphones and tablets.
- ▶ **Download games:** download games refer to online sales of full version video games for gaming consoles or PCs/laptops via direct download of the installation file and a corresponding product key.
- ▶ **Cloud gaming:** cloud gaming is a form of video game streaming that allows players to play games on their devices through an internet connection, without the need for dedicated gaming hardware or local installation of games.
- ▶ **Gaming networks:** gaming networks refer to paid subscription services for getting access to premium online services such as Xbox Live Gold, PlayStation Plus, or Nintendo Switch Online.
- ▶ **Online games:** online games such as Fortnite and World of Warcraft are video games that can be played over the internet with other players from around the world.
- ▶ **Games live streaming:** games live streaming refers to the practice of broadcasting video gameplay and commentary in real-time to an online audience. The market for games live streaming encompasses a wide range of platforms, services, and products, including streaming platforms.

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<sup>16</sup> Statista (2022). Digital Media Report – Video Games. Source: <https://www.statista.com/study/39310/video-games/> Accessed on 21<sup>st</sup> July 2022.

This segmentation between physically sold and digital video games is based on the type of purchase made by the consumer. However, other segmentations are used to develop different insights on trends that are shaping the market. Newzoo<sup>17</sup>, one of the main global providers of data and insights on the video games industry, identifies five segments depending on the devices used to run games. The segments are console games, tablet games, mobile/smartphone games, browser PC games and downloaded/boxed PC games. The smartphone segment is the area that is expected to grow the fastest due to rising demand for mobile games and multiple technological advancements in the market (including AR, VR and cloud gaming) that advance the quality of mobile gaming and make it more accessible.<sup>18</sup> Based on gaming type, the global market is divided into online and offline gaming. The online area is the segment expected to see an increasingly important market share in the coming years due to technological advancements including the emergence of 5G networks and availability of unlimited data plans.

Regarding the definition of value chain actors, an important distinction must be made between the traditional value chain and the new and emerging one brought about by the digital disruption. A useful comparison between the two is provided by a 2017 peer-reviewed academic paper<sup>19</sup>, showing the changes in value creation processes brought about by the internet.

Regarding the traditional value chain<sup>20</sup>, the process of creating value begins with the hardware manufacturer, which supplies the hardware (consoles, PCs, etc.) on which games can be played. The developer oversees, designs and writes the software programme for the game, while the publisher produces and distributes the game. The interrelationship between game developers and game publishers can follow three main scenarios: 1) publishers finance the whole game and retain the game IP, one or more game developers are then developing the game as 'work-for-hire'; 2) game developers self-finance the game development and keep the game IP (publishers are often still involved for distribution purposes); 3) the game is co-produced between game developers (one or more) and the game publisher, where IP and revenues are split based on contractual arrangements. In this process, the distributor acts as a marketing and distribution intermediary between developers, publishers and retailers which, in the end, retail both the hardware and software to consumers. Figure 1 outlines the range of value-chain actors in the video game sector.

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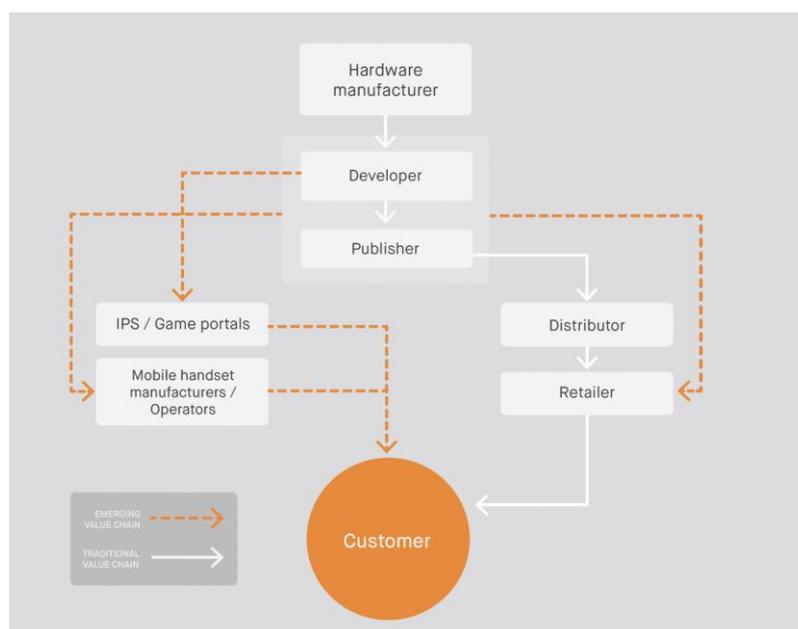
<sup>17</sup> Retrieved from <https://newzoo.com/insights/articles/games-market-revenues-will-pass-200-billion-for-the-first-time-in-2022-as-the-u-s-overtakes-china> on July 20th, 2022.

<sup>18</sup> MRFR (2021) <https://www.globenewswire.com/news-release/2021/10/28/2323064/0/en/Video-Game-Market-Size-is-Predicted-to-Expand-at-a-CAGR-of-14-5-from-2020-to-2026-Report-by-Market-Research-Future-MRFR.html>

<sup>19</sup> González-Piñero, Manel. (2017). Redefining The Value Chain of the Video Games Industry. DOI: 10.13140/RG.2.2.35972.53129.

<sup>20</sup> Business Insights, 2009. Video Gaming Market Outlook

Figure 1: Value-chain actors in the video game sector.



Source: González-Piñero, 2017

At the same time, online digital distribution is creating new emerging value chain mechanisms, mostly in the convergence between the functions of the distributor and retailer with the editor or publisher<sup>27</sup>. In the first place, the role of the distributor tends to disappear, as publishers can directly distribute their games via the internet. At the same time, publishers can also choose to distribute their games through Internet Service Providers (ISPs) and via device manufacturers, which function as content aggregators and provide game markets (app stores) for the direct distribution of games to consumers.

The data presented in this section has been drawn from secondary sources, including academic research on the main challenges and changes involving the video games industry; market reports published by industry associations (such as the Interactive Software Federation of Europe – IFSE) and data analyses provided by platforms such as Statista and Newzoo. As introduced in Chapter 1, available secondary data on the video game sector is limited and sometimes inconsistent between different sources. Primary data, in the form of qualitative insights derived from the series of workshops organised for this research project, as well as surveys and interviews with industry experts, is included in this section of the report to validate and interpret the results derived from secondary data analysis.

## 2.1 Key macroeconomic data and trends across the EU Video Games sector

This sub-section will explore the composition of the video gaming market in the EU by looking at the different value chain actors, geographical dynamics, typology of production, size, and market share. The analysis will consider differences and evolutions of the gaming industry architecture among European countries.

To compile this chapter, the available data on the size (in terms of revenue, users and employment) of the video games industry has been examined to determine trends within the sector, also in the context

<sup>27</sup> DEV, 2014. Libro Blanco del Desarrollo Español de los Videojuegos.

of the global market, and other sectors. As set out in Chapter 1 of the report, there are limitations to the degree that the data analyses can give a true indication of sector performance.

The main challenge in providing sound industry statistics is the absence of a dedicated NACE classification for the video games industry (Statistical Classification of Economic Activities in the European Community). Currently, the only NACE code specifically targeting the sector is J58.2.1 - Publishing of computer games, leading to numerous misunderstandings especially for game developers which, as reported by the European Games Developer Federation - EGDF, often end up registering themselves under other classifications (such as: 62.0.1 - Computer programming activities, R90.0.3 - Artistic creation, C32.4.0 - Manufacture of games and toys, R93.1.9 - Other sports activities, J62.0.2 - Computer consultancy activities, J63.1.2 - Web portals, M72.2.0 - Research and experimental development on social sciences and humanities, P85.6 - Educational support activities) making the video game industry an invisible entity in official statistics.<sup>22</sup>

In this context, relevant insights can be derived from the NACE classifications used for other CCI sub-sectors, such as the 'movie' sub-sector, which has a broader NACE code (59.1 Motion picture, video and television programme activities) that identifies both production and distribution, and which is subsequently divided into three more specific categories: 59.11 - Production activities, 59.12 - Post-production activities, 59.13 - Distribution activities, 59.14 - Projection Activities. Nevertheless, interesting insights can be derived from Eurostat data<sup>23</sup>, which collects annual statistics on a series of macro-economic indicators for the NACE code J58.2.1. Data on the number of active enterprises by country clearly highlights the existence of dominant markets inside the EU, with Sweden hosting 24.5% of the total EU-27 enterprises in 2020, Poland 22% and France 15.5%.

### 2.1.1 The European market in a global context

The video games market is exposed to rapid cycles of innovation and changes. In less than 50 years it has developed from a small niche sector into an industry producing billions of euros worth of revenues and profits. Today its revenues and investments give the video games industry a highly relevant position among other mainstream industries at both the EU and worldwide level. Video games have become a multi-billion-euro industry and a leading sector in the creative industries. In 2022 the video game industry generated total revenues of EUR 179 billion with mobile games making up half of global revenues (EUR 86.6 billion), according to Newzoo, which is the source most frequently used in the video games sector.<sup>24</sup> With a more extensive coverage of mobile gaming, Statista estimates that the video games sector generated EUR 313.4 billion in revenues in 2022 (+17% year on year), and reached a record number of 3.09 billion global players by the end of 2022.<sup>25</sup> We use Statista data extensively in the following paragraphs as more data is available at EU27 level.

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<sup>22</sup> EGDF (2021). EGDF position on the games industry statistical classification (NACE code) Available at: <https://www.egdf.eu/wp-content/uploads/2021/04/202004-EGDF-position-on-the-games-industry-statistical-classification-NACE-code.pdf> Accessed on 13/02/2023

<sup>23</sup> Annual detailed enterprise statistics for services (NACE Rev. 2 H-N and S95). (2022). [Data set]. European Commission, Eurostat. <http://data.europa.eu/88u/dataset/fpqx4qxisz2h352odpaq>

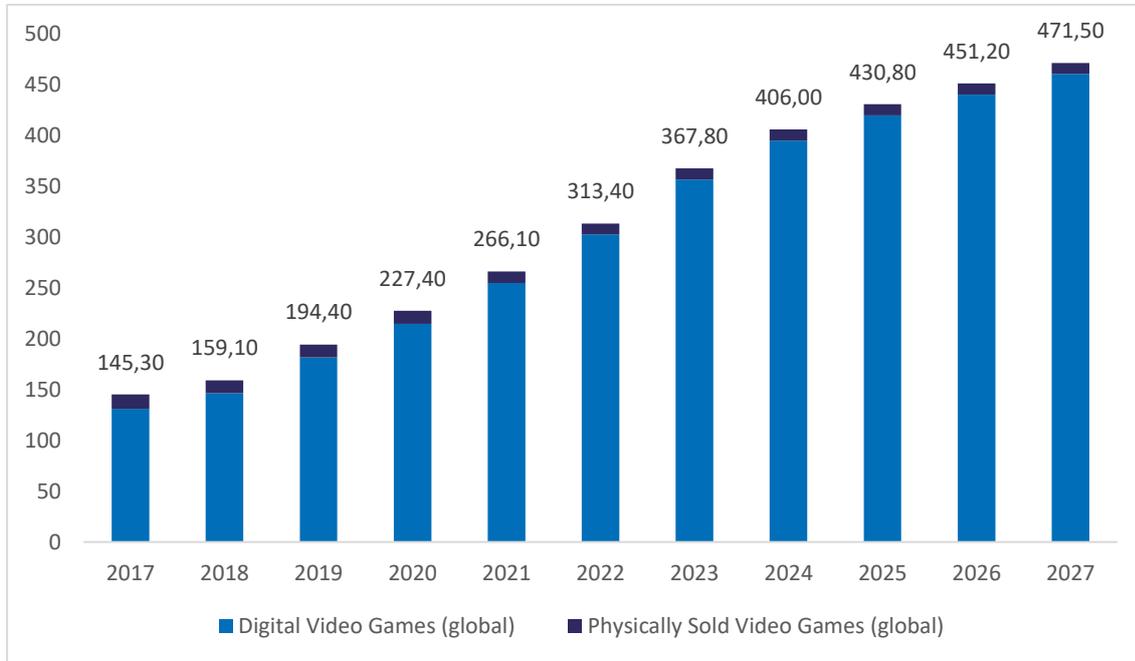
<sup>24</sup> Newzoo (2022) 2022 Global Games Market Report. [https://newzoo.com/resources/trend-reports/newzoo-global-games-market-report-2022-free-version?utm\\_campaign=GGMR2022&utm\\_source=press](https://newzoo.com/resources/trend-reports/newzoo-global-games-market-report-2022-free-version?utm_campaign=GGMR2022&utm_source=press)

<sup>25</sup> "Games - Worldwide." Accessed March 05, 2023.

<https://www.statista.com/outlook/amo/media/games/worldwide?currency=EUR> Note: the Statista data on video games is

Globally, the video game sector is forecast to have a Compound Annual Growth Rate of 12.46% between 2017-2027, with revenues equating to a total market size of EUR 471.5 billion by 2027.<sup>26</sup> Figure 2 outlines global video game revenue growth and based on this we can see a Compound Annual Growth Rate of 5.6% (2020 – 2024).<sup>27</sup> According to Statista, the global Video Games market is forecast to continue growing in revenue terms until 2027.

Figure 2: Overall global video games revenues (physical and digital formats, in billion EUR)



Source: Statista

At the EU27 level, data elaborated by Statista<sup>28</sup> estimates the total market size of the sector to be EUR 23.48 billion in 2022 (a 15% increase compared to 2021) and EUR 18.14 billion in 2020<sup>29</sup>. These data points largely align with the figures provided by industry sources such as the Interactive Software Federation of Europe (ISFE) for 2020<sup>30</sup> and for 2022, for which IPSOS MORI data elaborated for ISFE forecasted a total market size of EUR 24.5 bn. The same source estimates that in 2022 only 17% of European video game revenues derived from physically sold games (19% in 2021, and 20% in 2020),

comparable to many data sources (PWC, Juniper Research, for instance). However, some data providers such as Newzoo or Techspot present analyses with a significantly smaller mobile games market, due to a narrower definition of this segment (i.e. many apps are categorised as games by the former data providers, and not by the latter). The main impact for our analysis is that the global market share of Asian countries (and especially China) are significantly higher. Wijman, T. (2022). Games Market Revenues Will Pass \$200 Billion for the First Time in 2022 as the U.S. Overtakes China. Retrieved from: <https://newzoo.com/insights/articles/games-market-revenues-will-pass-200-billion-for-the-first-time-in-2022-as-the-u-s-overtakes-china>

<sup>26</sup> "Games - Worldwide." Accessed March 05, 2023.

<https://www.statista.com/outlook/amo/media/games/worldwide?currency=EUR>

<sup>27</sup> Obedkov, E. (2022) Newzoo: global games market to surpass \$200 million in revenue for first time in 2022. Source: <https://gameworldobserver.com/2022/05/05/newzoo-global-games-market-to-surpass-200-million-in-revenue-for-first-time-in-2022> Accessed on 21st July 2022.

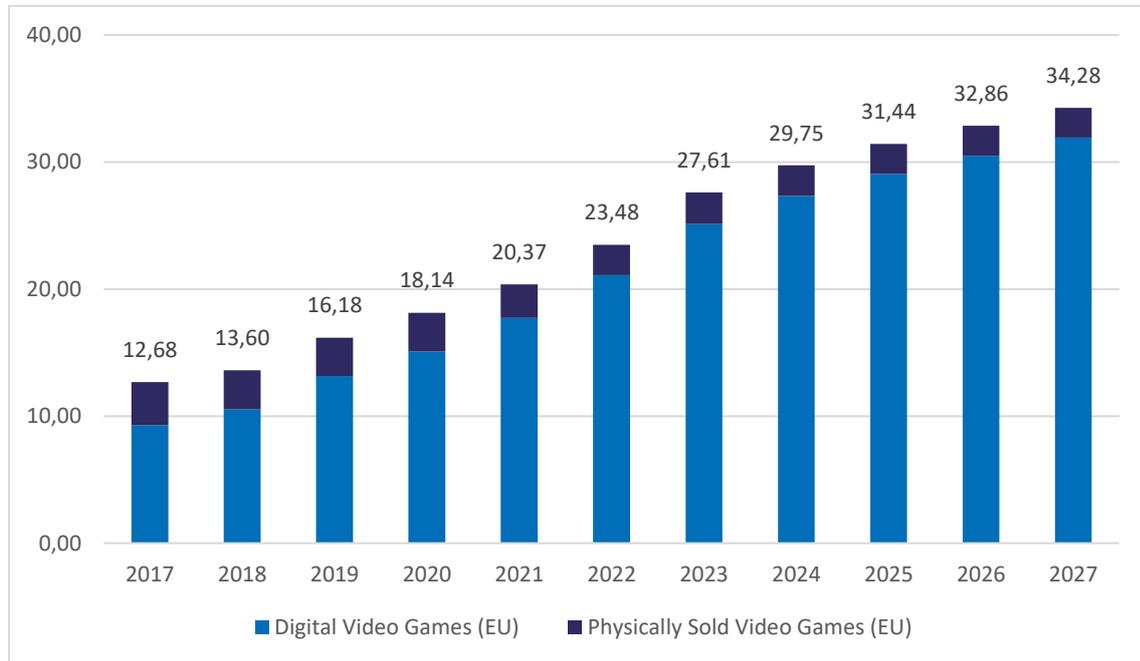
<sup>28</sup> Games - Europe. (n.d.). Retrieved July 26, 2022, from <https://www.statista.com/outlook/amo/media/games/europe>

<sup>29</sup> From Statista. The data encompasses B2C enterprises. Figures are based on the Games segment, which is divided into Physically Sold Video Games and Digital Video Games. Physically Sold Video Games comprises revenues associated with in-person purchases of video games in retail stores. All monetary figures refer to consumer spending on digital goods or subscriptions in the respective segment. This spending factors in discounts, margins, and taxes.

<sup>30</sup> ISFE (2021). Key facts about Europe's Video Games sector. See: <https://www.isfe.eu/data-key-facts/key-facts-about-europe-s-video-games-sector/>

except for the console games market where the percentage of revenues generated by physical games remains high at 37%, particularly if compared to the PC market where it accounts only for 5% of total revenues. Figure 3 also sets out EU video game market revenues by segment.

Figure 3: Overall European video games revenues (physical and digital formats, in billion EUR)



Source: Statista<sup>31</sup>

2022 ISFE data on five key markets (France, Germany, UK, Italy and Spain) shows that:

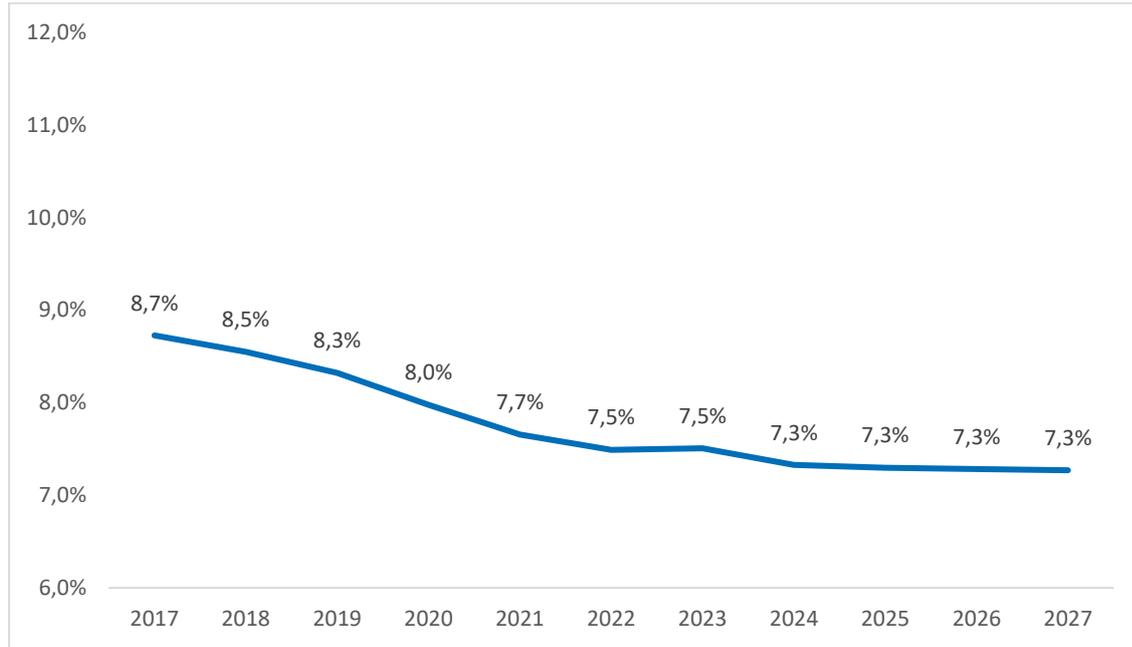
- ▶ Console games revenues saw a 6% YoY increase, accounting for 42% of total market revenues and a total value of EUR 7.7 bn. The player base also increased by 11%
- ▶ PC games revenues registered a 19% YoY increase mainly driven by full-game downloads and in-game extras, representing 12% of total revenues and a total value of EUR 2.2 bn.
- ▶ Mobile games revenues registered a 2% YoY decrease, accounting for 42% of total market revenues and a total value of EUR 7.7 bn. At the same time, the player base significantly increased by 8.8 million people YoY.

Statista data on digital video games shows how, in 2022, the majority of revenues came from mobile games (EUR 15.5 billion, 73% of total revenues), growing from 60% of total revenues in 2017. In terms of the global market share, the EU27 market accounts for a relatively steady proportion over the 2017-2027 period, with a slight forecasted decline from 7.5% of the global market share in 2022 to 7.3% in 2027, due to higher forecasted growth rates of other markets (particularly the American and African one).<sup>32</sup>

<sup>31</sup> Games - Europe. (n.d.). Retrieved January 26, 2023, from <https://www.statista.com/outlook/amo/media/games/europe>

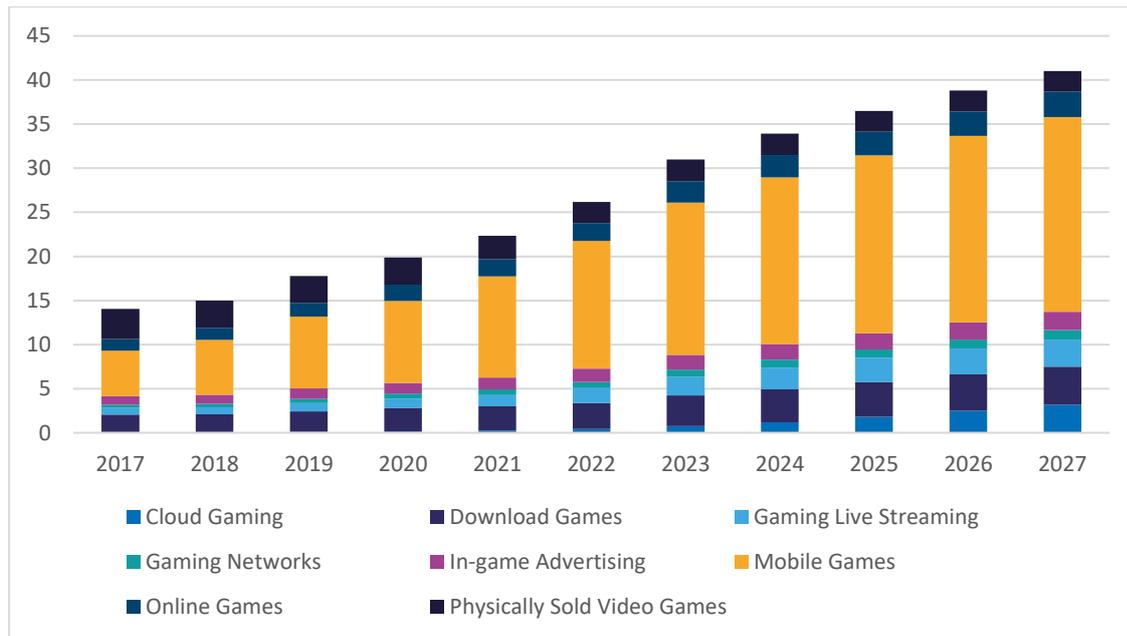
<sup>32</sup> Video Games - EU-27. (n.d.). Retrieved February 14, 2023, from <https://www.statista.com/outlook/dmo/digital-media/video-games/eu-27?currency=EUR>

Figure 4: Overall share of EU video games sector in the global market



Source: Statista<sup>33</sup>

Figure 5: European digital video games revenues by segment (in billion EUR)



Source: Statista<sup>34</sup>

<sup>33</sup> Video Games - EU-27. (n.d.). Retrieved February 14, 2023, from <https://www.statista.com/outlook/dmo/digital-media/video-games/eu-27?currency=EUR>

<sup>34</sup> Video Games - EU-27. (n.d.). Retrieved February 14, 2023, from <https://www.statista.com/outlook/dmo/digital-media/video-games/eu-27?currency=EUR>

In terms of **employment**, the sector employed more than 74,000<sup>35</sup> employees in the EU in 2020.<sup>36</sup> The sector is expected to witness growth levels of over 5% per year for the subsequent five years (see Chapter 4 for more information on sector employment).<sup>37</sup> Overall, consultations with stakeholders across the research indicated a general level of confidence that sector employment would continue to grow in the future, with the caveat that the limited supply of skills within (and entering) the workforce is acting to constrain this growth (more consideration of this issue is given in Chapter 4 on Employment, Education and Skills Needs).

In terms of **users**, according to Statista data, there were 246 million Europeans playing video games in 2021<sup>38</sup>, rising from 222 million in 2019 (prior to the COVID-19 pandemic). 2022 data shows that 53% of EU population plays video games on a regular basis, equal to 237 million people with a 1% year-on-year, with 77% of players being adults (above 18 years old). At the same time, the overall time spent playing video games decreased to 8.8 hours per week (compared to 9 hours per week in 2021), confirming the post-pandemic trend that shows playing time returning to pre-covid standards. According to Statista, the industry is expected to reach 265.4 million users by 2027, showing a 20% increase across a ten-year period (2017-2027). In terms of industry segments, mobile games and download games were the most played video games in 2022, with 90 and 80 million users respectively.

Meanwhile, data indicates that physically sold video games are in rapid decline, with this segment expecting to lose up to 43.6% of its users between 2017-2027. Regarding growth trends across different segments, the most interesting ones are Gaming Live Streaming, which is expected to become the most popular segment in the video game industry by 2025 and to reach 134 million users in 2027 (with a growth rate over 10 years of 220%), and cloud gaming, which is expected to reach 61 million users in 2027 with a growth rate across 4 years (2020-2024) of more than 600%.

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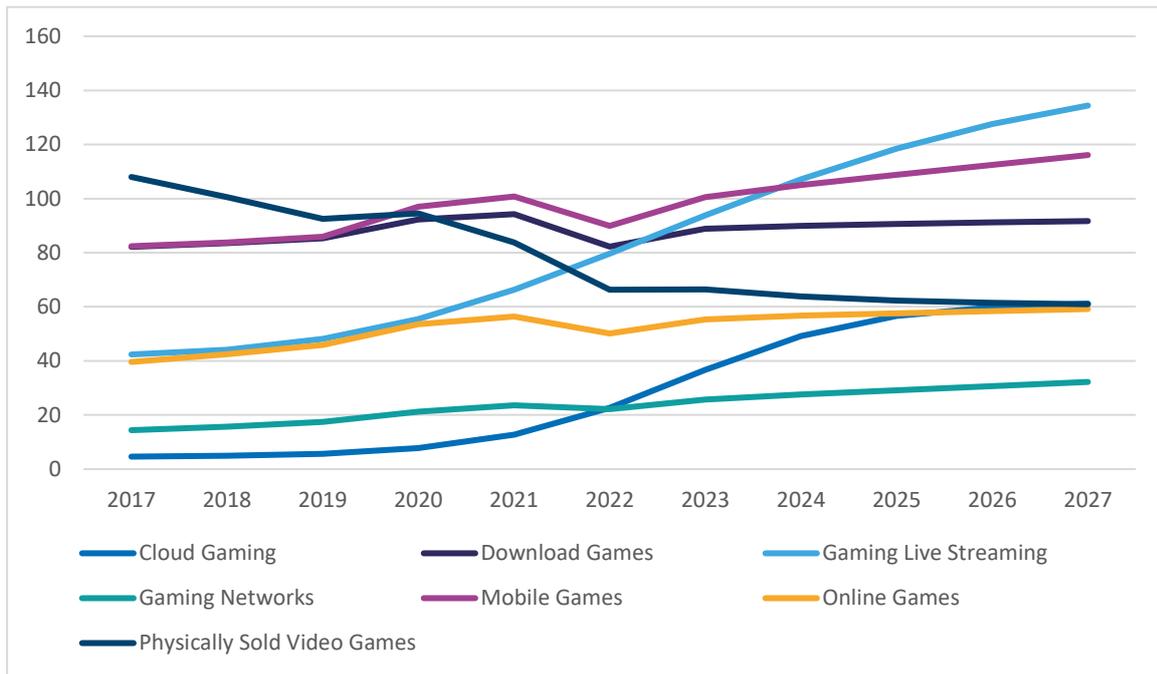
<sup>35</sup> <https://www.videogameseurope.eu/news/europes-video-games-industry-publishes-annual-key-facts-report-authoritative-data-and-engagements-from-2021/#:~:text=Key%20Facts%20from%202021%20%E2%80%93%20highlights&text=Global%20revenue%20exceeded%20%E2%82%AC1,published%20the%20Guide%20to%20Esports>

<sup>36</sup> 87,000 employees were estimated as working in the sector according to data is extracted from the 2019 EUROPEAN VIDEO GAMES INDUSTRY INSIGHTS REPORT By European Game Developers Federation (EGDF), supported by Interactive Software Federation of Europe (ISFE). Available at: [https://www.egdf.eu/wp-content/uploads/2021/08/EGDF\\_report2021.pdf](https://www.egdf.eu/wp-content/uploads/2021/08/EGDF_report2021.pdf). The data is based on estimations and approximations, for a more detailed methodology see Annex 1 of the report.

<sup>37</sup> ISFE (2021). Key facts about Europe's Video Games sector. Available at: <https://www.isfe.eu/data-key-facts/key-facts-about-europe-s-video-games-sector/>

<sup>38</sup> Data source: Statista.com

Figure 6: EU-27 video games users by segment (in million)



Source: Statista<sup>39</sup>

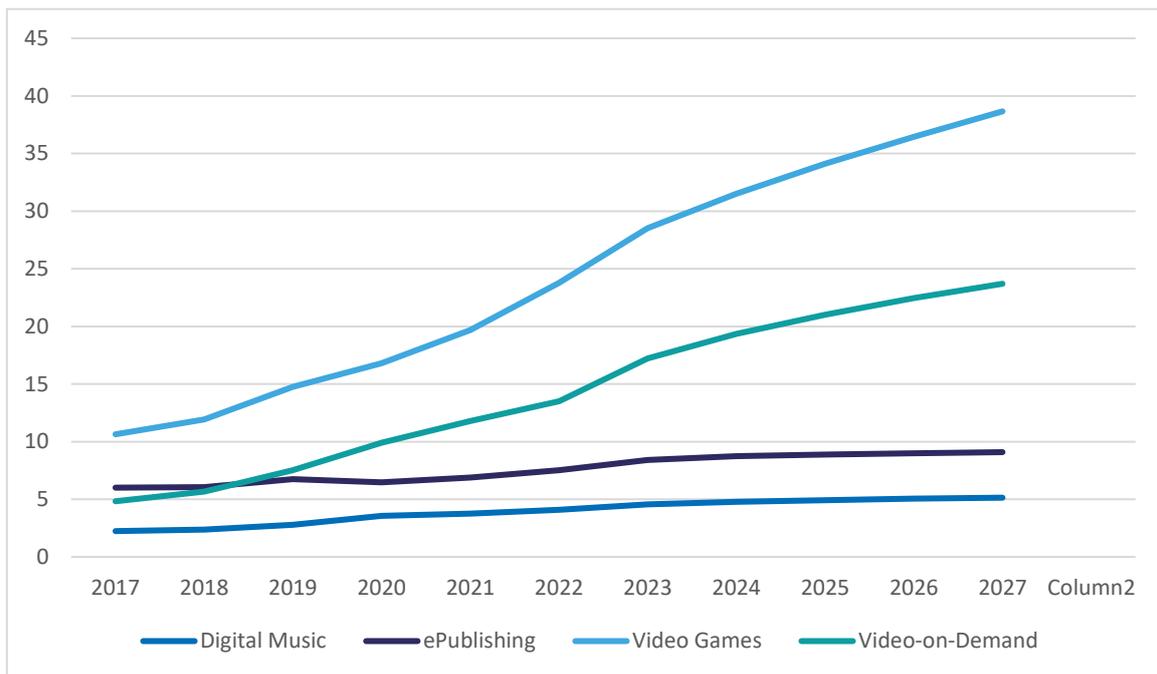
Furthermore, Video Games Europe data<sup>40</sup> indicates that there were 124.8 million players in 2021 in five key European markets: France, Germany, Italy, Spain, the UK (which is not included in the Statista data based on the country not being in the EU). The ISFE report shows that more than 50% of the European population aged between 6- 64-years old play video games, with no significant gender differences but significant age ones, as an example of the total population aged 11 to 14, 80% are video games players while of the total population aged 45 to 64 only 35% are players. In terms of devices used, 63% of European players play video games on their smartphones or tablets, 54% on consoles and 52% on their PCs.

The comparative importance of the video games industry, and more specifically of its digital component (Figure 7), is highlighted by the comparison of its revenues with other cultural and creative industries. Statista data shows digital video games revenues as being 5.5 times higher than e-Publishing, 4.3 times higher than digital music and 1.8 times higher than video-on-demand in 2020. Similar figures and trends can be seen when analysis average revenues per user, confirming the importance of the video game industry among CCIs.

<sup>39</sup> Video Games - EU-27. (n.d.). Retrieved February 14, 2023, from <https://www.statista.com/outlook/dmo/digital-media/video-games/eu-27?currency=EUR>

<sup>40</sup> ISFE (2022) Key Facts from 2021. Available at: <https://www.isfe.eu/wp-content/uploads/2022/08/FINAL-ISFE-EGDFKey-Facts-from-2021-about-Europe-video-games-sector-web.pdf>

Figure 7: EU-27 digital video games revenues in EUR compared to other digital CCI's (in billion)



Source: Statista

### 2.1.2 The European market: Key players in the sector

The EU video game market is mostly characterised by small to medium size companies that operate at different levels in the global video game industry. By way of an overview, the European video games market is composed of:

- ▶ **Game Publishers:** The EU is the home to one of the largest game publishers in the market, Ubisoft Entertainment. Based in Montreuil, France, this publisher is one of the major players in the sector being responsible for several game studios around the world and for developing high profile game franchises such as Assassin's Creed, Far Cry, For Honor, Prince of Persia, Tom Clancy's, Just Dance, Watch Dogs and Rayman. The EU is also host to other well-known game publishers such as Paradox Interactive (Sweden), specialised in historical strategy games (Europa Universalis), role-playing video games (Tyranny) and management simulators (Cities: Skylines), and THQ Nordic (Austria), which specialises in acquiring and managing game developer companies across the world.
- ▶ **Game Creators and Game Studios:** The EU is home to several world-renowned game studios which operate in different genres and types of games over different level of platforms. The EU industry is far from being uniform across Member States and different companies operate at different segments of the video game market. Some notable EU-based Game Developers include:
  - ▷ CD Projekt Red (Poland), developers of the very successful The Witcher franchise.
  - ▷ Mojang (Sweden), creators of Minecraft, a global phenomenon played monthly by over 140 million players worldwide.
  - ▷ Quantic Dream (France), creators of Fahrenheit, Heavy Rain, Beyond: Two Souls and Detroit: Become Human.

- ▷ Bohemia Interactive (Czechia), creators of the ARMA series, a game that was at the origin of the global phenomena Fortnite.
- ▷ Rovio (Finland), creators of Angry Birds, a massively popular mobile game.

Other key developers include Crytek (Germany), Piranha Bytes (Germany), Frozenbyte (Finland), Supercell (Finland), Arkane Studios (France) and King (Sweden). The EU also hosts a sizeable independent gaming scene with very small studios such as ZA/UM (Estonia), Croteam (Croatia) and The Astronauts (Poland) developing smaller, experimental but commercially successful games outside of the major publishers. These studios develop games ranging from indie to AAA games, with a large part of the EU industry developing AA games (mid-sized games).<sup>41</sup>

- ▶ **Third-party software developers for game development:** An important aspect of game development is that, outside of the independent/artist gaming scene, it is rare that companies develop all software aspects of their video game, such as a game engine, a physics engine or a code compiler. To save development time and money, companies often license third-party software from other software development companies to produce their games and save time and resources. The EU is host to some of these third-party software developers such as Havok (Ireland), which developed a widely used physics and special effects engine, and the Blender Foundation (Netherlands), which developed an open-source 3D content-creation program.
- ▶ **Game Retailers:** Since the UK's departure from the EU in 2020, there is no large EU-based videogame retailer in operation, with physical video games sales being mostly handled through other non-grocery specialist retailing (such as Amazon). However, in the digital retailing space, there are several EU-based online retailers that operate at a medium to small scale. One of the most successful is GOG.com, a subsidiary of CD Projekt (Poland), which in 2011 sold an estimated 16% of global online sales of The Witcher 2<sup>42</sup>. Other EU-based digital retailing spaces are owned by game publishers themselves such as the Paradox Store (owned by Paradox Interactive) or the Ubisoft Connect (owned by Ubisoft) which use them to distribute their own games but sometimes are also used by other game studios to distribute their games.
- ▶ **Other Key Stakeholders:** Other stakeholders take part in the EU video game industry in roles that are important for different aspects of the operations of the industry. Among these we can consider the game journalism industry, which after a move to digital-only content still has websites such as Eurogamer or JeuxVideos.fr which are based in the EU, and large trade shows such as the Paris Games week, Gamescom, the Milan Games Week, the Madrid Games week and Nordic Games Week which are quite relevant for advertisement and networking for the industry. Lastly, it is important to highlight the role of organisations such as Interactive Software Federation of Europe (ISFE), the European Games Developer Federation (EGDF) and the Computer & Communications Industry Association (CCIA) in representing the interests of the industry to the EU institutions.

### 2.1.3 Main trends within the EU video games market

The video games sector is going through a major transformation in terms of both industry production and consumption with regards to consumers' preferences, financial possibilities and available

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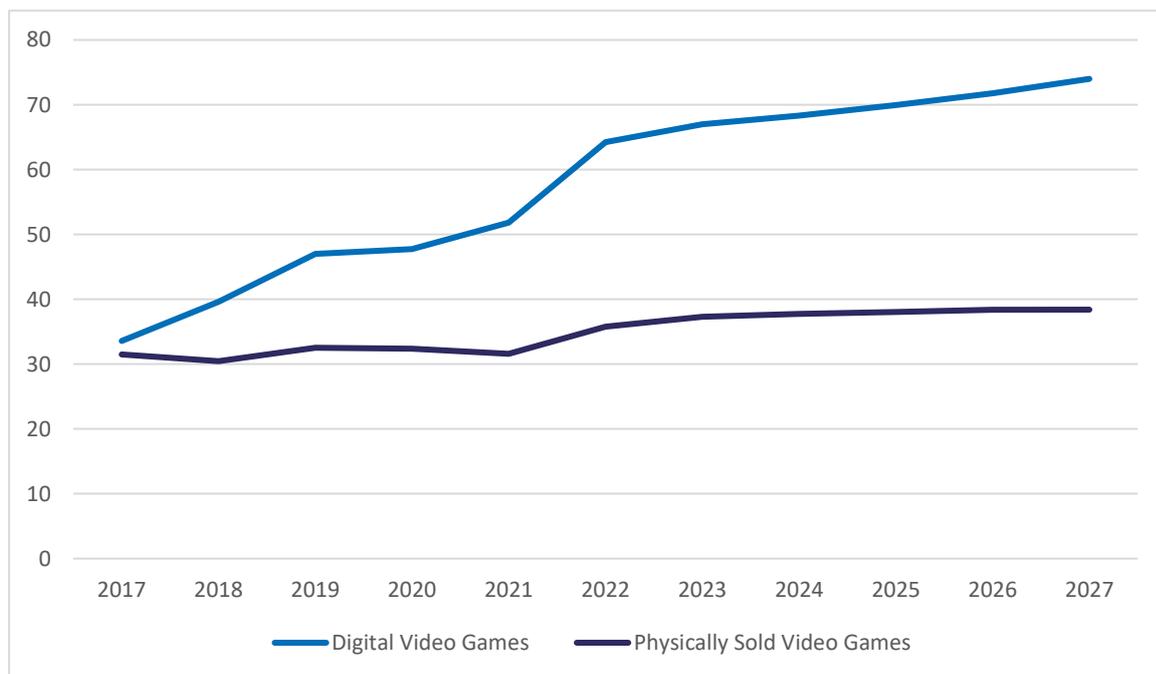
<sup>41</sup> No reliable data on the market share between different types of games is currently available, but according to Super Data research (now part of Nielsen company), AAA games yielded USD 19.8 billion in 2020, accounting for roughly 15.8% of the global games market share. Super Data research (2020) 2019 year in review - digital games and interactive media.

<sup>42</sup> Hill, O. (2011) GOG release The Witcher 2 sale stats. Available at: <https://www.pcgamer.com/gog-release-witcher-2-sales-stats-steam-dominates-all-competitors-combined/>

technologies and devices. The target audiences of players have changed, involving a more varied audience in terms of gender, age and type of gamer (e.g. social gamer, educational gamer, serious gamer). As the expansion of the video games market grows to everyone who has access to the internet (rather than only to those who have a console or a smartphone), the capabilities needed to gain a competitive advantage are changing too. Indeed, Xbox EMEA's strategy (as shared by Director of Xbox EMEA at Gamescom 2022) is orientated around removing barriers to accessing gaming including those linked to the cost of devices and consoles – and for example is partnering with providers such as Samsung to allow players to access gaming via their TV without the need to own an Xbox, and through a subscription service which provides an opportunity for players to access gaming without needing to purchase separate titles. Such moves indicate that gaming has become more accessible and affordable for players.

Digital video games are now the main revenue source for the sector and the main access point for the users. According to Statista<sup>43</sup>, digital video game revenues now account for almost 90% of total revenues (in 2022) and are expected to reach 93% in 2027. The same goes for users, which for the digital segment account for 86% of total video games users in 2022. The dominance of digital video games compared to physically sold ones can be seen from data describing average revenues per user, which are incrementally higher for digital video games (Figure 8).

Figure 8: Average Revenue per user by segment (EU-27)

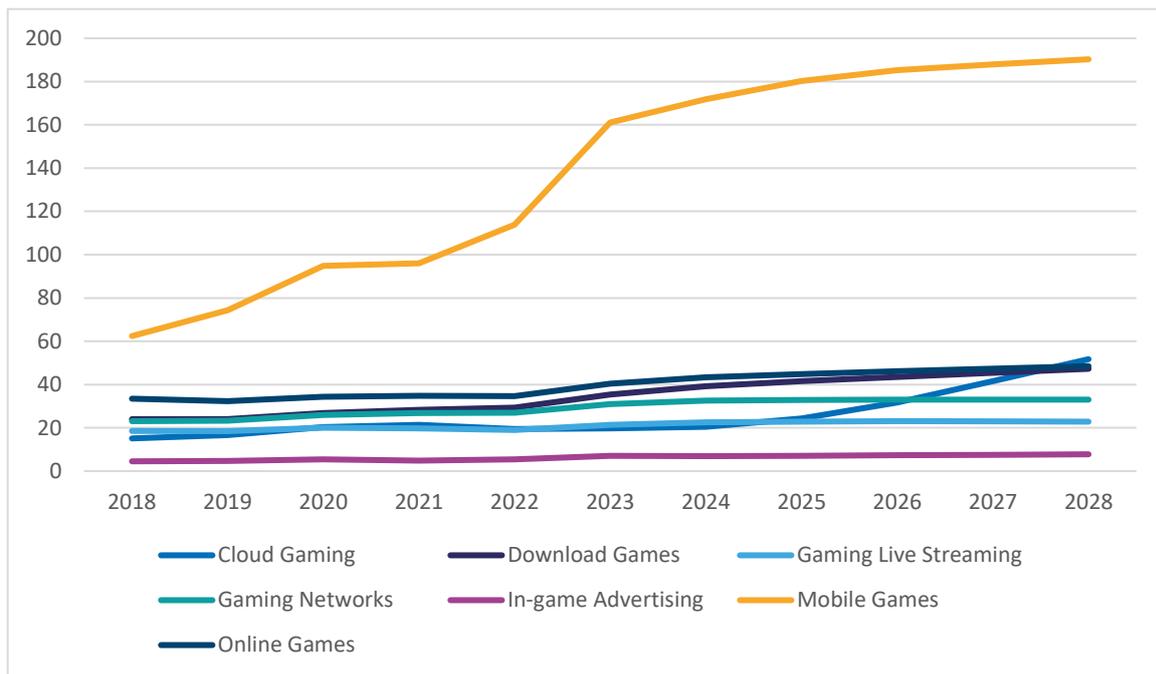


Source: Statista

More interestingly, inside the digital video games segment, Mobile Games one is the best performing one in terms of average revenue per user, with estimates showing the widening of the gap with the other segments in the years to come.

<sup>43</sup> Games - EU-27. (n.d.). Retrieved February 14, 2023, from <https://www.statista.com/outlook/amo/media/games/eu-27?currency=EUR>

Figure 9: Average Revenue per User by segment of the Digital video game market (EU-27)



Source: Statista

The COVID-19 pandemic gave a positive boost to video games usage in Europe, with a third of consumers subscribing for the first time to a video gaming service, or using a cloud gaming service, or watching esports and virtual sporting event.<sup>44</sup> Whether this increase can hold in post-pandemic times still needs to be assessed, with initial signs pointing in the opposite direction. The 2020 ISFE report on video gaming in lockdown<sup>45</sup> depicts a scenario in which the pandemic increased not only the time spent by consumers playing video games, but also the positive perception of the impacts of video games on society, with both the percentage of parents and players agreeing on the positive impacts of playing video games increasing if compared to pre-pandemic periods. A recent report, released in July 2022, predicts that the global games content and services market will decline by 1.2% in 2022.<sup>46</sup> Meanwhile, several companies have started to cut on costs by ‘letting employees go’ (such as Niantic and Unity respectively laying off 8% and 4% of their workforce and several gaming and entertainment-focused tech companies like Electronic Arts, Meta, Microsoft, Netflix and Nvidia froze all recruitment, suggesting a level of consumer spending which has not kept the pace with the investments made by such companies.<sup>47</sup>

<sup>44</sup> ibid

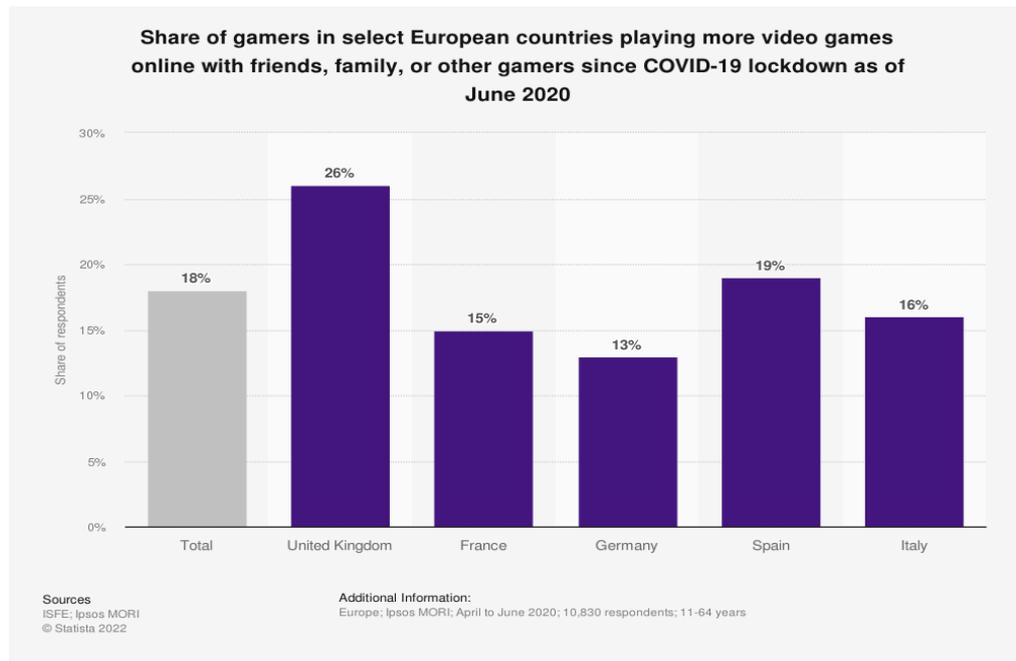
<sup>45</sup> ISFE (2020) <https://www.isfe.eu/wp-content/uploads/2020/09/IpsosMori-Gaming-during-Lockdown-Q1-Q2-2020-report.pdf>

<sup>46</sup> Ampere Analysis (2022), “Global games market forecast to decline in 2022, A reversal in fortune after the games market’s 26% expansion during the pandemic: The games market is not ‘recession proof.’”

<https://www.ampereanalysis.com/press/release/dl/global-games-market-forecast-to-decline-in-2022>

<sup>47</sup> Retrieved from <https://www.protocol.com/newsletters/entertainment/game-industry-shrinking-recession-ampere?rebellitem=1#rebellitem1> on July 20<sup>th</sup> 2022.

Figure 10: Share of gamers in select European countries playing more video games online.



Source: ISFE, Ipsos MORI, Statista (2022)

### 2.1.3.1 The metaverse, AR/VR, live streaming and cloud gaming

New emerging technologies are starting to shape the future of the video game market as well. In 2021 Facebook's corporation rebranded into Meta, and the company invested over USD 36 billion (EUR 33.9 billion) into a project which has encountered severe scepticism in the industry.<sup>48</sup> At the same time, the metaverse is taking over the video game industry as well. Roblox, an online gaming platform where users can create immersive user-generated 3D worlds, reached a USD 38 billion (EUR 35.78 billion) market cap in its IPO on the New York Stock Exchange in March 2021, registering a 43% increase from their last private financing round in January 2021.<sup>49</sup>

Video games' virtual worlds have also started to host crossovers with other CCIs, from the movie industry to the fashion, music and events industries.<sup>50</sup> Together with Roblox and Minecraft, Fortnite is leading the way in in-game concerts. The 2020 Travis Scott's virtual performance reached over 12.3 million concurrent players participating<sup>51</sup>, while it is reported that during Ariana Grande's Fortnite's concerts tour, the number of streams of the songs used in the event rose by 123%.<sup>52</sup> At the same time, other cultural and creative sectors such as the arts market and fashion are increasingly being interconnected with the video game industry through the surge of NFTs. Game studios are launching their own NFTs collection, as Ubisoft did with Quartz, a new service that allows players to buy 'Digits', a unique collectible

<sup>48</sup>J. Mann (2022). Retrieved on 13/02/2023. Available at: <https://www.businessinsider.com/meta-lost-30-billion-on-metaverse-rivals-spent-far-less-2022-10?r=US&IR=T>

<sup>49</sup> A. Levy and J. Bursztynsky. Retrieved on 13/02/2023. Available at: <https://www.cnbc.com/2021/03/10/roblox-rblx-starts-trading-at-64point50-after-direct-listing.html>

<sup>50</sup> Every single Fortnite collab & crossover in battle royale's history. Available at: <https://www.dexerto.com/fortnite/every-fortnite-collab-crossover-battle-royale-history-1645672/>

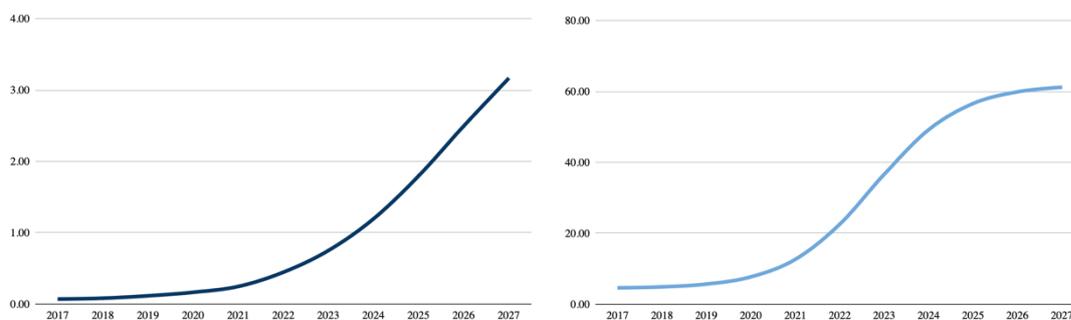
<sup>51</sup> A. Webster (2020). Retrieved on 13/02/2023. Available at: <https://www.theverge.com/2020/4/23/21233946/travis-scott-fortnite-concert-astronomical-record-breaking-player-count>

<sup>52</sup> T. Cirisano (2021) Retrieved on 13/02/2023. Available at: <https://www.billboard.com/pro/ariana-grande-song-streams-fortnite-concert/>

and in-game cosmetic playable item, ranging from in-game vehicles to weapons through pieces of equipment. Furthermore, according to data collected by The Block, the NFTs market is witnessing a shift from Art NFTs to Games NFTs.<sup>53</sup> The fashion industry as well has had several crossovers with the gaming one, examples are the collaboration between Animal Crossing and Marc Jacobs<sup>54</sup> or the one between Fortnite and Nike with the Jordan brand.<sup>55</sup>

At the same time, 5G technologies are driving the surge of cloud gaming, together with value chain innovations and the availability of new business models. Nowadays, almost all of the big players in the video game business offer their games through cloud-based subscription services, avoiding the necessity of updating the console every few years. Cloud gaming, which generated EUR 1386 million in revenues in 2021 (more than double if compared to 2020), is expected to be one of the fastest growing trends in the gaming market<sup>56</sup>. Focusing on the EU, Statista data show significant growth forecasts for both revenues and users, respectively growing by 20 and 8 times in the 2020-2027 period, reaching 3.17 billion EUR in revenues and 61.2 million users in 2027.

Figure 11: EU-27 cloud gaming revenues (left) in billion EUR and users (right) in millions.



Source: Statista (2023)

Currently, around 15% of smartphones are 5G compatible, a figure which is expected to grow to 45% by 2024<sup>57</sup> which again will aid the growth in this type of gaming. In this context, the shutdown of Google Stadia in early 2023<sup>58</sup>, after being launched less than three years before, poses significant questions over the potential development of cloud gaming. According to some commentators, Stadia shut down over a lack of audience, not being able to attract significant flows of players to its services.<sup>59</sup> As Keza MacDonald, the video games editor for the Guardian, phrases it: *'There appears to be almost nobody who wants to play games such as Assassin's Creed and Destiny and doesn't already have a console at home [...] people also clearly don't want to pay the same price to stream a game as they would to own it. There was, fundamentally, no significant need for Stadia to serve.'* Furthermore, device manufacturers are pushing back the development of cross-play as a way to protect their exclusivity, both in terms of games and

<sup>53</sup> Retrieved from: <https://coinculture.com/au/markets/art-nfts-fall-game-nfts-rise/> on May 22nd 2023.

<sup>54</sup> Retrieved from <https://www.dazeddigital.com/fashion/article/49114/1/marc-jacobs-drops-six-cute-looks-animal-crossing-valentino-instagram> on May 22nd 2023

<sup>55</sup> Retrieved from <https://www.businessinsider.com/fortnite-jordan-nike-crossover-skins-grind-clutch-2019-5?r=US&IR=T>

<sup>56</sup> Retrieved from <https://newzoo.com/insights/articles/the-games-market-in-2021-the-year-in-numbers-esports-cloud-gaming> on July 20th 2022.

<sup>57</sup> <https://www.forbes.com/sites/bernardmarr/2022/02/28/the-five-biggest-gaming-technology-trends-in-2022/?sh=5bba0dc75fc7>

<sup>58</sup> Carter, J. (2022) Google Stadia to shut down in 2023. Available at: (<https://www.gamedeveloper.com/the-cloud/google-stadia-to-shut-down-in-january-2023>)

<sup>59</sup> MacDonald, K. (2022). Why did Google Stadia Fail? Available at: <https://www.theguardian.com/games/2022/oct/04/google-stadia-is-going-offline-for-good>

communities.<sup>60</sup> Despite the growth of cloud gaming, there are still significant challenges that need to be overcome to facilitate a broader spread. Users complain about experiencing significant game-breaking network lags, about not finding newer games on any cloud platform, about the impossibility of connecting their own games library with any game service provider. There is also the challenge of cloud gaming service incompatibility with hardware, both in terms of controllers and consoles.<sup>61</sup>

Together with the metaverse and cloud gaming, another technology driven market trend is Virtual Reality.<sup>62</sup> Although several companies have invested in VR headsets, with latest significant example of Sony's release of the PlayStation VR 2, sales have been underperforming against expectations and companies have started to lower their excitement over potential market opportunities.<sup>63</sup> A U.S. focused survey<sup>64</sup> found that only 9.8% of American players were using VR headsets in mid-2021.<sup>65</sup> The growth of VR games is however expected to be driven by the falling prices of the needed hardware as well as by the headsets' capacity of functioning both as standalone devices and as hardware for other consoles of gaming PC to enable advanced VR experiences. At the same time, Meta's Quest 2 headset, which is available at a lower price than the company's other headset Quest Pro, has sold 20 million units (from October 2020 to early 2023), which is significantly lower than the numbers reached by consoles, with the Nintendo Switch having sold 121 million units (since 2017), the PS5 31 million consoles (since November 2020) and the Xbox Series X/S 20 million units (since November 2020).<sup>66</sup>

For the moment, apart from a few exceptions like Half-Life: Alyx and Horizon Call of the Mountain, the lack of high-profile games is holding back VR's development potential. The sector is awaiting a big publisher to start significantly investing in it, but initial evidence points in the opposite direction, with Tencent abandoning their strategy to develop VR hardware in early 2023.<sup>67</sup> A 2020 report by the Game Developers Conference<sup>68</sup> shows that number of games being developed for VR and AR headsets remains significantly smaller than the one for traditional devices.

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<sup>60</sup> 5 Reasons Why Cross-Platform Play Has Pushback from the Gaming Industry. Available at:

<https://www.makeuseof.com/reasons-why-cross-platform-play-has-pushback-from-gaming-industry/>

<sup>61</sup> Ackerman, D. (2021) 5 reasons cloud gaming isn't doing it for me -- yet. Available at:

<https://www.cnet.com/tech/computing/5-reasons-cloud-gaming-isnt-doing-it-for-me-yet/>

<sup>62</sup> B. Marr (2022). Retrieved on 13/02/2023. Available at: <https://www.forbes.com/sites/bernardmarr/2022/02/28/the-five-biggest-gaming-technology-trends-in-2022/?sh=5bba0dc75fc7>

<sup>63</sup> Retrieved from: <https://mixed-news.com/en/playstation-vr-2-launch-sales-report/>

<sup>64</sup> We Are Social, & DataReportal, & Meltwater. (February 9, 2023). Share of internet users in the United States who play video games on selected devices as of 3rd quarter 2021 [Graph].

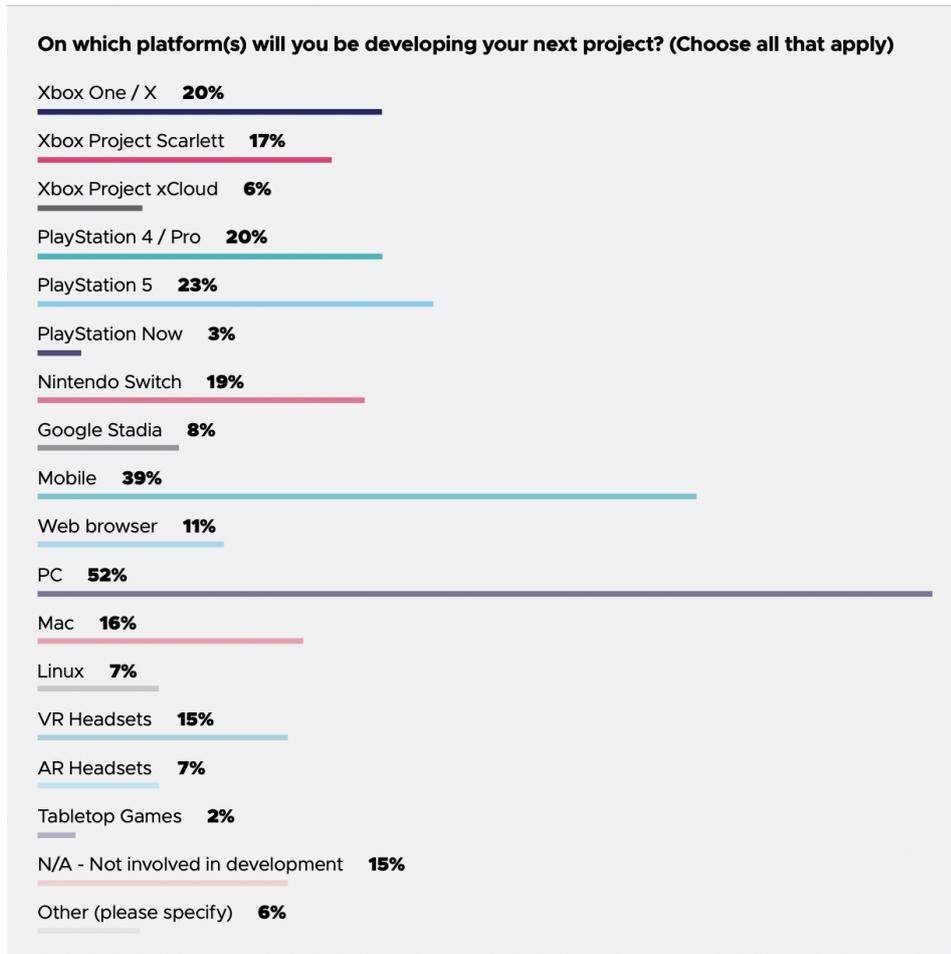
<sup>65</sup> B. Marr (2022). Retrieved on 13/02/2023. Available at: <https://www.forbes.com/sites/bernardmarr/2022/02/28/the-five-biggest-gaming-technology-trends-in-2022/?sh=5bba0dc75fc7>

<sup>66</sup> Retrieved from: <https://www.inverse.com/tech/vr-gaming-not-in-trouble-tencent-withdraws-vr-investments>

<sup>67</sup> Retrieved from: <https://www.reuters.com/technology/tencent-scraps-plans-vr-hardware-metaverse-bet-falters-sources-2023-02-17/>

<sup>68</sup> *Game Developers Conference: State of the game industry 2020*

Figure 12: Number of games being developed by device type.



Source: *Game Developers Conference*

At the same time, several tech companies are still willing to invest in VR gaming, with Meta expected to release the Quest 3 headset in 2023<sup>69</sup>, HTC announcing recently the Vive XR Elite<sup>70</sup> and Apple announced its mixed-reality headset (Vision Pro) in June 2023<sup>71</sup>.

Recent years have also seen the rise in activities that go beyond gaming itself, mostly consisting of esports and live streaming. The global games live streaming audience is expected to almost reach 1 billion users in 2024 according to Newzoo data.<sup>72</sup> Although 2020 and the COVID-19 pandemic lockdowns gave a significant boost to live streaming activities, the audience continued to grow in 2021, registering a +12.7% year-on-year increase. In terms of platforms, Twitch and YouTube are the two most popular ones, with the former generating 23.3 billion hours of live viewership in 2021 compared to the 4.5 billion hours generated by the latter. Figure 13 presents the live streaming audience growth data sourced from Newzoo statistics.

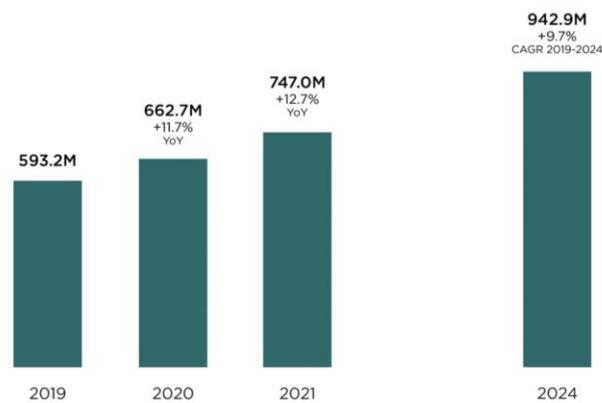
<sup>69</sup> Retrieved from: <https://www.inverse.com/tech/quest-3-release-date-leaks-rumors-meta-vr-headset>

<sup>70</sup> Retrieved from: <https://www.inverse.com/gear/vive-xr-elite-headset-htc-ces-2023>

<sup>71</sup> Retrieved from: <https://www.inverse.com/gear/apple-ar-glasses-postponed-microsoft-layoffs-hololens>

<sup>72</sup> T. Wijman (2021). Retrieved on 13/02/2023. Available at: <https://newzoo.com/insights/articles/the-games-market-in-2021-the-year-in-numbers-esports-cloud-gaming>

Figure 13: Games Live Streaming Audience Growth (in unique viewers)



Source: Newzoo

### 2.1.3.2 Esports

Together with live streaming, another market rapidly consolidating is esports, which differs from the broader video games market as it is audience oriented rather than player oriented and differs from traditional sports in that it is based on creative content and protected IP. A 2019 Deloitte report<sup>73</sup> valued the market revenues at EUR 240 million and the audience dimension at 86 million people in 2018, respectively with a 24% and 28% CAGR in the 2016-18 period and estimated the market to reach EUR 560 million in revenues by 2022.

The esports industry is made of four main stakeholders: teams, tournament organisers, publishers and platforms. Contrary to what happens in traditional sports, power is concentrated in the hands of publishers which have a key role to shape the market thanks to their IP ownership. Platforms, especially Twitch, have a key role as well, as they are the main access point for esports consumption. The market is characterised by five main types of revenue streams:

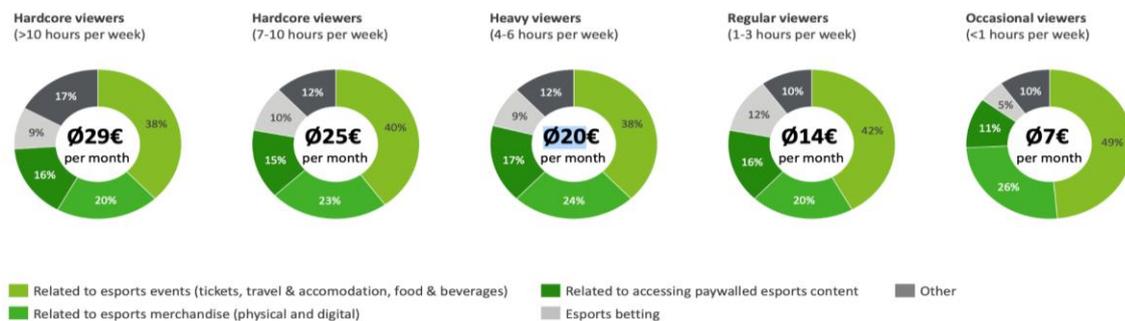
- ▶ Sponsorships: revenues generated from corporate sponsor deals for both teams, leagues and events.
- ▶ Advertising: Revenues generated by advertisements via live streams and on dedicated online platforms.
- ▶ Media rights: Revenues generated through media coverage, including all revenues paid to the event organisers, leagues and teams, in order to secure the rights for esports content on a channel.
- ▶ Ticketing and merchandise: Revenues generated by the sale of tickets for live esports events, as well as teams and events merchandise sales.
- ▶ Game publisher fees: Revenues paid by game publishers to independent esports organisers for hosting events.

<sup>73</sup> Deloitte (2022). Let's Play! 2022 The European esports market. Retrieved on 13/02/2023. Available at: [https://www2.deloitte.com/content/dam/Deloitte/cz/Documents/technology-media-telecommunications/Lets\\_Play-The\\_European\\_esports\\_market.pdf](https://www2.deloitte.com/content/dam/Deloitte/cz/Documents/technology-media-telecommunications/Lets_Play-The_European_esports_market.pdf)

Although the data previously presented shows staggering growth numbers (+24% CAGR), according to several industry experts interviewed for this research report, as well as secondary literature sources<sup>74</sup>, the market is far from profitable for all the stakeholders involved, and the industry is considered to be still in a start-up investment phase. The only significant revenue source is represented by sponsorship agreements (varying from 45% to 80% of all revenues streams for the companies interviewed), linking the market’s profitability to the fluctuations of corporate’s advertising budgets. Some companies are successfully trying to diversify their business structure to rebalance the relative importance of sponsorships in their revenue model; examples are the Spanish Team Queso (one of the leading European teams and worldwide leader in mobile games) which is venturing into content creation and technological services, or ESL FACEIT which has entered the data market.

According to experts, the European market is characterised by smaller players compared to the US and Chinese ones, which makes it harder for them to compete and monetize through sponsorships. Additionally, the lack of media rights-based revenue streams (which account for the majority of revenue streams in traditional sports) is making it hard for esports stakeholders to go beyond the investment/start-up phase. At the same time, the fragmentation of the European market also lies in the diverse cultural contexts in which the industry operates and in the numerous languages in which contents are produced. The market is presumably not ready for subscription-based models (2020 data shows that only 50% of esports enthusiasts was already spending money to access content<sup>75</sup>) and the big players are still focused on increasing their reach rather than building a sustainable long-term business model. Consumer spending data has been elaborated in the 2022 updated of the annual Deloitte esports report<sup>76</sup>, showing not only the averagely low per-user commercial conversion but also the small importance of consumer spending on paywalled content.

Figure 14: Average monthly consumer spending on esports, per consumer segment



Source: Deloitte (2022). Let’s Play! 2022 The European esports market.

Investments in the esports European market can be divided in three main categories: endemic market companies acquiring smaller competitors (the most common typology of investment); non-endemic companies such as media conglomerates entering the esports market by acquiring endemic players

<sup>74</sup> Deloitte (2022). Let’s Play! 2022 The European esports market. Retrieved on 13/02/2023. Available at: [https://www2.deloitte.com/content/dam/Deloitte/cz/Documents/technology-media-telecommunications/Lets\\_Play-The\\_European\\_esports\\_market.pdf](https://www2.deloitte.com/content/dam/Deloitte/cz/Documents/technology-media-telecommunications/Lets_Play-The_European_esports_market.pdf)

<sup>75</sup> Statista (2020). Retrieved on 13/02/2023. Available at: <https://www.statista.com/statistics/1192340/esports-spending-europe/>

<sup>76</sup> Deloitte (2022). Let’s Play! 2022 The European esports market. Retrieved on 13/02/2023. Available at: [https://www2.deloitte.com/content/dam/Deloitte/cz/Documents/technology-media-telecommunications/Lets\\_Play-The\\_European\\_esports\\_market.pdf](https://www2.deloitte.com/content/dam/Deloitte/cz/Documents/technology-media-telecommunications/Lets_Play-The_European_esports_market.pdf)

(such as the 2019 Mediapro acquisition of LVP in Spain<sup>77</sup>); private investment which is either in speculative terms from Venture capitalists or the so-called love money from individuals passionate about esports. In recent years there have also been examples of foreign acquisitions of European companies, such as the much-debated 2022 acquisition of both ESL and FACEIT by the Saudi Arabia public investment fund Savvy Gaming Group for an estimated value of USD 1.5 billion (EUR 1.42 billion).<sup>78</sup> In recent years there has also been a shift in the approach of local authorities (mostly cities and municipalities) towards esports. Whilst this almost only consisted of eventification strategies in the past, with the aim of attracting the biggest events, it is now turning towards a more comprehensive policy approach which recognises esports as a potential source of economic development and as a driver of differentiation. As an example, the city of Paris created a specific section of its innovation and economic development agency Paris&co dedicated to the incubation and support of esports companies.

The esports European industry is a rapidly developing one. Although not profitable nor sustainable yet, all indicators show great potential for continued growth. At the same time, the industry is facing significant threats, both internal and external. The main internal one lies in the relationship between publishers, owners of the IP, and teams and tournament organisers. The industry does not have yet standardised dynamics and each publisher dictates different rules for the use of their IP. While some publishers are entirely externalising their esports activities, others, like Riot Games, are adopting a mixed method where higher tier tournaments are run internally and lower tier ones are externalised, both as a way to closely monitor and protect their IP and as business opportunity as well.

External threats are mostly of legislative nature. The first relies on the lack of clarity and clear definitions for the esports sector. The debate revolves around whether the industry should be classified as entertainment or as traditional sport, with trade associations and industry players strongly opposing the sport categorisation, mostly for the dependence of the industry on protected IP. In 2016 France was the first European country to formally recognise esports (law n° 2016-1321 pour une République numérique<sup>79</sup>), distinguishing them from games of chance for the skills, physical and mental abilities required to determine victory or defeat<sup>80</sup>.

The second legislative threat faced by the European esports industry lies in fragmentation, since both cultural and sport policies are of exclusive competence of the Member States. In 2022 the European Parliament passed a significant resolution on esports, affirming the EU's position that esports and sports are different sectors, mainly because esports titles are owned by private entities with IP rights.<sup>81</sup>

## 2.2 Business models and value chains in the video games ecosystem

This subsection provides the analysis of the composition and the distribution of all the value chain actors operating in the European video games market. Sustainable business models will be analysed, comparing the different strategic options that video games companies have deployed before and after

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<sup>77</sup> A. Hayward (2019). Retrieved on 13/02/2023. Available at: <https://archive.esportsobserver.com/mediapro-acquires-fandroid/>

<sup>78</sup> A. Gentrup (2019) Retrieved on 13/02/2023. Available at: <https://frontofficesports.com/saudi-backed-group-merging-esl-faceit-in-1-5b-deal/>

<sup>79</sup> LOI n° 2016-1321 du 7 octobre 2016 pour une République numérique. Retrieved on 13/02/2023. Available at: <https://www.legifrance.gouv.fr/dossierlegislatif/JORFDOLE000031589829/>

<sup>80</sup> R. Carron de la Carrière (2016). Retrieved on 13/02/2023. Available at: <https://www.lepetitjuriste.fr/e-sport-officiellement-reconnu-loi-republique-numerique/>

<sup>81</sup> J. Nordland (2022). Retrieved on 13/02/2023. Available at: <https://esportsinsider.com/2022/11/european-union-parliament-esports-funding>

the digital shift. The video games industry, part of the entertainment industry and of the cultural and creative sectors, is composed of different types of actors, through the academic literature (Langoltz, Rhode & Whaley, 2008<sup>82</sup>; Williams, 2002<sup>83</sup>), the following ones were identified: game creators, game studios, hardware and peripheral developers, game publishers, distributors and retailers (for a full description, see Chapter 1.5).

### 2.2.1 Changing business models in the video games sector

Like many other industries, the gaming industry has been largely impacted by the digital shift. Previously, the predominant business model was to sell the console at loss and make revenues on the sale of games<sup>84</sup>. Digital games have subsequently changed the way games are both distributed and sold which has paved the way for games-as-a-service (GaaS) business models (see below).

Initially, the video game market required the presence of physical devices (such as consoles) to have access to a game, but with the advent of the internet and the spread of mobiles and tablets, new gaming platforms developed. This digital transition reconfigured the value chain of the video games industry and new entrants have appeared on the market. The mobile game value chain often bypasses smaller games publishers in favour of e-shop/app stores. As a result, large digital platform companies (Google, Apple, Amazon) are now playing a critical role in the video games industry by controlling an important market share of the app stores (Apple and Google control 95% of the global app store market, excluding China).<sup>85</sup> Data on the profitability of the platform business model is not publicly available but insights into the scale of the model can be inferred from overall market trends.

Games that adopt a platform business model traditionally follow three revenue strategies<sup>86</sup>:

- ▶ **Game purchases:** where the game is sold at a given price by the gaming company.
- ▶ **In-app purchases:** the game is accessible for free, but it pushes users to buy either digital goods or premium versions and upgrades of the game.
- ▶ **Ad-supported:** the game is accessible for free, and monetisation passes through advertisement within the game.

The new free-to-play models in video games have also stimulated the growth in the number and type of players<sup>87</sup>. As free-to-play games are seeing growing audiences, companies generate revenues by selling within the game ancillary services<sup>88</sup> (e.g., additional chapters of a game story, multiplayer mode) or digital goods (in-game purchases such as customisation or bonus items. As an example, out of the USD 2.4 billion or EUR 2.26 billion in revenues generated by Fortnite in 2018, which follows a free-to-play model, over one billion was generated through the sale of in game items).<sup>89</sup>

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<sup>82</sup> Holger A, Rhode L & Whaley C (2008), Video Games Industry Overview: An Analysis of the Current Market and Future Growth Trends, available at: [http://holgerlanglotz.de/downloads/BU4510\\_VideoGamesIndustry\\_LanglotzEtAl.pdf](http://holgerlanglotz.de/downloads/BU4510_VideoGamesIndustry_LanglotzEtAl.pdf)

<sup>83</sup> Williams D (2002), Structure and Competition in the U.S. Home Video Game Industry, available at: <https://gamingstreet.com/game-developer-publisher-relationship/>

<sup>84</sup> <https://www.pcmag.com/news/microsoft-says-xbox-consoles-have-always-been-sold-at-a-loss> Accessed on July 20th 2022.

<sup>85</sup> Business of apps (2022) app store data. Retrieved from <https://www.businessofapps.com/data/app-stores/> on July 21st 2022.

<sup>86</sup> [https://fourweekmba.com/gaming-industry/#Mobile\\_phones\\_and\\_Tablets](https://fourweekmba.com/gaming-industry/#Mobile_phones_and_Tablets) Accessed on July 21st 2022.

<sup>87</sup> <https://fourweekmba.com/gaming-industry/> Accessed on July 20th 2022.

<sup>88</sup> *ibid*

<sup>89</sup> Retrieved from Business Insider <https://www.businessinsider.com/how-much-money-does-fortnite-make-2019-1?r=US&IR=T> on 21st July 2022

As value chains are changing (see section below), business models are adapting too.<sup>90</sup> As players no longer require physical copies, publishers can sell games directly via online stores, thus enabling distributors and developers to capture more of the revenue from game sales by cutting out the retail component and eliminating packaging costs by delivering the game to the user via download.<sup>91</sup> This trend is also reflected in Figure 14. Currently, the most innovative business models are:

Currently, the most innovative business models are:

- ▶ GaaS (Games-as-a-service): is a business model that allows game developers to monetize video games after release in the long run. It is achieved by frequent updates of the games with new experiences offered to the players on a subscription basis or in the form of in-game purchases;<sup>92</sup>
- ▶ Microtransactions: including as in-game purchases, downloadable content (DLCs), season passes, loot boxes;
- ▶ Subscription models to access a catalogue of games: both by console and hardware manufacturers (PlayStation Now and Xbox Game Pass, Apple Arcade,<sup>93</sup> Nvidia Geforce Now), digital services (Amazon Prime Gaming, former Google Stadia<sup>94</sup>), and game publishers (Ubisoft's Uplay Plus and Electronic Art's EA Access and Origin Access). These are becoming increasingly popular as cloud gaming becomes more technologically feasible and widely adopted, offering players a wide library of rotating games to play. This issue demonstrates how the video game sector is constantly changing and growing, spurred by developments in technology and digital media;
- ▶ Single game subscription models, especially used for massively multiplayer online role-playing game (MMORPG, including major titles such as Final Fantasy XIV, World of Warcraft, or Dofus).

Another significant disruption which has taken over the video game industry is the surge of free to play (F2P) business models. F2P is often used incorrectly referring to other typologies of business models<sup>95</sup>:

- ▶ Freemium: online games with free available access up to a certain level, above which the player must pay a fixed price in order to unlock the full game. There are no microtransactions, so a freemium game is a paid game with a demo period.
- ▶ Freeware: refers mainly to copyrighted software, which is freely distributed for an unlimited time period, but with limited content. The product is essentially used as an advertisement for the enhanced, priced product.
- ▶ Shareware: similar to the freemium model, except that the switch to a licensing fee is imposed following a limited period of use.

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<sup>90</sup> Business Models of Video Games: Past, Present, and Future" retrieved from <https://medium.com/@mjperrotta46/business-models-of-video-games-past-present-and-future-2b2aafe8ade1>

<sup>91</sup> Business Models of Video Games: Past, Present, and Future" retrieved from <https://medium.com/@mjperrotta46/business-models-of-video-games-past-present-and-future-2b2aafe8ade1> See also Malte Behrmann (2018) Digital Revolutions Affecting Distribution Within the Games Sector. Management Studies, Mar.-Apr. 2018, Vol. 6, No. 2, 139-146

<sup>92</sup> <https://www.gridly.com/blog/games-as-a-service/> Accessed on 25<sup>th</sup> July 2022.

<sup>93</sup> CNBC (2019), <https://www.cnbc.com/2019/09/19/apple-launches-arcade-gaming-service.html> accessed on 21st July 2022.

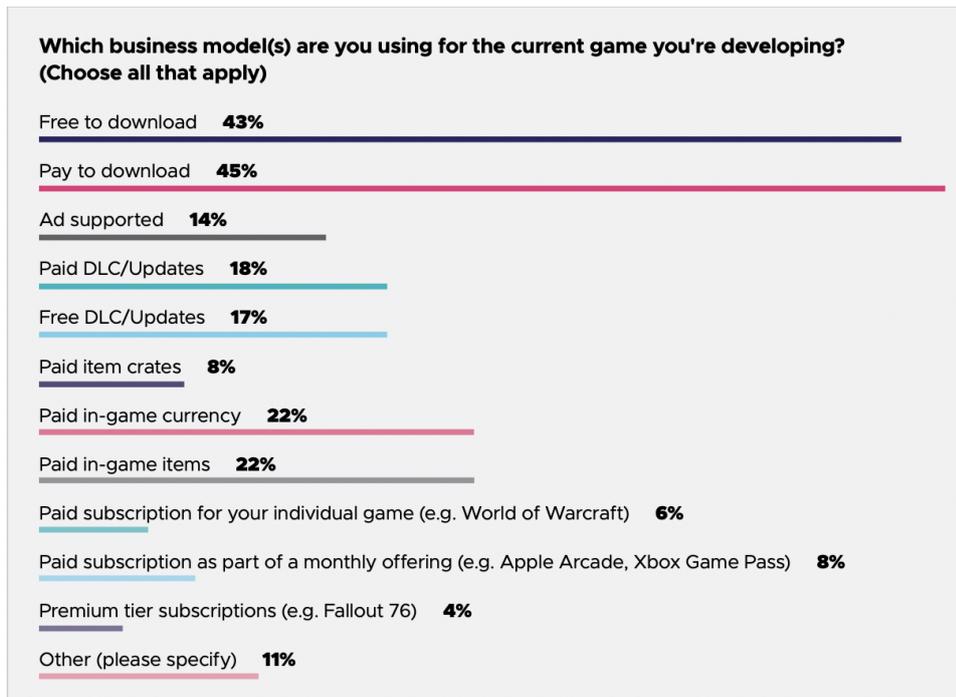
<sup>94</sup> "Google Stadia launches November in 14 countries: Stadia Founder's Edition will launch in the US, Canada, and 12 European countries, see <https://www.polygon.com/2019/6/6/18655088/google-stadia-release-date-us-canada-europe>"

<sup>95</sup> Davidovici-Nora, M. Innovation in business models in the video game industry: Free-To-Play or the gaming experience as a service. Comput Game J 2, 22–51 (2013). <https://doi.org/10.1007/BF03392349>

The F2P value chain works according to an inverse logic than the paid model. The player is initially acquired and locked-in the game. The monetisation stage only takes place at the end of the economic process once the player has accumulated enough interest to pay.

By assessing the business models preferred by game developers<sup>96</sup>, it can be noted that downloads (whether free or paid) still capture the largest portion of preferences, in sharp contrast with the direction the market is taking towards online gaming (Figure 15).

Figure 15: Game developers' stated preferences of revenue sources

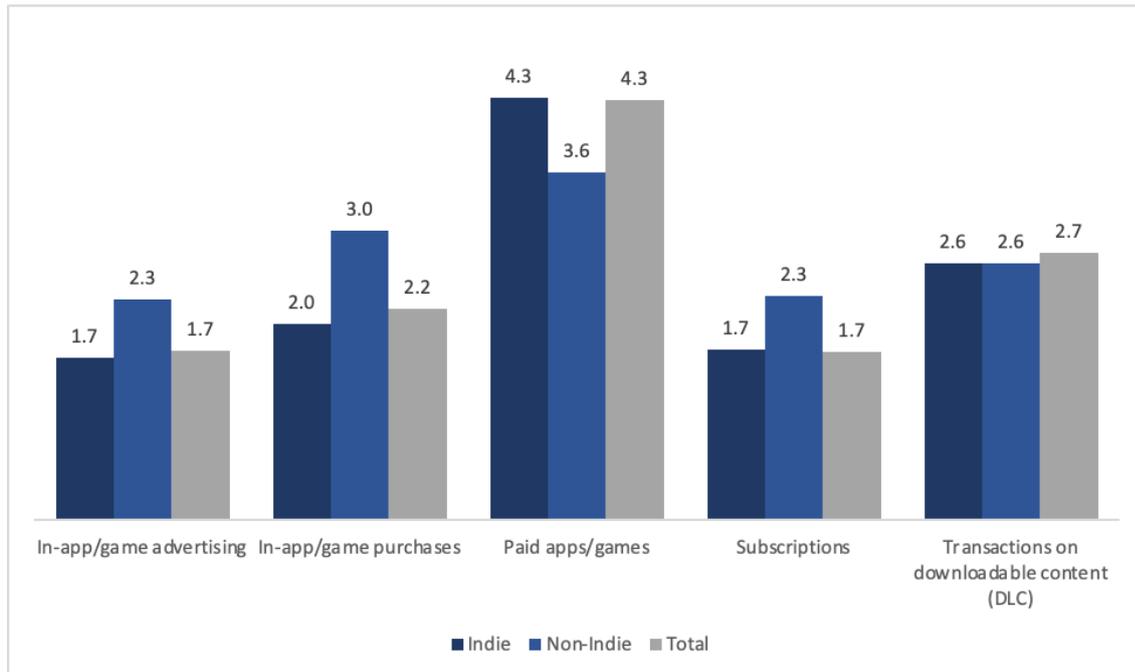


Source: Game Developers Conference: State of the game industry 2020

Furthermore, from the survey run among European video games stakeholders for this research project, game companies indicated that the most used monetisation model is paid apps/games, both for indie and non-indie actors, followed by transactions on downloadable content. This suggests that the European market might be running behind on monetisation capacities from the most recent business models. In the same vein, subscription and in-app transactions-based business models are more used by non-indie stakeholders, strengthening the argument (discussed in various sections of this report, especially 2.1.3 and 2.3) that mainstream industry actors find it easier to innovate and posing challenges for the EU industry mostly made of SMEs with lower investing capacities.

<sup>96</sup> Game Developers Conference - GDC (2020), see [https://images.reg.techweb.com/Web/UBMTechweb/%7B65616f14-0d84-4f64-a3af-d1f06181b7b9%7D\\_15056\\_GDC20\\_Report\\_SOTI\\_R1.pdf](https://images.reg.techweb.com/Web/UBMTechweb/%7B65616f14-0d84-4f64-a3af-d1f06181b7b9%7D_15056_GDC20_Report_SOTI_R1.pdf)

Figure 16: Use of different monetisation models among European stakeholders



Question asked: On a scale from 1 to 5, how much use does your company make of the following monetisation models? (1 = no use, 5 = main model used)

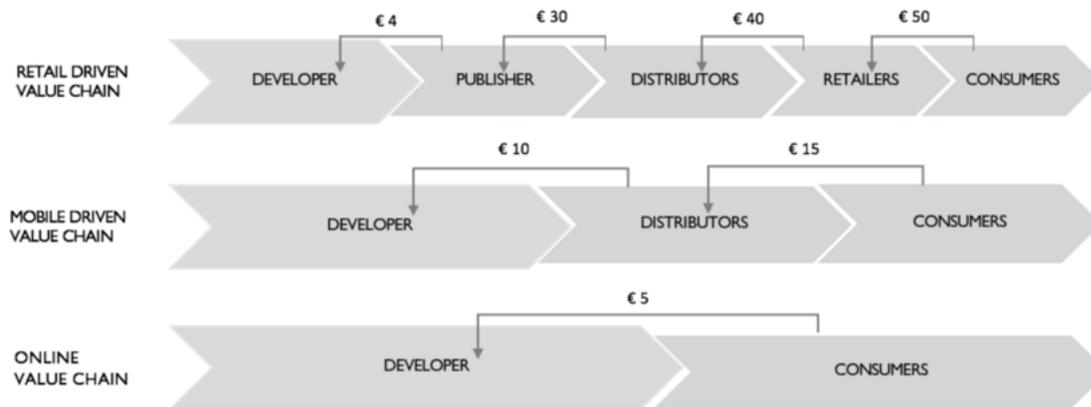
Source: KEA/Ecorys survey 2022

## 2.2.2 Changing value chains, the dominance of online gaming

A recent European Commission funded project (2018) found that three main types of video games value chains exist linked to the retail driven, the mobile driven and the online driven areas.<sup>97</sup> Figure 17 sets out the most common value chains in the video game sector, albeit based on data from 2018. These value chains describe more in detail cash flows typical of each of them, whereas the description provided in earlier in this Chapter (Figure 11), more generally visualises changes brought about by digital transformation. Note that monetary figures in the diagram represent cash flows among actors of the value chain, starting from the amount spent by consumers to purchase a game up until the amount received by the developer. The relative importance of the various video game value chains is difficult to quantify overall due to limited coverage within secondary sources.

<sup>97</sup> Bellini, Andrea & Burroni, Luigi & Dorigatti, Lisa & Gherardini, Alberto & Manzo, Cecilia. (2018). Industrial relations and creative workers. Overall report.

Figure 17: The most common value chains in the video game sector



Source: BOO-Games Regional Analysis Report cited in Bellini et al., 2018

The retail driven value chain (mostly made of console and PC games) represents the traditional product of the video game sector and generates the largest share of revenue per copy sold compared to other value chain channels. At the same time, in this value chain, market access for new entrants is limited, mostly due to high investment costs for game production (borne by developers and publishers)<sup>98</sup> and the fact that revenues allowing developers to compensate their costs are only accrued when the final product is sold, usually after a long period of time (from 6 months to 2-3 years).<sup>99</sup>

The mobile and online value chains, made possible by technological advancements and the widespread use of mobile devices, are much simpler in comparison. These comprise only two or one actors at the supply side (developers and distributors) respectively. Costs are often significantly lower, both financially, due to the shorter development time and the smaller teams required<sup>100</sup>, and in terms of needed competences, thanks to the birth of free development engines (e.g. Unity at early stages). While technological developments 'democratised' video games production, it also made the market much more competitive and much less remunerative in terms of revenues per item sold, since mobile games tend to be available either for free or for a very small price on online platforms.<sup>101</sup> In terms of digital distribution, one of the most relevant players is Steam, a digital distribution service developed by the American video game corporation Valve. Steam, which was launched in 2003, reached a 75% share of the digital PC gaming platform market in only ten years<sup>102</sup> and 18% of global PC game sales in 2018, without taking in-game purchases into account.<sup>103</sup>

A completely different type of value chain, which lies outside purely market-driven logics, includes applied or serious games, which includes games with the aim to inform, educate or train end-users. In particular, applied games are developed and distributed across several sectors like education, health,

<sup>98</sup> Beyond the simple cost of physical format production, the retail-driven value chain entailed a more limited amount of games and hence a trend to focus on higher budget productions. For a full discussion on the impact of digital and mobile distribution for the video games industry, see for example Malte Behrmann (2018) Digital Revolutions Affecting Distribution Within the Games Sector. *Management Studies*, Mar.-Apr. 2018, Vol. 6, No. 2, 139-146

<sup>99</sup> Kerr A. (2013), *Space Wars: The Politics of Games Production in Europe*, in N. Huntemann, B. Aslinger (eds), *Gaming Globally: Production, Play, and Place*, New York, Palgrave Macmillan: 215-232.

<sup>100</sup> Ibid

<sup>101</sup> However, it should be noted that the long-term revenues of mobile games outpaces other video games sales (see section 2.1 for more details).

<sup>102</sup> Edwards, Cliff (November 4, 2013). "Valve Lines Up Console Partners in Challenge to Microsoft, Sony". *Bloomberg*. Archived from the original on October 24, 2014.

<sup>103</sup> Bailey, Dustin (March 22, 2018). "With \$4.3 billion in sales, 2017 was Steam's biggest year yet". *PCGamesN*.

transport, marketing, and defence. Hence, the client has a central role in the development of a serious game: it works with the developer, finances the project and distributes the final product. The value chain is much simpler and comprises only two actors, the client and the developer and it is characterised by much more secure revenue sources as games are usually commissioned directly by the client.

## 2.3 Financing gap analysis and barriers to investment and growth

This subsection focuses on the numerous barriers to entry in the EU video games market, taking into account data related to the economies of scale and entry costs. The section then provides an overview of the video games market's power dynamics and fragmentation and will explore the possibilities to access the finance challenges. The video games market is dominated by large, international companies, such as the US-based Microsoft or the Japanese Nintendo and Sony, which together generated more than EUR 48 billion in gaming revenues in 2021, almost twice as much as the whole European market. Barriers to enter the video games industry are high which sometimes discourages new companies from joining this market.<sup>104</sup> Firstly, there is a phenomenon of economies of scale (mainly about skills, know-how of games development and marketing, and company internal processes. In terms of actual assets, economies of scale are mainly seen for companies with AAA IPs, which can reuse important parts of one game towards another)<sup>105</sup>, with which new companies – without experience, knowledge and connections – have lower chances to compete. At the same time, some of the biggest barriers to entering the industry are capital and technological assets: the production of games (especially AAA games) requires a lot of money, and the technology required is often very advanced and constantly evolving.

The 10<sup>th</sup> workshop organised for this project on Market trends in the video games sector: today and tomorrow<sup>106</sup> was instrumental to understand the degree to which large international video game companies face the same issues and challenges as indie developers. Participants pointed out that the latest technological advancements are increasing the costs of game development, making it less comfortable for smaller studios to take investment risks. In this context, as there will be less capacity to cushion big project failures by small game studios. Game developers may also try to increase their self-financing capacity by offering their services to larger studios (subcontracting or work-for-hire),<sup>107</sup> instead of working on developing their own games and IP. In some cases, developers may negotiate for upfront payments by game publishers in exchange for the IP exploitation rights of their games.<sup>108</sup>

Investing into game development resources and on new technologies is arguably a prerogative of larger companies, widening the gap between big corporations and smaller game developers. As an example, among the EU game studios interviewed for this report, mostly SMEs, the greatest majority is currently not investing in new technologies, meaning the European industry runs the risk of not being an early adopter of market innovations.

By analysing the results of the purposely run survey, when asked to estimate the importance of different barriers to growth and challenges faced by their company, respondents showed that the lack of financing

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<sup>104</sup> The “Game as a service” model described in the previous section does enable some developers to enter the market with a lower upfront costs, though.

<sup>105</sup> The most obvious example would be sport games series such as FIFA games, where a lot of the games content and assets can be reused from one year to another.

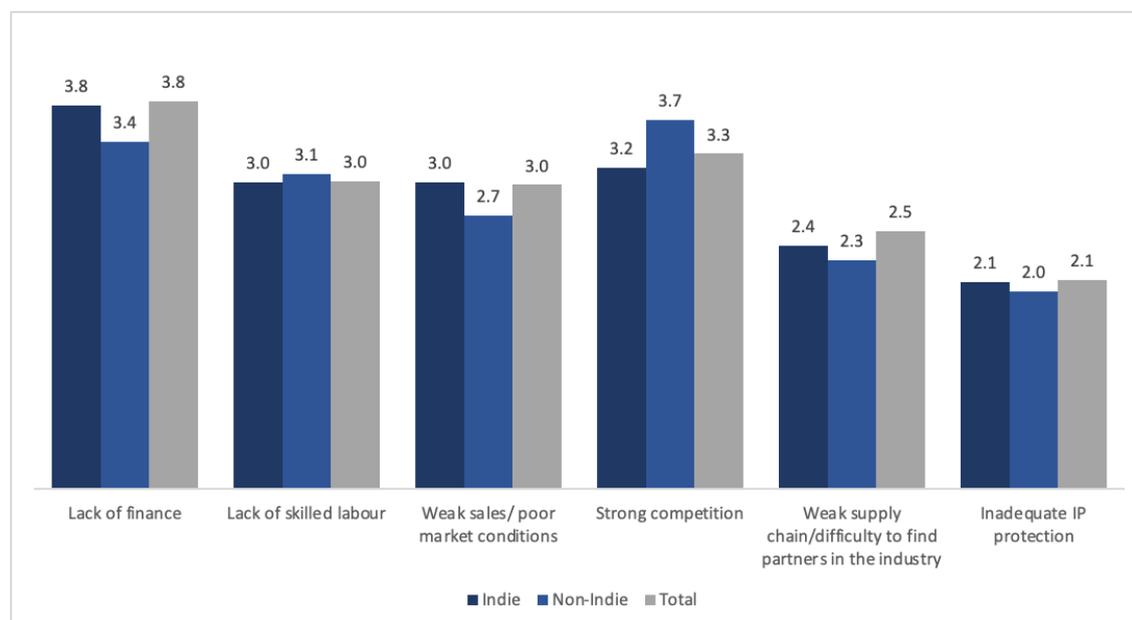
<sup>106</sup> Retrieved from European Commission <https://digital-strategy.ec.europa.eu/en/library/market-trends-video-games-sector-today-and-tomorrow> on February 13, 2023.

<sup>107</sup> Interviews

<sup>108</sup> DEV (2019) El Libro Blanco del Video Juego. Spanish independent association of video games developers.

and the existence of strong competition are among the two most hindering factors for European actors. Interestingly, while the former barrier (lack of financing) is considered more harmful for indie actors, the latter (strong competition) is affecting more non-indie actors.

Figure 18: Barriers to growth and challenges in the EU sector



Question asked: What are the main barriers to growth and challenges facing your company? (rate each factor on a scale from 1 to 5, where 1 = low and 5 = high)

Source: KEA/Ecorys 2022

Primary data collection (survey, interviews and workshops) suggests that a key challenge for the video game sector is financing, particularly funding for small and medium developers.<sup>109</sup> The main problem lies in the fact that, unless a video games studio has already launched a successful game, it is often difficult to attract financing from traditional players including banks. To solve these issues, studios are turning towards alternative ways of funding, such as crowdfunding projects or public loans and grants. At the same time, initiatives like the CCS Guarantee Facility (CCS GF)<sup>110</sup> launched in 2016 by the European Investment Fund on behalf of the European Commission aims at facilitating access to financing from micro-business and SMEs by providing loans supported by the CCS GF. Private sector stakeholders are stepping up as well, with projects like the German Venture Capital fund Gameseer<sup>111</sup>, founded by former gamers and specialised exclusively on video games.

Furthermore, the European Commission study on "Ex-ante evaluation of new financial instruments for SMEs, mid-caps and organisations from the Cultural and Creative Sectors"<sup>112</sup> analysed the quality of access to capital for European CCS companies, finding several market failures and barriers. Although the

<sup>109</sup> Retrieved from <https://fleximize.com/articles/002825/funding-for-the-gaming-industry> on 21st July 2022.

<sup>110</sup> EIF Cultural and Creative Sectors Guarantee Facility (CCS GF)

[https://www.eif.org/what\\_we\\_do/guarantees/cultural\\_creative\\_sectors\\_guarantee\\_facility/index.htm](https://www.eif.org/what_we_do/guarantees/cultural_creative_sectors_guarantee_facility/index.htm)

<sup>111</sup> Source: <https://www.game-seer.com/2022/01/01/gamer-smart-money/> accessed on 22nd July 2022.

<sup>112</sup> SQW (2021) Ex-ante evaluation of new financial instruments for SMEs, mid-caps and organisations from the Cultural and Creative Sectors. Report for the European Commission, DG GROW. Available at: [https://www.sqw.co.uk/application/files/2916/2366/5409/Ex-ante\\_evaluation\\_of\\_new\\_financial\\_instruments.pdf](https://www.sqw.co.uk/application/files/2916/2366/5409/Ex-ante_evaluation_of_new_financial_instruments.pdf)

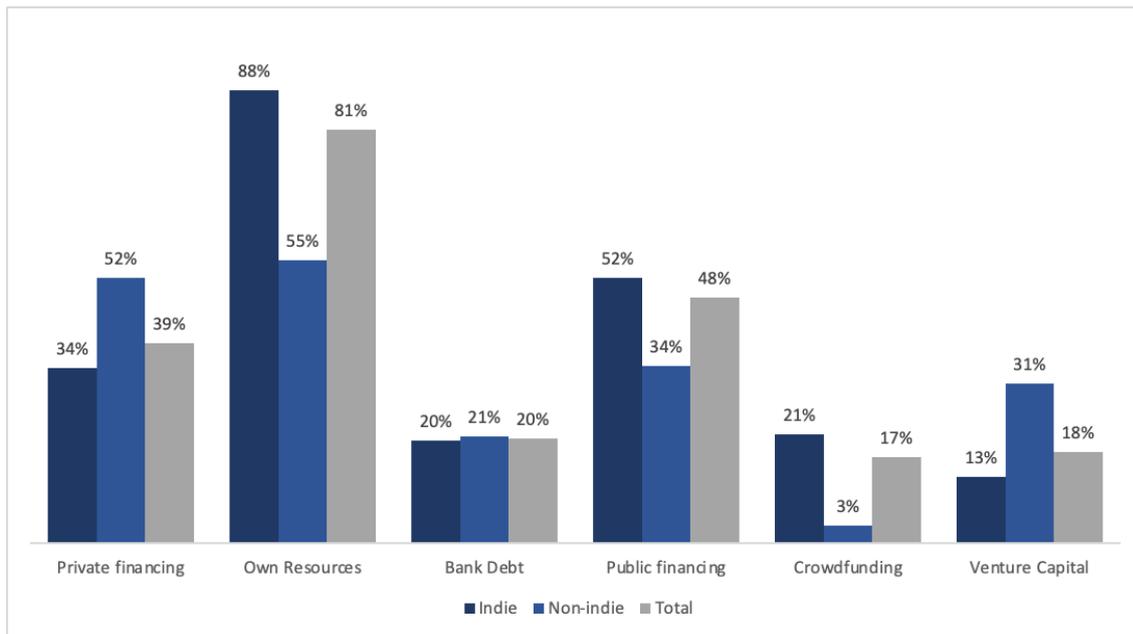
analysis was not restricted exclusively to the video game industry, the majority of its findings resonate with the results obtained from the interviews and workshops conducted for this report.

Among the main reasons that limit European CCS from an easier access to finance are information failures, mostly in terms of the information asymmetries between CCS organisations and finance providers as well as in terms of the lack of business planning and financial management skills inside cultural and creative businesses. Market fragmentation (e.g., taxation across borders, inconsistent cultural approaches to entrepreneurship and risk) is also considered to be a relevant barrier, especially for SMEs. At the same time, intrinsic characteristics of cultural products, such as their intangible nature and their lack of scalability and replicability, make it harder for investors to perceive the potential value of a CCS investment. Considering also that CCS business models are usually project rather than product focused, products offered by financial providers are usually incompatible with CCS businesses. While most of the previously mentioned barriers can be applied to CCS in general, the European video game sector also needs to deal with a market mostly made of SMEs, which find it hard to develop into large or medium-sized enterprises.

Such general findings have also been corroborated by the second workshop on Challenges and Opportunities for the video game industry. Several participants expressed their concerns about the existing gap in public financing between the development phase and the distribution and scaling up one, which needs further investments. Participants also pointed out that this gap is even more pronounced for start-ups and small enterprises which have still to launch their first game onto the market and thus lack the track record to attract investment.

Furthermore, it is also interesting to see how different sources of financing are differently appropriated by indie and non-indie actors. The previously mentioned difficulties in financing are corroborated by the fact that respondents to the survey, when asked to point out which sources of financing their company's business model relies on, almost unanimously selected their own resources (81%), showing a general issue in accessing finance (regardless of the source) for European stakeholders. Such issue is particularly emphasised for indie actors (88%) if compared to non-indie actors (55%). The graph below also shows how private financing is mostly accessed by non-indie stakeholders, of which 52% is made up of private financing and 31% of venture capital funds compared to the respective 34% and 13% of indie stakeholders. At the same time, independent actors make a broader use of public financing (52% compared to 34%) while, as previously stated, bank debt and crowdfunding are not a commonly used source of financing for European stakeholders.

Figure 19: Use of different sources of financing



Question asked: Does your business model rely on the following sources of finance (tick all that is relevant)

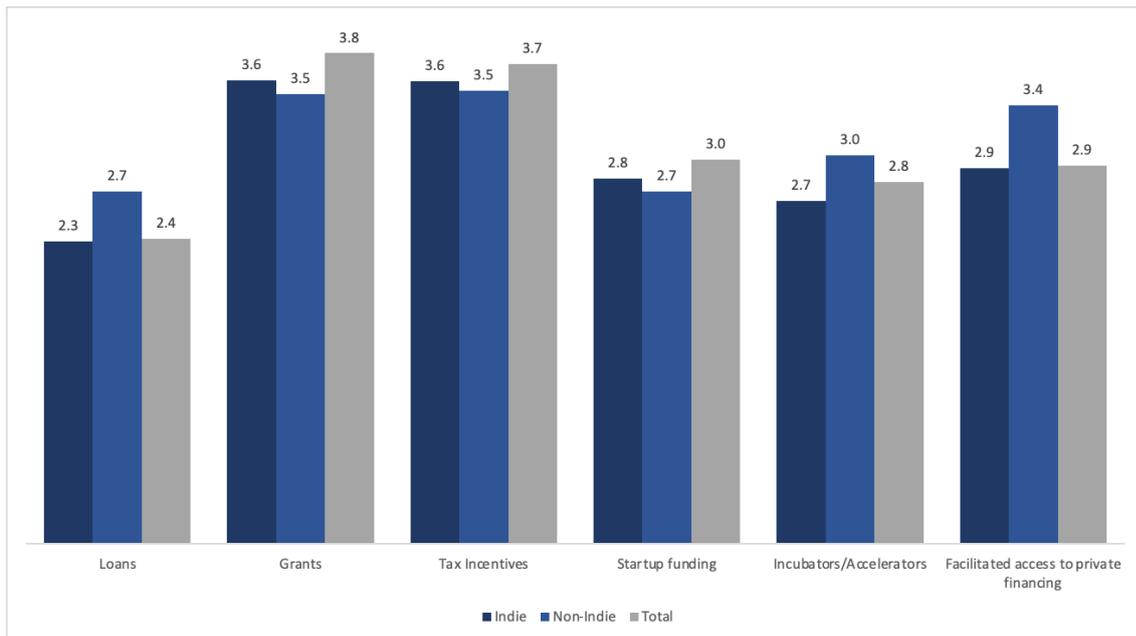
Source: KEA/Ecorys survey 2022

## 2.4 The public support mechanisms system for the video games industry

This subsection provides an explanation of specific public support for the video games sector. The first part of this section will focus on individual countries' measures, including examples (such as Finland, Poland, Germany, France, Sweden). The second part of the section will study the supports financed by the European Commission, such as the Creative Europe MEDIA programme.

The video games industry has been characterised in recent years by ever-growing development and higher generated revenues. On the other hand, in many countries video games are created by companies with insufficient financial capacity and therefore dependent on large game publishers to provide funding for their development. As previously shown (Figure 19), public support schemes are among the most used sources of financing for European companies. The graph below (Figure 20) shows the perceived utility of different forms of public support schemes by European stakeholders. Although all of them received a score higher than the mean (with the exception of Loans which scored at 2.4/5), implying that public support schemes are considered to be overall useful, several interesting differences can be found in the data collected. First of all, non-repayable funds, such as tax incentives and grants, are the ones that achieved the highest score, both for indie and non-indie companies. At the same time, both schemes to facilitate access to private financing and loans are considered more useful for non-indie companies (corroborating section 2.3 findings on the difficulties faced by independent and emerging companies to access private funds).

Figure 20: Utility of different public support schemes



Question asked: On a scale from 1 to 5, how useful are the following public support schemes to your company? (1 = not very useful, 5 = very useful).

Source: KEA/Ecorys survey 2022

There are many examples of games-specific public funding schemes in Europe, financed both by the European Union and individual countries such as Poland, France, Sweden, Belgium, Germany. One of the most effective and best documented support packages to the sector is in Finland. Business Finland (originally called Tekes) is an agency that has been backed by the Finnish Government for over a decade. Between 2012, when it launched its first dedicated games funding programme (Skene), and 2017, it had provided EUR 100m in matched loans or grants to Finnish games companies. The Finnish government estimated that for every euro invested in the games sector by Tekes, a return ranging from EUR 9 to 26 was generated for the Finnish taxpayer thanks to the increased turnover and taxes paid by supported video games companies<sup>113</sup>. Examples of funded companies include Koukoi Games, which received EUR1 million from Tekes in 2016<sup>114</sup>, and later launched successful games such as Om Nom Run, downloaded 30 million times.<sup>115</sup> Some leading Finnish video companies partly owe their success to the programme. For instance, Supercell was supported by Tekes with an initial loan of EUR 400,000 to kickstart the company, followed by additional support reaching around EUR5M over years.<sup>116</sup>

Another example of public support to the sector is in Germany, where a coalition agreement between government and other public institutions included the introduction of a federal games industry funding programme designed to promote the development of computer and video games in order to improve international competitiveness. Belgium also provides funding opportunities for both projects and studios through schemes which are dedicated to audiovisual products or to broader CCS. Examples of project

<sup>113</sup> Business Finland (2019) Programmes for Education and Gaming – Evaluation of Skene, Learning Solutions, Future Learning Finland and Education Export Finland Programme. Evaluation Report, March 2019.

<sup>114</sup> Nordic9 (2016). Retrieved on 13/02/2023. Available at: <https://nordic9.com/news/koukoi-games-raises-1m-from-ipr-vc-and-tekis-to-develop-licensed-ip-mobile-games-news8831693276/>

<sup>115</sup> Retrieved from: <https://www.prnewswire.com/news-releases/sciplay-acquires-casual-game-developer-and-operator-koukoi-games-oy-301327439.html> on February 13, 2023

<sup>116</sup> See for instance: <https://supercell.com/en/about-us/> and <https://www.wsj.com/articles/BL-VCDB-14403>

funding include the Screen.Brussels Fund<sup>117</sup>, which supports audiovisual work presented by independent production companies, and the VAF/Game Fund<sup>118</sup>, which includes three specific schemes for the financing of video games. Examples of studio funding include the St'art Investment Fund<sup>119</sup>, which provides loan to very small companies and SMEs also with the aim of encouraging banks and private investors to do the same, and PMV<sup>120</sup>, which provides both risk capital, start loan and co-financing loan.

In addition to Finland, Germany and Belgium, Denmark, France, Italy and Spain also have several programmes of support packages to the video games sector, each with different methods, structures and objectives that adapt to the country's specific needs. Furthermore, some countries, namely France, Ireland and Italy, have launched alternative ways to provide public funding for game developers including tax credit schemes. The French Tax Credit for video games<sup>121</sup> was launched in 2007 and consists of a tax credit of 30% on eligible expenses with a maximum threshold of EUR 6 million, with all companies that produce video games and are qualified to pay taxes in relation with the creation of such video games eligible to benefit from the tax credit. Italy launched its tax credit scheme for video games producers in 2021, consisting of a 25% tax rebate of development costs for up to EUR 1 million. The Irish government's DGTC<sup>122</sup> (Digital Games Tax Credit), pending its approval from DG Competition, will allow producers to claim 32% of the costs associated with the design, build and testing of their video games, up to EUR 25 million per project.

We provide a non-exhaustive list of available regional and national public support schemes in different European countries in Annex 7.<sup>123</sup>

Moving up to a higher level, the European Education and Culture Executive Agency programme 2014 - 2020 included a support for Development of European Video Games. For example, in 2016 Creative Europe MEDIA supported the development of video games with an annual budget of EUR 2.6 million financed by the European Commission, which increased to EUR 6 million in 2022. The new Creative Europe MEDIA programme 2021-2027 continues to increase the capacity of European video game companies to develop interactive narrative experiences, by supporting the development of works and prototypes with original content and quality gameplay. Through the Creative Europe programme, market access (CREA-MEDIA-2022-MEDIA360), cross-sectorial innovative projects (CREA-CROSS-2022-INNOVLAB) networking and B2B activities (CREA-MEDIA-2022-MARKETNET), and training (CREA-MEDIA-2022-TRAINING) funds are available as well. Another call for proposals under the Creative Europe programme (CREA-MEDIA-2023-INNOVBUSMOD)<sup>124</sup>, whilst not exclusively targeted towards the video game industry, focused on the objective of strengthening the competitiveness, scalability and sustainability of European audiovisual players. The funding scheme, financed with a total of almost EUR 9 million and a maximum co-financing rate of 70%, aimed at supporting projects focusing on business models that address the specific challenges of the audiovisual sector such as discoverability, sequencing

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<sup>117</sup> See ScreenBrussels: <https://screen.brussels/en/fund>

<sup>118</sup> See Vaf Game Fonds <https://www.vaf.be/vafgamefonds>

<sup>119</sup> See <https://www.start-invest.be/-/Le-fonds-154-?lang=en>

<sup>120</sup> <https://www.pmv.eu/en/about-financing-entrepreneurs/equity> Accessed on 25th July 2022.

<sup>121</sup> Retrieved from [entreprises.gouv.fr](https://www.entreprises.gouv.fr) (Le portail de la Direction générale des Entreprises)

<https://www.entreprises.gouv.fr/en/entrepreneuriat/aides-et-financement/tax-credit-video-games-tcvideo-game> Accessed on 25th July 2022.

<sup>122</sup> <https://www.myriadassociates.ie/news/2021/it-s-game-on-video-games-tax-relief-is-coming-to-ireland/> Accessed on 25th July 2022.

<sup>123</sup> <https://mediadesk.no/attachments/2810be03a0c39853730cb6a295977e226a1274a3/71-20211130154844391437.pdf> Accessed on 13th February 2023.

<sup>124</sup> Retrieved from : <https://ec.europa.eu> on 13/02/2023

of release windows, financing, and territoriality in order to increase the visibility, availability, audience and diversity of European content.

As of 2023, several other EU programmes offer support to the video game industry.<sup>125</sup> Together with Creative Europe, other European funding opportunities come both from the Horizon and the Erasmus + programmes (see Annex 7). Examples are<sup>126</sup>:

- ▶ HORIZON-CL2-2023-HERITAGE-01-06: A world leading European video game innovation system - useful for games-related research projects aimed at addressing gaps in knowledge in the potential contributions of video games to European economic growth, wellbeing, sustainability and social cohesion, and how to mobilise this potential;
- ▶ HORIZON-CL2-2024-HERITAGE-01-03: Leverage the digital transition for competitive European cultural and creative industries - useful for games-related research projects aimed at devising effective and cost-efficient measures to support CCIs (cultural and creative industries) to embrace and make full use of digital technologies for competitiveness and sustainability;
- ▶ Erasmus + Partnerships for Cooperation, and Erasmus + Alliances for Innovation both with the call ERASMUS-EDU-2023-PI-ALL-INNO Alliances for Education and Enterprises and ERASMUS-EDU-2023-PI-ALL-INNO Alliances for Sectoral Cooperation on Skills, for skills development in the Cultural and Creative industries ecosystem including the video games sector.

## 2.5 Financiers and investors approach to video games industry

In addition to public sector support to the industry, support for companies in the market also comes from the private sector. As previously shown (Figure 19), the video game industry doesn't rely on private financing as a primary funding source. Estimates suggest that the financing gap, for the entire CCS, amounted to around EUR 1 billion in the 2014-2020 budget cycle<sup>127</sup>. Several initiatives have been put in place to facilitate access to private financing for European actors, including MediaInvest and the EIF guarantee facility, both citing misconceptions about the economic performance of CCS as one of the main reasons that prevents private financing in Europe.

Evidence collected through the survey to industry stakeholders shows that private financing is in many cases a substitute deemed necessary due to the lack of public support schemes across the EU, even more so per indie stakeholders. Private investment in the video games sector can take place in several ways (see Figure 21), but it is interesting to note that the predominant reason for which European actors are seeking private financing is the need to speed up the development of the company, equally true for both indie and non-indie companies.

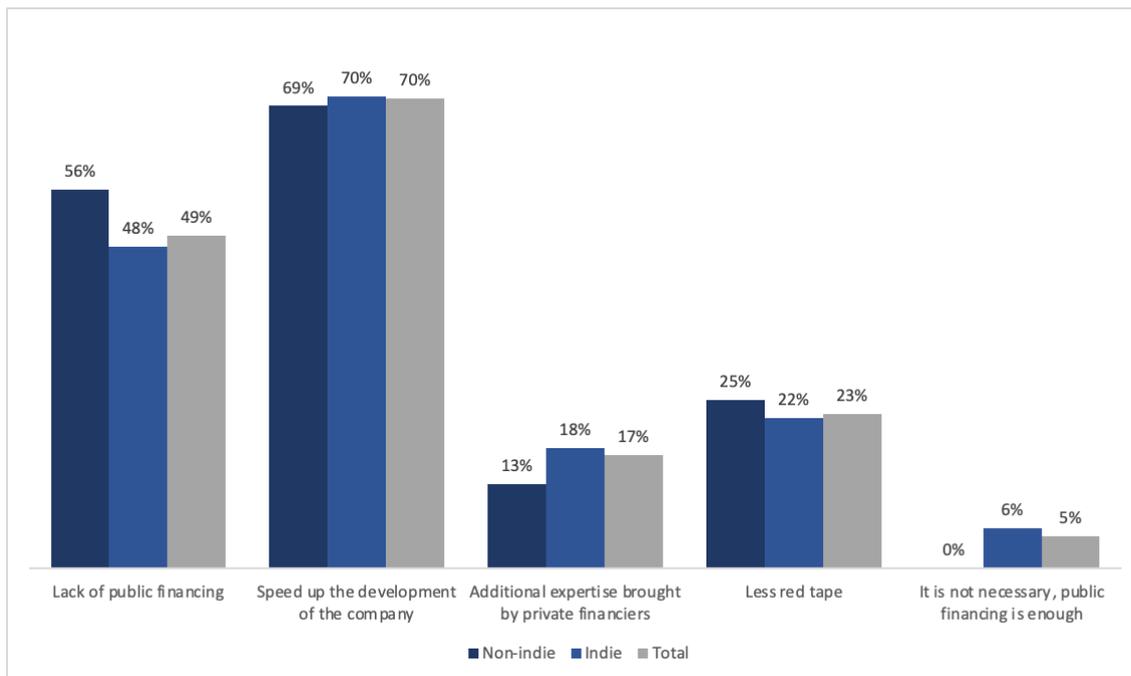
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<sup>125</sup> N. Marques (2022). Retrieved on 13/02/2024. Available at: <https://www.egdf.eu/summary-of-european-video-games-industry-eu-funding-calls-for-2023/>

<sup>126</sup> Ibid

<sup>127</sup> Retrieved from [https://ec.europa.eu/commission/presscorner/detail/it/MEMO\\_16\\_2346](https://ec.europa.eu/commission/presscorner/detail/it/MEMO_16_2346)

Figure 21: Reasons for seeking private financing.



Question asked: Which are the main reasons for you to seek private investment (select up to two)

Source: KEA/Ecorys survey 2022

Video game publishers, which are already part of the sector, are perhaps the most common financiers of projects in the video games industry. It is not just about providing funding for a game project, publishers are experienced in the gaming market, and they can therefore help emerging developers with all aspects of game development, including marketing and distribution support in exchange for revenue share.

Crowdfunding is an alternative form of financing various kinds of projects. This solution seems to work particularly well in the digital world providing investments through platforms (such as Kickstarter or Figstyle) where game programmers and developers offer various rewards to those who financially support their project. Small companies, which might find it harder to access other financing sources due to the lack of a track record, commonly get their initial investments through angel investors. Angel investors are high-net worth individuals who provide funding for projects in exchange for equity in the company, or possibly in exchange for a share in profits.<sup>128</sup> Private investments are arguably very common in the tech sector, especially in the start-up phase when risks are extremely high, and so are rewards in case of success.<sup>129</sup> As an example, angel.co,<sup>130</sup> a start-up online community, lists more than 23,000 angel investors ready to make investments in the upcoming gaming start-up companies. At the same time, until a few years ago most of the European game companies had no access to the equity market due to their small size and, thus, could not benefit from equity investments. Looking at the top ten private investments in the video game industry in the last quarter of 2022, three of them are European. Two French companies, Homa and Shiro Games, raised respectively 100 and 50 million USD, while the Finnish

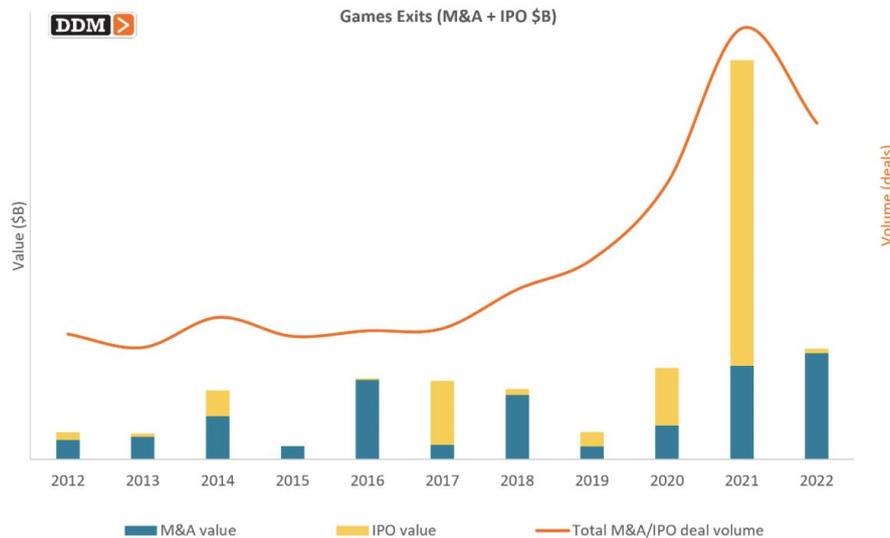
<sup>128</sup> Ganti, A. (2020). <https://www.investopedia.com/terms/a/angelinvestor.asp>.

<sup>129</sup> Multiple sources, including e.g. Dealroom (2021) Report - 2021: The year of Deep Tech. January 2021, retrieved from <https://dealroom.co/blog/2021-the-year-of-deep-tech>, accessed on 20.08.2022.

<sup>130</sup> <https://angel.co>

company Yahaha raised USD 40 million (EUR 37.66 million) in private equity<sup>131</sup>. Furthermore, in terms of global exit value, in 2022 they were mainly driven by M&A deals (96% of the total value) compared to IPO market capitalisation. According to the DDM analysis, in 2022 not only were there less public stock exchanges than in previous years, but also at smaller market capitalisations.

Figure 22: Global video game companies exit value trends.



Source: DDM Games Investment Review (2021)

Finally, financing opportunities can be available in the stock market. Even though, The access to financial markets for European companies is still rather limited, though year by year more game companies are listing on the stock exchange.<sup>132</sup> Of the biggest 80 companies by market cap, only 18 are from European countries, and none of them position themselves in the first 15 places.<sup>133</sup> The situation changes when analysing companies by operating margins, of the 50 best performing ones, 12 are European, with four Polish companies in the top 5 positions, namely: Big Cheese Studio (#1), Creepy Jar (#2), PlayWay (#3) and Games operators (#5).

The main driver behind private funding in video games companies is the high returns associated with successful investments in the industry and the growing ecosystem of companies offering accessory services to the industry<sup>134</sup>. As an example of the high value returns, US video game developer Devolver Digital joined London's alternative investment market in 2021 with an initial listing of 157p per share which jumped to 177.5p within just two hours of trading. At the same time, many investors are betting on the broader ecosystem of gaming, mostly through esports. As an example, the VC investor Beringea has recently invested in esports brand Fnatic. At the same time, the video game sector, like other entertainment industries, is subject to several M&A, mostly in foreign markets. In 2020 only, the U.S. market witnessed the two most expensive acquisition in the video game sector: the proposed acquisition

<sup>131</sup> DDM Game Investment Review – Q4 2022

<sup>132</sup> Data retrieved from <https://www.edisongroup.com/edison-explains/european-video-games/> Accessed on July 17th 2022.

<sup>133</sup> Data retrieved from <https://companiesmarketcap.com/video-games/largest-video-game-companies-by-market-cap/> Accessed on July 17th 2022.

<sup>134</sup> <https://www.fnondon.com/articles/private-equity-makes-a-play-for-the-video-game-market-20211215> Accessed on July 17th, 2022

of Activision Blizzard by Microsoft for USD 68.7 (EUR 60.61) billion<sup>135</sup>, and the acquisition of Zynga by Take-Two interactive for USD 12.7 (EUR 11.21) billion<sup>136</sup>. Regarding the European market, the most interesting and relevant case is represented by Swedish tech giant Embracer which, from 2017 to 2022, acquired over 100 studios in 45 countries around the world, with its subsidiaries currently organised in ten groups<sup>137</sup>.

The high potential returns of investing in the video games industry have also attracted the attention of big tech companies. The most notable example is the proposed acquisition of Activision Blizzard by Microsoft<sup>138</sup>, citing as the main reason the latter's effort to develop metaverse-based products. Big techs have significant stakes in the video games industry even regardless of acquisition strategies. Apple and Google, through their app stores, almost entirely control the retail front of the single largest segment of the gaming market (mobile games). Amazon and Google, through Twitch and YouTube, control the greatest majority of live streaming content and Meta, through its headsets, is one of the leading companies in the development of AR/VR hardware<sup>139</sup>.

Big techs are currently controlling other important parts of the video game segments, for the role they play in developing an important part of the device manufacturing and operating systems market, especially mobile phones. At the same time, unlike what happened with music and the film sector, big tech companies are not significantly investing in original games, casting scepticism over their ability to successfully penetrate a content-driven industry<sup>140</sup>. In this context, one of the most notable examples is Amazon's investment in its original multiplayer game Crucible, which was shut down in 2020.<sup>141</sup> 2021 data shows the relatively smaller relevance of GAMA (Google, Apple, Meta, Amazon) revenues in the video games industry compared to other digital medias (Figure 23).<sup>142</sup>

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<sup>135</sup> Info retrieved from <https://news.microsoft.com/2022/01/18/microsoft-to-acquire-activision-blizzard-to-bring-the-joy-and-community-of-gaming-to-everyone-across-every-device/> Accessed on 28th July 2022.

<sup>136</sup> Take-Two Interactive Software, Inc. Completes Combination with Zynga Inc. Source: <https://ir.take2games.com/news-releases/news-release-details/take-two-interactive-software-inc-completes-combination-zynga/> Accessed on 28th July 2022.

<sup>137</sup> <https://gamerant.com/all-studios-developers-embracer-group-gearbox-thq-nordic-saber/> Accessed on 28th July 2022.

<sup>138</sup> Available at: <https://www.ft.com/content/b96246ec-e70e-48b6-9a70-fb0800f79bd8>

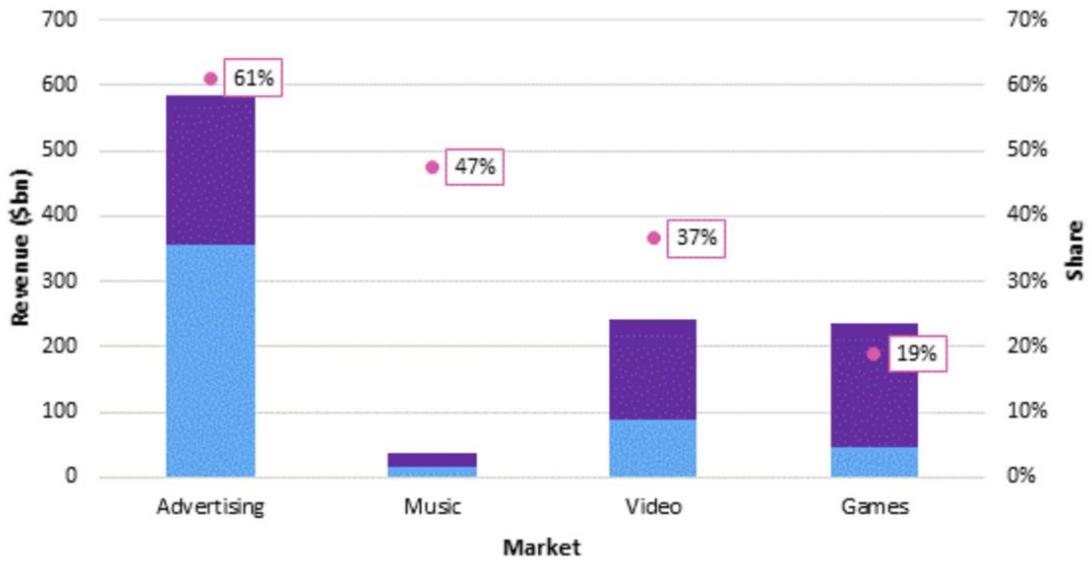
<sup>139</sup> Available at: <https://www.ft.com/content/2d446160-08cb-489f-90c8-853b3d88780d>

<sup>140</sup> Available at: <https://superjoost.medium.com/big-tech-sucks-at-gaming-c0f044e7bc5d>

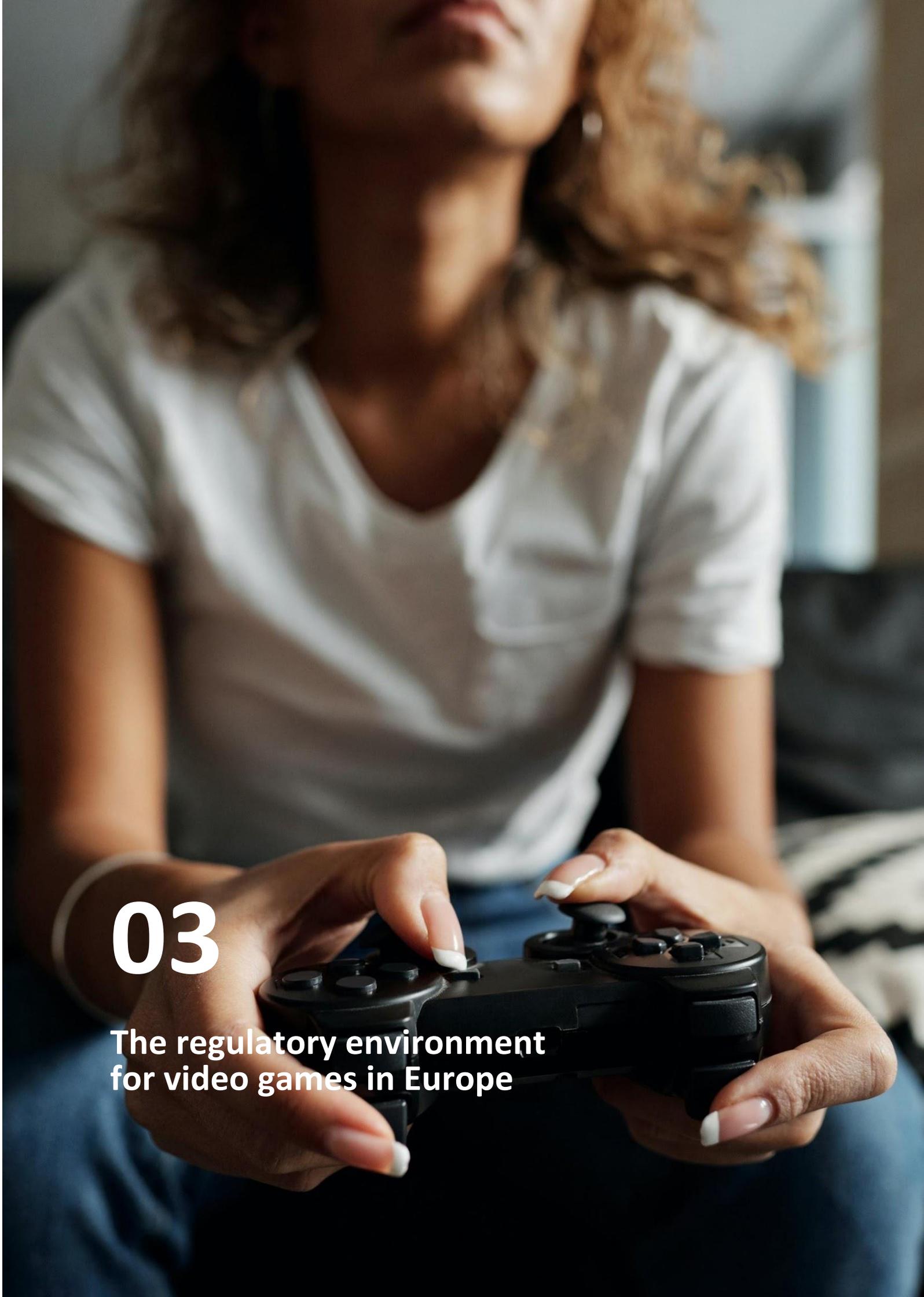
<sup>141</sup> Available at: <https://www.theverge.com/2020/10/9/21510190/amazon-crucible-canceled-game-studios-closed-beta>

<sup>142</sup> What's next for US Big Tech and video gaming. Available at: <https://omdia.tech.informa.com/OM027357/Whats-next-for-US-Big-Tech-and-video-gaming>

Figure 23: Digital media revenue totals and share for GAMA companies by market.



Source: Omdia



**03**

**The regulatory environment  
for video games in Europe**

## Chapter Summary

### Key findings

Video Games are complex products and as such, are subject to an important number of rules and regulations, including regulations typically pertaining to the cultural and creative sectors (copyright and other IP regulations), consumer protection (Consumer Rights Directive, Unfair Commercial Practices Directive, product safety rules) but also to regulations on digital services, including the DSA and privacy rules.:

- ▷ The regulatory framework applicable to IP rights protection in Europe is robust and the video game sector can adequately protect the various elements constitutive of video games. The actual enforcement of these rules might be challenging in some cases such as copycat games, where the speed of (mobile) games replication outpaces legal proceedings. Very often the video game industry relies on its ability to develop disruptive technologies and business models, rather than on legal enforcement.
- ▷ Antitrust law, where several investigations have analysed (potential) anticompetitive behaviours in the video games sector and especially on physical and digital distribution of video games. The recent Activision/Blizzard case shows that while the video games sector is very diverse and competitive, potential risks linked to vertical concentration do exist in the video game industry, especially at distribution level.
- ▷ State aid for video games is increasingly used across European countries (especially for tax shelter schemes), although the video games sector does not benefit from a particular State aid exemption in the same way as other cultural and creative sectors do.
- ▷ In terms of user protection, the EU has paid extensive attention and made continuous effort on a regulatory level to protect consumers, especially the minors.
- ▷ The European video games sector is mainly composed of SMEs, with limited human resources for regulatory issues. Importantly, these small companies market their games quickly and on a European or global scale. The business models of game companies also often rely on soft launch models (alpha or beta versions), which means they need to comply with all consumer-related rules at an early stage. This may raise concerns for smaller video game companies who need to 1) protect and file their IP rights, and ensure lawful licensing agreements with other right holders are in place; 2) comply with product and software safety; 3) ensure data protection and privacy rules are embedded in game design, but also by updates ; 4) Set up adequate consumer protection measures, especially for minors, within its game design but also across its online community; and 5) monitor any new regulatory development affecting the sector, including national-level specificities.

### Main trends

The close monitoring from EU authorities, in combination with increased awareness from the video game industry itself, has created a fast-evolving legal framework of protection for European video game users, both from the regulators and from the industry itself. Nonetheless, several issues related to online behaviours are affecting video games users (in particular minors), such as gaming addiction, toxic behaviours (including inappropriate, sexist or racist content), commercial influence and grooming (radicalisation, sexual abuse). These issues are clearly addressed in the regulatory framework covering consumer protection and strategies to promote safer online environment and actions are taken by the sector to deal with the issue, including PEGI, minor protection measures including parental control tools. The impact of such recent evolutions needs to be monitored and assessed regularly to identify any gaps in the legislative framework.

## Chapter Summary

### Main trends

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For example, the Fitness Check of EU consumer law on digital fairness seeks to evaluate whether the existing rules are still sufficient or not, including concerning the applicable rules on loot boxes.

The ability to leverage on advanced technologies is crucial in the video games sector, including for instance the ability to analyse in-game data to identify bugs, improve the user experience, and adjust the game difficulty for instance. AI, including new developments such as deep learning, are also used as a key feature of most games to improve the experience between human players and non-playable characters. The evolutions of the regulatory framework e.g., around AI and data protection have direct implications for the sector, such as embedding data protection in game design, robust privacy policies, secure data storage, and not deploy subliminal techniques or AI exploiting users' vulnerabilities. So far, such regulations are rather welcome by video game companies, but new rules that may affect core game mechanics or business models (e.g., data analytics for game design) are closely monitored by the sector's trade associations.

### Conclusion

The complex nature of video games is clearly reflected in the breadth of the regulatory framework applicable to video games affecting its content (copyright and other forms of IP protection), hardware and software (product safety, AI regulation, data protection rules), or games as a product or service often interacting with a broad user base (consumer protection rules, minors' protection). Smaller companies could benefit from guidelines and standardised documents to ensure compliance with these various rules.

This means the video games sector falls within the scope of many legal developments and dialogue with the sector will play an important role in ensuring the alignment between upcoming legal files and the development of the video game sector across Europe.

## 3.0 The regulatory environment for video games in Europe

### 3.1 Regulatory framework relevant to building a fair video games market - introduction

This sub-section presents an overview of the relevant EU legal framework for the video game sector. Based on literature review, interviews with policy-makers and the outcomes of workshops (mainly Workshop 2: Challenges and opportunities in the video games industry, Workshop 5: Regulatory Framework for Video Games, and Workshop 8: Rules in Play – Regulatory framework enforcement in the video games industry), the section provides an analysis of applicable rules for video games companies. It presents an overview of the main legal texts related to copyright and IP protection, competition rules, and AI regulations, and explains the relevance of these regulatory frameworks on the video games sector in the EU.

#### 3.1.1 Copyright and IP protection in video games

Video games form a creative worldwide entertainment industry. They foster innovation and development on both computer science and art in today's digitalised world, but when it comes to IP, several different regulatory frameworks which apply. These frameworks differ from one country to another, and this study has considered the rules applicable in the EU context.<sup>143</sup> Since video games contain multiple forms of art (including artworks, original designs, sound and music creation) as well as multiple software developments, copyright law and other forms of IP rights play an important role in protecting video games.

There is no single harmonised definition of video games with respect to EU law, but a 2014 decision from the Court of Justice of the European Union (CJEU) stated that "video games ... 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 originality, are protected, together with the entire work, by copyright in the context of the system established by Directive 2001/29."<sup>144</sup> In order to frame this section, we provide below an overview of the various components of video games, which are individually protected by copyright or other IP rights.

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<sup>143</sup> For a more detailed discussion on international and US regulatory frameworks, see for instance David Greenspan, Gaetano Dimita et al (2022) *Mastering the Game: Business and Legal Issues for Video Game Developers – A Training Tool*. Geneva, Switzerland : World Intellectual Property Organisation, 2022.

<sup>144</sup> Judgment of 23 January 2014, delivered in Case C-355/12: Nintendo Co. Ltd and Others v PC Box Srl and 9Net Srl <https://curia.europa.eu/juris/liste.jsf?language=en&jur=C,T,F&num=c-355/12&td=ALL>

Table 2: Overview of IP rights applicable to video games

Video game components	Author/creator*	Type of IP rights
Game original artworks: drawings of game characters, maps, buildings, etc;	Visual artist; Art director.	Copyright
Audio Elements: <ul style="list-style-type: none"> <li>▶ Musical Compositions</li> <li>▶ Sound Recordings</li> <li>▶ Voice</li> <li>▶ Imported Sound Effects</li> <li>▶ Internal Sound Effects</li> </ul>	Composer; voice actor; songwriters, and performers depending on the case.  Importantly, audio elements can be licensed in for the video game (synchronisation rights) rather than being specifically created for that game	Copyright and neighbouring rights  Trademarks for sound effects
Video Elements <ul style="list-style-type: none"> <li>▶ Photographic Images</li> <li>▶ Digitally Captured Moving Images</li> <li>▶ Animation</li> <li>▶ Text.</li> </ul>	Game artist; writer; scriptwriter.  Animation.	Copyright
Game story:  Video game script, its plot and other literary works, well-developed characters, choreography, narrative, gameplay concepts	Game designer; interface artist;	Copyright
Computer Code (Source Code and Object Code) <ul style="list-style-type: none"> <li>▶ Primary Game Engine or Engines</li> <li>▶ Ancillary Code</li> <li>▶ Plug-Ins (Third-Party Subroutines)</li> </ul>	Developer/programmer; game designer.  Note: Game engines are often licensed by game developers	Copyright

Design of: <sup>145</sup>	3D modellers, texture artists.	Design protection; patent and trademarks.
Other (animated) characters, logos, etc.	Hardware manufacturers. UX/UI designer;	
Game hardware (e.g., game consoles, controllers, accessories).		
Graphical user interfaces <sup>146</sup>		
Brand names; product and service names; logos; colours; shapes.		

Source: KEA, based inter alia on WIPO (2017) "The Legal Status of Video Games: Comparative Analysis in National Approaches"

When it comes to gameplay protection, several regulations define the scope of protection of video games, including Art.9 (2) of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS): "Copyright protection shall extend to expressions and not to ideas, procedures, methods of operation or mathematical concepts as such."<sup>147</sup> Similarly, the Art. 1(2) of the EU computer program directive: "Protection in accordance with this Directive shall apply to the expression in any form of a computer program. Ideas and principles which underlie any element of a computer program, including those which underlie its interfaces, are not protected by copyright under this Directive." These gameplay elements can still benefit from other forms of IP protection and notably trademarks. Trademarks provide protection for brand names and logos used on certain goods and services.<sup>148</sup> Trademarks are territorial IP rights, and their scope of protection will vary depending on a) which territory they are registered in (EUIPO for EU level protection, WIPO for global ones); and b) the goods and services in respect of which they are registered. Trademarks may be used by video games creators to protect various aspects, including brand names; product and service names; logos; colours.<sup>149</sup> These frameworks apply to EU video game companies, as well as non-EU companies commercialising games in the EU which need to file their IP for protection in the EU.

<sup>145</sup> Directive 98/71/EC of the European Parliament and of the Council of 13 October 1998 on the legal protection of designs which is currently under review, which includes the question of graphical user interfaces. The evaluation of the current Directive notes that the interplay between copyright and design protection is problematic and might undermine the use of design protection due to the lower duration of protection. However it should be noted that design can be protected by both design and copyright law ('principle of cumulation') [https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/1846-Evaluation-of-EU-legislation-on-design-protection\\_fr](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/1846-Evaluation-of-EU-legislation-on-design-protection_fr)

WTO (1994) Agreement on Trade-Related Aspects of Intellectual Property Rights. Last amended in 2017.

<sup>146</sup> On this point, the Court of Justice of the European Union (CJEU) noted in its 2010 "Svaz softwarové ochrany" decision that graphic user interface is not a form of expression of a computer program within the meaning of Article 1(2) [EU computer program directive] and cannot be protected by copyright as a computer program under that directive. Nevertheless, such an interface can be protected by copyright as a work by the EU information society directive if that interface is its author's own intellectual creation. See also case C-393/09, 22.12.2010 <https://eur-lex.europa.eu/legal-content/FR/TXT/?uri=CELEX:62009CJ0393>.

<sup>147</sup> WTO (1994) Agreement on Trade-Related Aspects of Intellectual Property Rights. Last amended in 2017.

<sup>148</sup> Regulation (EU) 2017/1001 of the European Parliament and of the Council of 14 June 2017 on the European Union trademark. OJ L 154, 16.6.2017

<sup>149</sup> Clifford Chance (2021) Level Up: a Legal Guide to the Video Games Industry.

<https://www.cliffordchance.com/insights/resources/hubs-and-toolkits/talking-tech/en/articles/2021/10/level-up-a-legal-guide-to-the-video-games-industry.html>

Contractual practices in the video games sector tend to cluster rights at the level of the game developer (and/or publisher depending on the financing and contractual arrangements), and any author of original code, artwork or original music for the game, is either employed by the developer specifically for those tasks or has agreed to assign all the intellectual property rights (not just copyright) to the developer and waive all rights in any work created and used in the game.

As a result, it often happens that the same video game is protected at the same time by various types of IP, including trademark rights (provided the video game's name, logo, sound, is subject to trademark registration with national or regional intellectual property offices such as the Benelux Office for Intellectual Property (BOIP) or the European Union Intellectual Property Office (EUIPO), copyrights (for what concerns the layout and appearances of the game) and software rights (for what concerns the source and object code as such).

Existing literature shows that video games (as a whole product) are mostly protected as audiovisual works and computer programmes.<sup>150</sup> The *Computer Programs Directive* of 1991 (updated in 2009) provides for copyright protection of video games in their source code and all its constituent parts. The audio, visual and other creative elements of a game themselves have been enshrined in national laws as a result of the *Berne Convention* of which the EU and its Member States are part of, with video games either expressly called out as cinematographic works or more broadly under audiovisual works.<sup>151</sup>

Other protective provisions are technically relevant but less important in the EU due to the structure of the video games sector in Europe. Patent protection is not very prevalent in the European video games industry, and mainly applicable to console games which use a specific hardware incorporating the game<sup>152</sup> that meets the conditions for European patent applications (e.g. Konami Co., Ltd. European Patent Video Game Patent (EP 1703429 A2).<sup>153</sup> Such combination of hardware and software is not very common, and even less so in the EU as the main game device manufacturers are based in third countries.

Finally, several cases and practices reviewed as part of the research highlight that the current legal framework needs to adapt to face emerging challenges, such as the increasing trend of user co-creation (or user generated content – UGC) in video games.<sup>154</sup> UGC can lead to the potential infringement of the IP rights of other right holders, i.e. players mixing together IP-protected content from different video games or other copyright protected content. For instance in March 2020, Sony had to delete UGC featuring Nintendo's protagonist *Mario* from the Sony-published video game *Dreams*.<sup>155</sup>

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<sup>150</sup> Ismail Ekin Gürünlü, Video Games and Copyright Protection Under International, European, and U.S. Law, TTLF Working Papers No. 59, Stanford-Vienna Transatlantic Technology Law Forum (2020).

<sup>151</sup> Grosheide, F. W., et al. "Intellectual Property Protection for Video Games - a View from the European Union." *Journal of International Commercial Law and Technology*, vol. 9, no. 1, 2014, pp. 1-13. It should be noted that a few national level case laws have excluded video games from the scope of audiovisual works, whereas other cases led to opposite conclusions.

<sup>152</sup> In Europe, software is not patentable unless it has the potential to cause a "further technical effect" which must go beyond the inherent technical interactions between hardware and software. This means in practice that the software must add something to the "normal" interaction between hardware and software. Further details are provided in the guidelines of the European patent office: [https://www.epo.org/law-practice/legal-texts/html/guidelines/e/g\\_ii\\_3\\_6.htm](https://www.epo.org/law-practice/legal-texts/html/guidelines/e/g_ii_3_6.htm)

<sup>153</sup> Georgieva, Hristina, Legal Protection of Video Games (2017). Proceedings of the Annual Scientific Conference of Angel Kanchev University of Ruse and Union of Scientists - Ruse, 2017, Volume 56, Book 7, SAT-2B.313-2-L -04. , Proceedings of the Annual Scientific Conference of University of National and World Economy - Sofia, 2017, Forthcoming., Available at SSRN: <https://ssrn.com/abstract=3166951>

<sup>154</sup> See for example WIPO Magazine (2021) When video games meet IP law, June 2021. [https://www.wipo.int/wipo\\_magazine/en/2021/02/article\\_0002.html](https://www.wipo.int/wipo_magazine/en/2021/02/article_0002.html)

<sup>155</sup> Games Industry (2020) and Nintendo presses Sony to remove Mario creations from Dreams - gamesindustry.biz <https://www.gamesindustry.biz/articles/2020-03-23-nintendo-presses-sony-to-remove-mario-creations-from-dreams>

To avoid any IP infringement stemming from UGC, players have to comply with regulations on the use of IP listed in the "end-user license agreement" (EULA) or terms of services<sup>156</sup>, which vary between games and can be complex to navigate.

Video game streaming also raises a number of issues in terms of IP protection including questions around the liability (between streamers and online platforms hosting content), as well as the scope of permitted uses under the existing IP framework (limitations and exceptions including uses for the purposes of teaching, research, studying, news reporting, parody, caricature, pastiche, quotation, criticism, review, including UGC).

In terms of liability, article 17 of the new EU Copyright Directive, proposes the solution of making content sharing providers more accountable for protecting the interests of rights holders and might have a relevant impact on the video gaming market. Streaming a live video of gameplay via Twitch or YouTube or pre-recording a Let's Play and uploading it to Twitch or YouTube are two examples of uses that may fall under Article 17. In such cases, the platforms should work closely with copyright holders to ensure intellectual property is protected and adequately compensated and seek a license. In case there is no license, then best effort clauses apply. These may include "(i) best efforts to obtain an authorisation; (ii) make best efforts to ensure the unavailability of unauthorised content regarding, which rightsholders have provided necessary and relevant information; and (iii) act expeditiously to remove any unauthorised content following a notice received and make also their best efforts to prevent future uploads".<sup>157</sup>

Depending on whether the games make use of third party-owned content, game developers may be limited in what rights they can allow streamers to use as part of their broadcast. For example, even though a music publisher may have licensed their music for a game, that license may prohibit it being streamed. To lawfully enable game streaming and provide blanket licenses to streamers, game developers should first secure the rights to third-party content for streaming purposes.<sup>158</sup> This raises several challenges for smaller game developers, as there is currently no simple licensing system to secure all relevant rights at EU level for game streaming purposes. This results in complexities in terms of identifying the right contact persons and entities, and a long timelapse before securing a response. As a result, some composers are encouraged to take up a membership at a US-based collective rights management organisation (BMI or ASCAP<sup>159</sup>, which have both struck licensing agreements with the main livestreaming platform such as Twitch).

As noted by interviewees engaged as part of this study, this is a lesser issue for larger video games companies and game productions which usually have in-house teams for sound and music designs. Stakeholders tended to reflect that for larger (AAA) games, sound and music are integral part of the creative process for video games production, and as such music licensing and/or original creations are factored in the development process at an early stage (usually in the first few months of work).

Beyond this regulatory framework, contractual practices have evolved to enable game streaming, which mostly generate positive effects for any game to develop its user base (visibility on online platforms, community-building, tips and tricks). Therefore, many game publishers have set up EULA that are more user-friendly for streamers. Create UK developed an online dashboard assessing how several games are

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<sup>156</sup> Péter Mezei and István Harkai (2022) End-user flexibilities in digital copyright law – an empirical analysis of end-user license agreements. *Interactive Entertainment and Law Review* First published online: February 2022; doi: 10.4337/ielr.2022.0003

<sup>157</sup> European Commission (2021) Guidance on Article 17 of Directive 2019/790 on Copyright in the Digital Single Market COM/2021/288 final

<sup>158</sup> David Greenspan, Gaetano Dimita et al. (2022) *Mastering the Game: Business and Legal Issues for Video Game Developers – A Training Tool*. Geneva, Switzerland : World Intellectual Property Organisation, 2022.

<sup>159</sup> <https://www.ascap.com/help/ascap-licensing>

enabling (or not) users to develop content around their games, including in terms of modding, streaming and monetisation.<sup>160</sup>

### 3.1.1.1 IP rights infringements and main issues for the video games sector

IP rights enforcement is arguably an important issue for the European video games sector and directly affects the revenue sources and the trust (as pirated games are often unpatched/ less stable) in video games, as noted by various participants to the workshops organised in the project. The EUIPO's research on youth digital consumption also shows that 33 % of people aged below 24 access games from illegal sources.<sup>161</sup> Digital piracy mainly revolves around linking sites (that aggregate, categorise, organise and index links), that provide links to thousands of pirate copies of games that are stored on cyberlockers. A notorious example is a site called oceanofgames.com which in August 2022 alone provided over 5,500 links to game company titles, less than 3% of which were removed following industry takedown notices.<sup>162</sup> Another cluster of linking sites of concern is nsw2u.in and nsw2u.com that offer thousands of links to downloads for the Nintendo Switch despite Nintendo having secured site blocking injunctions in the UK, France, Spain, Portugal and Italy. To combat piracy, the video game industry relies, first and foremost, on its ability to develop disruptive technologies and business models, rather than on litigation. The industry chooses enforcement actions only as a last resort and in a selectively small number of cases, as noted in the above sub-sections.<sup>163</sup>

Digital industrial piracy has led to new challenges for video games creators, especially for mobile games. Copycat games have become common in the mobile games market segment and especially in Asian markets, where local service providers are putting in considerable effort to duplicate existing European mobile games by replicating even their smallest details in their applications. These fraudulent clones are misleading consumers to believe that they are original games or new games developed by the original publishers. In some cases, copycat games were even published before the original creation as some preliminary versions were presented at trade fairs or published online.<sup>164</sup>

Another IP issue for the sector is the increasing issue of patent battles between the major players in the mobile world (smartphone manufacturers, mobile platforms, major software companies), but also more widely from non-practicing entities and sometimes other game developers (so-called 'patent trolls', with the first case being Magnavox which sued Atari in 1974 over the user interface for Pong, whilst Atari had created the full game from scratch)<sup>165</sup> and even, on occasion, small developers.<sup>166</sup>

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<sup>160</sup> See <https://www.copyrightevidence.org/ycp/overview>

<sup>161</sup> <https://euiipo.europa.eu/ohimportal/en/web/observatory/ip-youth-scoreboard>

<sup>162</sup> Presentation from Dara Mc Greevy, senior legal counsel at ISFE, for Workshop 8: Rules in Play – Regulatory framework enforcement in the video games industry, corroborated with interviews.

<sup>163</sup> Ibid

<sup>164</sup> Various sources including the European Game Developers Federation, the Interactive Software Federation of Europe or articles such as Davidson J (2014) This is the biggest problem with mobile gaming today. TechnoBuffalo (April 23).

<https://www.technobuffalo.com/2014/04/23/biggest-problem-with-mobile-gaming/>

<sup>165</sup> A patent troll has been defined as an entity that uses its patent rights to aggressively file (often false) bad faith infringement threats and licensing demands that require companies to spend a significant amount of money to settle these claims without any addition to the public good. See for instance Ken Seddon (2017) Invest in Growth - How LOT Network Addresses the PAE Problem

<sup>166</sup> David Greenspan, Gaetano Dimita et al. (2022) Mastering the Game: Business and Legal Issues for Video Game Developers – A Training Tool. Geneva, Switzerland : World Intellectual Property Organisation, 2022.

### 3.1.2 Competition law regarding video games

Various aspects of EU competition law are relevant for the video games sector, including:

- ▶ Antitrust law, which prohibits anti-competitive agreements between two or more independent market operators (Article 101 TFEU), as well as abusive behaviour by companies holding a dominant position on any given market (Article 102 TFEU). Several investigations have analysed (potential) anticompetitive behaviours in the video games sector and especially on physical and digital distribution of video games.
- ▶ State aid rules, where several support programmes for video games have been set up across Europe. Article 107 TFEU generally prohibits State aid unless exceptionally justified. Art. 107(3)(d) TFEU allows to “promote culture and heritage conservation where such aid does not affect trading conditions and competition in the Union to an extent that is contrary to the common interest” (Art. 107(3)(d) TFEU). Member States generally rely on this latter basis to justify State aid schemes for video games. As video games are not covered by the General Block Exemption Regulation,<sup>167</sup> Member States’ support schemes for the video games sector require a formal notification procedure.
- ▶ Mergers rules, which provide the framework to assess the impact of mergers/acquisition operations on the video games market, and notably whether a particular merger may have harmful effects on competition. Mergers are examined either at national or at EU level by the European Commission when the companies involved are active in several Member States and reaching certain turnover thresholds.<sup>168</sup>

The following sub-sections examine each of these aspects in more details.

#### 3.1.2.1 Antitrust law

Although the video games industry is diversifying and more distribution channels are opening up, the sector was historically quite concentrated, especially on the distribution (e.g., Nintendo, Sony and Microsoft – or SEGA in the past are the main console manufacturers and have an important market position when it comes to the sale of physical games).

One landmark case relates back to 2002 when the European Commission imposed a EUR 167.8 million fine on computer game manufacturer Nintendo and seven of its European distributors for preventing “parallel” trade of Nintendo products from the computer game market and thus maintaining high price differences between EU countries (e.g., in 1996 Nintendo products were 65% cheaper in the UK than in the Netherlands and Germany).

Competition rules have been enforced within EU in relation to the video game markets, notably in relation to restrictive practices stemming from “geo-blocking”. A significant case was recently closed, where the European Commission fined Valve, owner of the online PC gaming platform “Steam”, and other five publishers for breaching EU antitrust rules. On 20 January 2021, the European Commission fined Valve Corporation and five publishers, Bandai Namco, Capcom, Focus Home, Koch Media and

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<sup>167</sup> As noted in the Council Conclusions on building a European Strategy for the Cultural and Creative Industries Ecosystem. 2022/C 160/06. OJ C 160, 13.4.2022

<sup>168</sup> Council Regulation (EC) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings (the EC Merger Regulation)

ZeniMax, a total of EUR 7.9 million for breaching antitrust rules by partitioning the EEA market.<sup>169</sup> Valve (which owns the Steam platform), together with the five publishers, restricted cross-border sales of certain PC video game activation keys based on the geographic location of the users, within the EEA (otherwise known as geo-blocking). The rationale of the restriction was that the prices for these keys varied from one country to another.

The European Commission considered the practices described above as geo-blocking, as a customer who purchased a video game in Poland, for example, would not be able to activate it in Germany. The European Commission found that by bilaterally agreeing to geo-block certain PC video games from outside a specific territory, Valve and each publisher partitioned the EEA market in violation of Article 101(1) TFEU. The European Commission therefore sanctioned this conduct by imposing fines, ranging between 10% and 15% for all publishers (except Valve) because of their cooperation with the investigation, and their individual net fines ranged from EUR 340,000 to EUR 2.888 million. Valve chose not to cooperate and was fined EUR 1.624 million.<sup>170</sup> The full decision was officially published on 24 August 2022.<sup>171</sup> The impact on pricing strategies of digital games is still to be determined.

It is worth noting that competition law enforcement complements the Regulation on unjustified geo-blocking, which includes provisions to prohibit the use of three mechanisms:<sup>172</sup>

- ▶ Blocking or limiting access or automatically redirecting the user to another version of an online interface. This means an online video games distributor cannot prevent its clients from accessing different versions of its website, marketplace or app store, or cannot reroute them without their explicit consent, on the basis of criteria based on the customer's nationality, residence or establishment (including indirect criteria such as the IP address or the customer's payment details).
- ▶ Different payment conditions based on the buyer's location or nationality. When a video game service is provided cross-border, it is prevented from discriminating against the electronic payment means on the basis of "nationality", i.e., because a credit or debit card of an accepted category or brand is issued in another Member State or because a direct debit or credit transfer is performed through a bank from another Member State (provided the currency used is accepted by the trader).
- ▶ Different conditions for the sale of goods or services across EU countries (e.g., different pricing, different general conditions of access on the basis of a customer's nationality, residence or establishment, including the refusal to provide such services to customers from other Member States).

The provision of (non-audiovisual) copyright protected content services (including video games) is however not subject to the prohibition of this latter mechanism. The extension of the scope of the Regulation to copyright protected content services was assessed in 2020 as part of the short-term review of the Geo-blocking Regulation. The review concluded that such extension was premature and required further analyses and observation over a longer time period.<sup>173</sup>

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<sup>169</sup> European Commission (2021), "Antitrust: Commission fines Valve and five publishers of PC video games – EUR 7.8 million for "geo-blocking" practices", see [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_21\\_170](https://ec.europa.eu/commission/presscorner/detail/en/ip_21_170)

<sup>170</sup> McDermott Will & Emery (2022) Annual European Competition Review 2021. MWE publications, January 2022.

<sup>171</sup> All cases are available under the case numbers AT.40413; 40414; 40420; 40422; 40424 in the [public case register](#).

<sup>172</sup> European Commission (2018) Questions & Answers on the Geo-blocking Regulation in the context of e-commerce. Available at : <https://digital-strategy.ec.europa.eu/en/news/geo-blocking-regulation-questions-and-answers>

<sup>173</sup> European Commission (2020), Commission publishes its short-term review of the Geo-blocking Regulation, see <https://digital-strategy.ec.europa.eu/en/news/commission-publishes-its-short-term-review-geo-blocking-regulation>

### 3.1.2.2 State aid

Competition Law in video games also covers State aid rules and several EU countries (France, and recently Belgium, Italy, Poland, Portugal, Germany, and Czech Republic) have set up support programmes and tax incentive schemes which required an approval by the European Commission to assess their compatibility with EU law. An important criterion for the eligibility of video games tax schemes relates to cultural objectives. For example, the French tax credit scheme included the proof that the video game constituted a "*contribution to both French and European creative work and diversity*" particularly in light of the game's "*quality, novelty and innovative or original concept*".<sup>174</sup>

However, not all videogames could benefit from this tax credit system as the French government had initially specified that the tax credit scheme should exclude any games rated 18+ according to the European PEGI classification. A new credit system was devised and came into full force with the publication of Decree n°2015-722 of 23 June 2015.<sup>175</sup> The new measures were deemed compatible with the European internal market as they aim to promote culture while having a proportional effect on EU market trade. The new tax incentive scheme allows for lighter conditions for PEGI 18+ games, provided that the games do not meet more than two of the following conditions:

- ▶ The violence displayed is disproportionate and gratuitous,
- ▶ The violence displayed is crude and detailed in a visually realistic environment,
- ▶ If the two above criteria are met, the violence displayed is quantitatively emphasised,
- ▶ The violence displayed cannot be avoided by the player, and
- ▶ Violence is encouraged.<sup>176</sup>

In summary, State aid provisions are an increasingly popular form of support for video games across Member States albeit they are conditioned to a set of specific criteria. The recent Council Conclusions on building a European Strategy for the Cultural and Creative Industries Ecosystem call on "facilitating the leverage effect of public aid and the competitiveness of CCIE enterprises through a review of the application of State aid rules before the end of 2023, including, where appropriate, the State aid General Block Exemption Regulation (GBER), enabling the relevance and the need for adaptation regarding cultural and audiovisual sectors such as press, video games, theatre, studios and music to be taken into consideration", which might ease the conditions for future State aid and tax incentive schemes for the video games sector across Europe.<sup>177</sup>

### 3.1.2.3 Mergers and acquisitions

Several decisions have examined the impact of mergers of video games companies on fair competition in the video games sector.<sup>178</sup> The latest investigation (Case M.10001 – Microsoft/Zenimax)<sup>179</sup> assessed whether the merger of Microsoft and Zenimax would have any significant impact on fair competition in

<sup>174</sup> French Ministry of Finance (2007) 2007 Finances Act (Act n°2007-1824 of 25 December 2007)

<sup>175</sup> Décret n° 2015-722 du 23 juin 2015 relatif au crédit d'impôt pour dépenses de création de jeux vidéo. JORF n°0145 du 25 juin 2015. <https://www.legifrance.gouv.fr/loda/id/LEGIARTI000030776098/2015-06-26/>

<sup>176</sup> French tax credit to be extended to PEGI 18+ video games, see <https://gameslaw.org/french-tax-credit-to-be-extended-to-pegj-18-video-games/>

<sup>177</sup> Council of Ministers (2022) Council Conclusions on building a European Strategy for the Cultural and Creative Industries Ecosystem 2022/C 160/06 ST/7809/2022/INIT OJ C 160, 13.4.2022

<sup>178</sup> Commission decision of 12 February 2016 in case M.7866 - Activision Blizzard/King; Commission decision of 16 April 2008 in case M.5008 - Vivendi/Activision

<sup>179</sup> Commission decision of 5 March 2021 in case M.10001 - Microsoft/Zenimax

the two market segments considered (game software development and publishing or “the upstream market”, and digital video game distribution for PCs and consoles - “the downstream market”. Whilst the investigation concluded that the acquisition would raise no competition concerns, the proposed acquisition of Activision Blizzard by Microsoft led to an in-depth market investigation focusing on two market segments<sup>180</sup>. 1) consoles and multi-game subscription services and 2) cloud game streaming services. The Commission assessed that the proposed acquisition would not harm competition on the first market segment, due to the leading market position of rival console manufacturer and distributors who represent an important distribution channel for Activision games. Competitors could also leverage their size, extensive games catalogue and market position to react to a potential withdrawal of Activision games from e.g., Sony’s PlayStation. The Commission however assessed that the acquisition could harm the much smaller yet potentially innovative market segment of cloud gaming services, e.g., through exclusivity of Activision games on Microsoft cloud gaming service or through degraded performances on PC operating systems other than Windows. The acquisition was cleared under the following conditions for a 10-year period: “A free license to consumers in the EEA that would allow them to stream, via any cloud game streaming services of their choice, all current and future Activision Blizzard PC and console games for which they have a license. A corresponding free license to cloud game streaming service providers to allow EEA-based gamers to stream any Activision Blizzard’s PC and console games.”<sup>181</sup> Beyond emerging market segments such as cloud game streaming.

Market concentration is not particularly an issue in the European video games market in terms of games development and games publishing: as noted in Chapter 2, even the largest video game publishers have a global market share of less than 10% (e.g., Tencent generated EUR 8.3 billion in 2022 globally, less than 5% of the global video games market). The important merger and acquisition activities in the sector will certainly be scrutinised by competition authorities in the future (e.g., to analyse any market distortion in specific territories or market sub-segments).

### 3.1.3 The Digital Services Act

The recently adopted Digital Services Act (DSA) is an EU Regulation which harmonises the general legal framework governing digital intermediaries. The DSA covers information society service providers, defined as any service normally provided for remuneration, at a distance, by electronic means and at the individual request of a recipient of services (the service is provided through the transmission of data on individual request).<sup>182</sup> The information service providers include intermediary services offering network infrastructure: Internet access providers, domain name registrars, Hosting services such as cloud and webhosting services, as well as online platforms (e.g. online marketplaces, social media platforms), search engines, and other providers of information society services.

The DSA is a horizontal piece of legislation and will most likely influence the video game industry in many ways, depending on how video games are categorised under the new rules. For instance, video game digital stores such as PlayStation and Microsoft Stores, Steam or GoG include features similar to online marketplaces. Video games may also fall under the scope of the DSA due to the online community features they include. This applies to video game networks such as Xbox Live and PlayStation Network, but also to games featuring important in-game interactions (e.g., custom profiles, in-game chats,

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<sup>180</sup> Commission decision of 15 May 2023 in case M.10646 - Microsoft/Activision Blizzard

<sup>181</sup> *ibid*

<sup>182</sup> Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services. OJ L 241, 17.9.2015. Available at: <http://data.europa.eu/eli/dir/2015/1535/oj>

possibility to add other users as contacts). The DSA foresees four main categories of digital services. The obligations of different online players match their role, size and impact in the online ecosystem.

Table 3: Categories of digital services

Category 1: Intermediary services	Relates to providers of intermediary services that constitute a 'mere conduit' service, a 'caching' service, or a 'hosting' service.
Category 2: Hosting services	Hosting service providers are intermediary service providers who store information provided by, and at the request of, a recipient of the service. Online video game companies may fall in this category, although they ought to carry out their own legal analysis.
Category 3: Online platforms	'Online platform' means a specific category of hosting service that, at the request of a recipient of the service, stores and disseminates information to the public (unless that activity is a minor and purely ancillary feature of another service). Some video game companies may fall under this category, depending on their activities.
Category 4: Very Large Online Platforms and Search engines.	Very Large Online Platforms (VLOPs): VLOPs are a specific category of online platforms having 45 million or more average monthly active recipients of the service in the EU (representing 10% of the population of the EU). The first list of VLOPs include a few video games-related platforms, including app stores, the main (Google Play and Apple app store) and online retail platforms selling inter alia video games such as Amazon or AliExpress. <sup>183</sup> Very Large Online Search Engines (VLOSEs): VLOSEs are search engines having 45 million or more average monthly active recipients of the service in the EU (representing 10% of the population of the EU), such as Google search and Bing.

The range of obligations applicable to digital service providers differ based on this categorisation, with stricter regulations applicable to narrower categories of service providers.

Therefore, the impact of the DSA on video game providers will depend on a case-by-case assessment of the nature and functionalities provided by the service providers. Regardless of the DSA, most video game providers are already implementing measures that the DSA harmonises, such as "KYBC" obligations<sup>184</sup>, although restricted to online marketplaces, which may strengthen the tracking of illegal activities online (e.g., fraudulent game keys sold online). Other positive results for video games, where they fall into the hosting service category, will be the notice and action mechanism (article 16), information on any restrictions to the use of their service (disclosure of policies, procedures, measures and tools used for the purpose of content moderation (article 14), the information to users on why their

<sup>183</sup> The full first list of Very Large Online Platforms and Search engines, released in April 2023, is available at: <https://digital-strategy.ec.europa.eu/en/policies/dsa-vlops>

<sup>184</sup> Know Your Business Customer (KYBC) requires intermediary services to obtain and make reasonable efforts to verify certain information regarding trader traceability, before allowing such traders to make use of the marketplace and target consumers. This information includes name and contact details, such as address, telephone number and e-mail address, a copy of the identification document, registration number, and details of the payment account.

content has been removed (article 17), and a new obligation to report to relevant authorities any suspicion of criminal offences (article 18).

### 3.1.4 Video games and Artificial Intelligence regulations

Video Games are by nature Artificial Intelligence (AI) -intensive – any single player game intensively relies on the use of AI for the interactions taking place between the player and the game environment. Importantly, AI and algorithms are now capable of building endless random levels, worlds and games from predefined parameters. With the increasing use of AI to create video game content, the video games sector will also need to give consideration to the IP rights that might exist in AI-generated content that can be monetised.<sup>185</sup>

The regulatory framework for AI is still in its infancy, but a first proposal for a regulation on AI was published in 2021.<sup>186</sup> The European Commission's regulatory proposal puts forward horizontal rules for the placement on the market, putting into service and use of AI systems in the Union with the purpose of improving the protection of fundamental rights and safety, and providing legal certainty for operators and consumers. It adopts a risk-based approach, laying down mandatory rules for AI systems that are likely to pose real risks to fundamental rights and safety while allowing the free use of minimal-risk AI.

The AI act would apply to all services active in the EU and would prohibit (among others) AI systems that deploy subliminal techniques or that exploit vulnerabilities of children and other people due to their age, physical or mental disability, in order to materially distort human behaviour in a manner that causes or is likely to cause physical or psychological harm. Industry players must be aware of these prohibitions and fully abstain from such practices with regard to video games.

Furthermore, certain other AI systems, i.e., those intended to interact with natural persons (chat bots) as well as emotion recognition systems, biometric categorisation systems (which helps age estimation, an important consideration for video game companies to apply specific measures for the protection of minors) and deep fakes, pose certain transparency-related risks and end users should be notified that they are interacting with or exposed to AI. It is worth noting that video game companies may include such elements in-game or simply as customer services (e.g., for e-shops). Transparency obligations "shall not apply where the use is authorised by law to detect, prevent, investigate and prosecute criminal offences or it is necessary for the exercise of the right to freedom of expression and the right to freedom of the arts and sciences guaranteed in the Charter of Fundamental Rights of the EU, and subject to appropriate safeguards for the rights and freedoms of third parties."<sup>187</sup>

While in-game interactions certainly involve interactions between users and AI, the display of informative messages for each gameplay interaction would arguably impede the immersive experience that video games seek to provide. As noted in section 3.1.1, video games contain multiple forms of art including artworks, original designs, sound and music creation, which may fall under the scope of this exemption. The proposed AI Act also provides for mandatory requirements and obligations regarding AI systems classified as "high-risk" in view of their intended purpose, while seeking to reduce administrative and financial burdens for business, and notably SMEs. As it stands, this category does not include AI-enabled

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<sup>185</sup> WIPO "The Legal Status of Video Games: Comparative Analysis in National Approaches"

[https://www.wipo.int/export/sites/www/copyright/en/creative\\_industries/pdf/video\\_games.pdf](https://www.wipo.int/export/sites/www/copyright/en/creative_industries/pdf/video_games.pdf), Accessed on 1<sup>st</sup> August 2022.

<sup>186</sup> European Commission (2021) Proposal for a Regulation of the European Parliament and of the Council laying down harmonised rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union Legislative Acts. COM/2021/206 final

<sup>187</sup> <https://digital-strategy.ec.europa.eu/en/library/proposal-regulation-laying-down-harmonised-rules-artificial-intelligence>

video games (considered as low-risk). Finally, it should be noted that the AI Act encourages voluntary codes of conduct, where non-high-risk AI systems may choose to apply voluntarily the mandatory requirements for high-risk systems.

However, it should be borne in mind that the proposal is currently being negotiated by the co-legislators (the European Parliament adopted its position on 14 June 2023<sup>188</sup>); for instance, in the Parliament it has been suggested that the rules of the AI Act apply also to operators of AI systems operating in 'metaverse environments', i.e. those environments to which natural identifiable persons can connect (e.g. via a digital identity), interact in ways similar to the real world, and where such interactions carry potential risks to health, safety, or fundamental rights. Moreover, the scope of the rules may further evolve after the AI Act enters into force, in order to take into account, the technological and market developments and emerging risks in the future.

## 3.2 Regulatory framework relevant to the protection of video game users

Video game users in the EU are consumers in the digital context, whose consumer rights requires thorough protection; the increasing popularity of video games among population under eighteen years of age calls for careful protection of minors to ensure their safe access to video games, related devices and platforms. Recent European regulatory developments draw attention to loot boxes<sup>189</sup> and in-game purchase issues. It has been deemed that loot boxes could mislead users' consumption behaviours due to its gambling elements, which affects video game users of all ages alike.

This sub-section focuses on Video Games users and consumer protection. We explore the existing mechanism of digital consumers' protection, including digital contracts rules and product safety regulation. A particular focus will be placed on the most vulnerable consumer category, minors, who represent a sizable part of the gaming community. We present some countries' specific legal provisions concerning the sale of video games to minors as well as industry self-regulation solutions (PEGI, including its online system for harassment protection). We analyse existing regulations and studies on gambling and the impact on video games, especially in the forms of loot boxes in online games (which some Member States classify as falling under gambling legislation) and appraise the impact of EU's privacy rules on the video game sector, mostly in terms of the requirements faced by video games studios under the EU General Data Protection Regulation (GDPR), which has been applicable since May 2018.

### 3.2.1 Protection of consumer rights

As established in Chapter 2, video games create a billion-euro market which engages a significant number of users who are, at the same time, consumers. It is therefore vital that EU legislation protects the right of consumers, especially in a digital context.

The Consumer Rights Directive ("CRD") is a crucial part for consumers' rights in the EU. This Directive has been implemented into national laws of EU member states to harmonise certain information requirements and the right of withdrawal for consumers across the EU. Traders (in this case game

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<sup>188</sup> <https://www.europarl.europa.eu/news/en/press-room/20230609IPR96212/meps-ready-to-negotiate-first-ever-rules-for-safe-and-transparent-ai>

<sup>189</sup> Lootboxes are in-game boxes that contain randomised items (cosmetics or gameplay-related), that can be accessed through gameplay and in-game currencies, or which may be optionally paid for with real-world money.

developers) must provide mandatory information such as the main characteristics of the product, the developer's identity, system requirements or compatibility, the total price of the service, termination terms and warranty rights to consumers before a digital content contract is formed, as codified in Article 6 of Directive 2011/83/EU<sup>190</sup> and Article 7 of Directive 2005/29/EC.

As a basic principle, consumers are entitled to withdraw their purchases within 14 days after they entered the contract – without any obligation to give any reason. However, whether or not a right of withdrawal applies in a specific case depends on the classification of the contract, i.e., whether the video game or in-game purchase qualifies as a digital content or digital service contract. The rules on the right of withdrawal for service contracts effectively allow the consumer to test the service and decide, during the 14-day period from the conclusion of the contract, whether to keep it or not. In contrast, under point (m) of the first paragraph of Article 16 of the CRD, there is no right of withdrawal in the case of supply of digital content, subject to several conditions. In accordance with the amendments introduced by Directive (EU) 2019/2161, these conditions are that the performance has begun with the consumer's prior express consent and acknowledgment that the consumer thereby loses the right of withdrawal, and that the trader has provided confirmation of the contract concluded.

For example, the provision of video games may involve both contracts for digital content and contracts for digital services. Downloadable games would normally qualify as online digital content when their use does not depend on continuous involvement of the game supplier. In contrast, online games provided in a cloud environment would qualify as digital services. In-game micro-transactions (in-app purchases) in such games that enhance the playing experience of the respective user, such as virtual items, would normally qualify as contracts for online digital content. Also, in-app purchases of content that could be used outside the game (e.g., a recording of the gaming session that can be downloaded or shared on a video-sharing platform) would normally constitute a contract for online digital content. In contrast, the purchase of premium content that expands the online gaming environment would represent a new digital service that complements the original one.

Furthermore, the Unfair Commercial Practices Directive (2005/29/EC – "UCPD") establishes additional requirements concerning the transparency and fairness of commercial practices deployed in the advertising, pre-contractual and aftersales stages. In 2021, the European Commission issued new guidelines in the Notice on the interpretation of the UCPD<sup>191</sup>, which includes a section on gaming practices that highlights the following aspects:

- ▶ Games could include in-game promotions and advertisements, which increase the risk of hidden marketing and could amount to a misleading practice under Articles 6 and 7 UCPD, unless the commercial element is made sufficiently clear and distinguishable from gameplay. This concerns both in-game purchases and products available outside of the game. The disclosure has to take into account the medium in which the marketing takes place, including the context, placement, timing, duration, language and target audience. Under No 20 of Annex I and Article 7(4)(c) of the UCPD and Article 6(1)(e) of the CRD, only games where in-app purchases are optional can be presented as 'free' without misleading consumers. Conversely, a game cannot be marketed as 'free' if the consumer cannot play the game in a way that can be reasonably expected without making in-app purchases. This is to be assessed on a case-by-case basis for each app that includes in-app purchases.

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<sup>190</sup> EUR-lex DIRECTIVE 2011/83/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 October 2011 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32011L0083>

<sup>191</sup> European Commission (2021) Commission Notice – Guidance on the interpretation and application of Directive 2005/29/EC of the European Parliament and of the Council concerning unfair business-to-consumer commercial practices in the internal market. EUR-Lex - CELEX:52021XC1229(05) - EN - EUR-Lex (europa.eu)

- ▶ Direct exhortations to children are prohibited under point No 28 of Annex I to the UCPD. This includes putting pressure on a child to buy an item directly or to persuade an adult to buy items for them.
- ▶ When offering in-game purchases, traders must ensure that they comply with the information obligations in the CRD and UCPD, as highlighted earlier. The main characteristics of the product must be clearly described, and the prices of virtual items must be clearly and prominently displayed (also) in real currency when the commercial transaction takes place. If the price cannot reasonably be calculated in advance, the trader should indicate the manner in which the price is to be calculated. Consumers must also be clearly informed about the arrangements for payment before each purchase. Moreover, Article 64 of the Directive (EU) 2015/2366 on payment services requires payer's consent to execute the payment transaction and states that, in the absence of such consent, a payment transaction is considered to be unauthorised. Furthermore, the default setting for payments should not allow purchases to be made without the consumer's explicit consent (e.g., via a password). When the system provides for time slots for the validity of consent (e.g., a 15-minute slot), traders should request consumer's explicit consent in relation to the applicable duration.
- ▶ The presence of paid random content (e.g., loot boxes, card packs, prize wheels) should be clearly disclosed to the consumer, including an explanation of the probabilities of receiving a random item. For example, loot/mystery boxes are in-game content that generally include random items that have relevance in the game (e.g., weapons, skins, game currency, advancement options) (378). The sale of loot boxes in games must comply with the information obligations under the CRD and UCPD concerning the price and main characteristics of the product.
- ▶ When offering 'early access' games, meaning games that are still in development, traders should be clear about what the consumer can expect, for example in terms of the content of the early access game and its development prospects.
- ▶ Certain commercial practices in games, including embedded advertisements, could amount to an aggressive practice under Articles 8 and 9 UCPD. This may be the case if the practices involve the use of behavioural biases or manipulative elements relating to, e.g., the timing of offers within the gameplay (e.g., offering micro-transactions during critical moments in the game), pervasive nagging or the use of visual and acoustic effects to put undue pressure on the player. Furthermore, commercial practices could be personalised and take into account specific information about the gamers' vulnerabilities. The combination of practices in a game (e.g., appeal to children or other vulnerable groups, use of micro-transactions, embedded and non-transparent advertising) exacerbate the consumer impact. In addition to the concerns related to children and young people, the increased susceptibility to commercial communications and manipulative practices could also affect adult gamers, especially during lengthy and immersive gameplay.

The specificity of rapidly evolving digital products such as video games often calls for updated regulations on the protection of their consumers. In order to ensure a high level of consumer protection, on 20 May 2019, the EU adopted the Digital Content Directive, which establishes new rules to give consumers the right to remedy when digital content or a digital service is faulty. It provides for requirements regarding the conformity of digital content and services with the contract, paired with compensation rights for consumers in case of non-conformity. The new rules set by the Digital Content

Directive are considered to have a significant impact on the EU video game sector,<sup>192</sup> as they further regulate detailed issues such as refund policy for consumers in the case of non-compliant and misleading final product compared to what was publicised. The Digital Content Directive also tackles the problem of video games modification to ensure that modifications are permitted without unjustified additional cost.

The protection of consumer rights in video games is viewed as mutually beneficial to both the game producers and the consumers, for it ensures a healthy market environment. Continuous attention is paid to the update of consumer protection regulations. In May 2022, the European Commission launched a Fitness Check of EU consumer law on digital fairness<sup>193</sup> in order to evaluate whether the existing EU consumer laws (including the CRD and UCPD) are still adequate in the digital environment. The Fitness Check also looks into several topics that relate to video games, such as loot boxes and other virtual items, the use of intermediate in-game currencies, digital addiction, dark patterns etc. In January 2023, the European Parliament issued a report named "Consumer protection in online video games - a European Single market approach",<sup>194</sup> highlighting the lack of a single, coordinated approach in ensuring better consumer protection in this sector, as well as the need to clarify in-game purchase and refund policies, with a special focus on minors, who make up a significant portion of the market. The report calls on the Commission to analyse the results of the Fitness check and potentially present a legislative proposal to adapt the current EU consumer law framework for online video games or to present a stand-alone legislative proposal on online video gaming to establish a harmonised European regulatory framework that ensures a high level of consumer protection, in particular for minors and young children; the report also considers that these proposals should assess whether an obligation to disable in-game payments and loot boxes mechanisms by default or a ban on paid loot boxes should be proposed to protect minors, avoid the fragmentation of the single market and ensure that consumers benefit from the same level of protection, no matter their place of residence.<sup>195</sup>

The European Commission reacted to the report in the European Parliament plenary session<sup>196</sup> by underlining the importance of the correct transposition and implementation of the existing EU consumer law instruments (such as the CRD and UCPD) which effectively already address several issues that video games might be confronted with. The role of the Consumer Protection Cooperation (CPC) Network<sup>197</sup> is particularly important here: this network of competent public enforcers focuses on tackling consumer protection issues in a coordinated manner. The video game industry may notably raise issues related to major app stores to ensure that they inform consumers of the existence of in-game purchases upfront, before downloading the games, as well as about the costs of such purchases. Such games should not be labelled as "free to play".<sup>198</sup> Finally, the European Parliament resolution on esports and video games also called for additional research and measures to address potential issues around aggressive in-game monetisation, such as "pay-to-win" designs<sup>199</sup>.

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<sup>192</sup> Simon Braun (2022), DIGITAL CONTENT DIRECTIVE: IMMINENT CHANGES IN THE VIDEO GAME INDUSTRY

<https://simontbraun.eu/digital-content-directive-imminent-changes-in-the-video-game-industry/2022/02/01/>

<sup>193</sup> [https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13413-Digital-fairness-fitness-check-on-EU-consumer-law\\_en](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13413-Digital-fairness-fitness-check-on-EU-consumer-law_en)

<sup>194</sup> European Parliament, Consumer protection in online video games - a European Single market approach

<https://www.europarl.europa.eu/committees/en/consumer-protection-in-online-video-game/product-details/20221202CDT1076>

<sup>195</sup> European Parliament, Consumer protection in online video games - a European Single market approach

<https://www.europarl.europa.eu/committees/en/consumer-protection-in-online-video-game/product-details/20221202CDT1076>

<sup>196</sup> [https://www.europarl.europa.eu/doceo/document/CRE-9-2023-01-17-ITM-007\\_EN.html](https://www.europarl.europa.eu/doceo/document/CRE-9-2023-01-17-ITM-007_EN.html)

<sup>197</sup> [https://commission.europa.eu/live-work-travel-eu/consumer-rights-and-complaints/enforcement-consumer-protection/consumer-protection-cooperation-network\\_en](https://commission.europa.eu/live-work-travel-eu/consumer-rights-and-complaints/enforcement-consumer-protection/consumer-protection-cooperation-network_en)

<sup>198</sup> As already promoted by PEGI labelling on in-game purchases (further discussed in section 3.2.2).

<sup>199</sup> [https://www.europarl.europa.eu/doceo/document/TA-9-2022-0388\\_EN.html](https://www.europarl.europa.eu/doceo/document/TA-9-2022-0388_EN.html)

### 3.2.2 Product safety rules applicable to video games

Consumer protection for video games users is also reliant on the EU product safety regulation. Various rules apply to the different types of video games hardware and software products<sup>200</sup>, with two main frameworks applicable to product safety and conformity.

- ▶ The new legislative framework<sup>201</sup> (adopted in 2008 and regularly updated<sup>202</sup>) which strengthens the conditions for placing a wide range of products on the EU market. This framework also improves market surveillance rules to better protect both consumers and professionals from unsafe products, sets up rules for conformity assessment (independent bodies and notification of conformity, CE marking), and for procedures to allow future sectorial legislation to become more consistent and easier to implement. Some harmonised product legislation directly covers video games. Radio Equipment Directive (RED) sets out requirements for the use of radio spectrum and wireless communications, the interoperability of various components (e.g., charging devices) and other consumer protection tools: health and safety tests, declaration of conformity and visibility for consumers. The Directive is regularly updated through delegated acts, the latest one focusing on user data and monetary fraud protection, as well as cybersecurity.<sup>203</sup>
- ▶ The EU rules on product safety are defined in the General Product Safety Directive (GPSD) and under the forthcoming General Product Safety Regulation (GPSR).<sup>204</sup> This framework applies where products, or risks, are not already subject to sectorial product safety EU rules.
- ▶ Product safety rules apply both for physical and mental health risks that needs to be eliminated to ensure the safety of consumers. Under the directive a product is safe if it meets the general safety requirements, including inter alia Safety Evaluation and Risk Assessment Report, where applicable a complete (exhaustive) list of standards a product is currently complying with (EN, international or national), a Declaration of Conformity of the product, a Quality Management System in place or ISO Certificate. The GPSR further will clarify the most important elements of new technology products, like video games, that need to be taken into account when assessing the product, including connectivity, interconnection between products or self-learning capabilities. The GPSR will also require for all products covered by it and that are placed on EU markets to have a responsible person in the EU.

Product safety rules apply to video games – both hardware and potentially software<sup>205</sup>. Up to now regarding hardware,<sup>206</sup> very few issues have been reported for the sector, with only very few instances of devices presenting fire hazards for instance<sup>207</sup>. More recently, the GPSD was applied to VR devices due to the chemicals used in the foam facial interfaces.<sup>208</sup>

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<sup>200</sup> Video games hardware include game devices (consoles) and related hardware such as controllers, VR headset, storage media, optical disks and game cartridges, while software include the actual games, embedded software within game devices, as well as software used for game creation (game engines).

<sup>201</sup> [https://single-market-economy.ec.europa.eu/single-market/goods/new-legislative-framework\\_en](https://single-market-economy.ec.europa.eu/single-market/goods/new-legislative-framework_en)

<sup>202</sup> The latest iteration was adopted in 2019, with Regulation (EU) 2019/1020 of the European Parliament and of the Council of 20 June 2019 on market surveillance and compliance of products

<sup>203</sup> Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment.

<sup>204</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32001L0095:EN:NOT>

<sup>205</sup> See for instance Nintendo's page on compliance with EU regulations: <https://www.nintendo.be/fr/Societe/Informations-aux-consommateurs/Conformite-avec-les-directives-et-Reglements-de-l-UE/Conformite-avec-les-directives-et-Reglements-de-l-UE-625942.html>

<sup>206</sup> <https://ec.europa.eu/safety-gate-alerts/screen/webReport/alertDetail/103984?lang=en>

<sup>207</sup> <https://ec.europa.eu/safety-gate-alerts/screen/webReport/alertDetail/10003513>

<sup>208</sup> <https://ec.europa.eu/safety-gate-alerts/screen/webReport/alertDetail/10003513>

For video games software, a recent study analysed the implementation of the GPSD across the EU and found that “the position of standalone software is uncertain with respect to the general safety requirement” but noted a general trend of applying similar rules to software as to physical products.<sup>209</sup> Member States also reported their uncertainty as to how the GPSD applied to goods with embedded software, and products with AI/machine learning capabilities.

The GPSD was updated in May 2023 with the Regulation on General Product Safety<sup>210</sup> and introduced important changes in this respect. The Regulation inter alia requires appropriate cybersecurity features for product protection and puts forward new definitions clarifying the inclusion of software (embedded and stand-alone) in the Directive.<sup>211</sup> This means that all video games devices such as consoles, as well as VR headset and video game software (including games themselves) are all now potentially within the scope of the Regulation and are required to meet the abovementioned product safety requirements.

The protection of consumers by introducing common cybersecurity rules for digital products and ancillary services will also be addressed in the forthcoming cybersecurity resilience act. The Cybersecurity Resilience Act aims to ensure that products with digital elements (hardware and software) are placed on the market with fewer vulnerabilities and that manufacturers take security seriously throughout a product’s life cycle. It also aims to enhance transparency and allow users to take cybersecurity into account when selecting and using products with digital elements.<sup>212</sup> This is a relevant aspect for the video games sector, which is subject to cybersecurity issues as many other sectors. Leading companies such as EPIC games (Fortnite accounts hacked) or CD Projekt RED suffered from cybercriminal attacks recently<sup>213</sup>.

### 3.2.3 Protection of minors

With ISFE research<sup>214</sup> showing that more than 51% of Europe’s population, among which 76% of children aged 6-14 play video games across Europe, the necessity to have an optimised regulatory framework in order to better protect underaged video game consumers is evident. Figure 24 outlines details on the distribution of gamers by age group, based on Statista data.

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<sup>209</sup> [https://commission.europa.eu/system/files/2021-09/final\\_report-gpsd-part1-main\\_report-final-corrected2.pdf](https://commission.europa.eu/system/files/2021-09/final_report-gpsd-part1-main_report-final-corrected2.pdf)

<sup>210</sup> Regulation 2023/988 of the European Parliament and of the Council on general product safety. 10 May 2023. *OJ L 135*, 23.5.2023, available at : <http://data.europa.eu/eli/reg/2023/988/oj>

<sup>211</sup> See here for an overview of the proposal [https://commission.europa.eu/business-economy-euro/product-safety-and-requirements/product-safety/consumer-product-safety\\_en](https://commission.europa.eu/business-economy-euro/product-safety-and-requirements/product-safety/consumer-product-safety_en)

In March 2023, the European Parliament adopted in plenary session its legislative resolution on the proposal for a regulation of the European Parliament and of the Council on general product safety, amending Regulation (EU) No 1025/2012 [https://www.europarl.europa.eu/doceo/document/TA-9-2023-0090\\_EN.html](https://www.europarl.europa.eu/doceo/document/TA-9-2023-0090_EN.html)

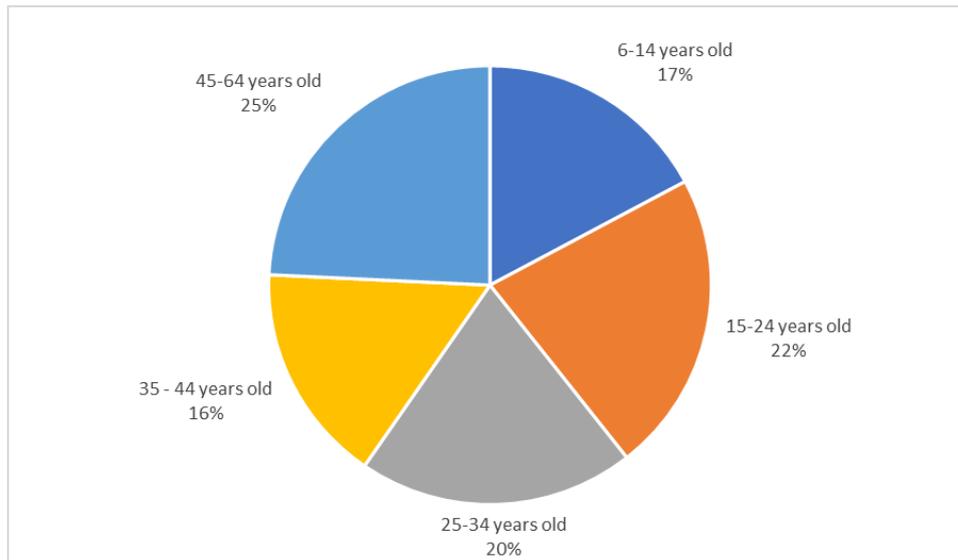
<sup>212</sup> Civic Consulting (2020) Study for the preparation of the Implementation report on the General Product Safety Directive. Study prepared for the European Commission, Directorate-General for Justice and Consumer. July 2020.

[https://commission.europa.eu/system/files/2021-09/final\\_report-gpsd-part1-main\\_report-final-corrected2.pdf](https://commission.europa.eu/system/files/2021-09/final_report-gpsd-part1-main_report-final-corrected2.pdf)

<sup>213</sup> See for instance : <https://www.eset.com/uk/about/newsroom/blog/11-massive-video-game-companies-recently-targeted-by-cybercriminals/>

<sup>214</sup> “ISFE publishes annual key facts on Europe’s video games industry” Retrieved from <https://www.isfe.eu/news/isfe-publishes-annual-key-facts-on-europes-video-games-industry/>

Figure 24: Distribution of gamers in selected gaming markets in five European countries in 2021, by age group,<sup>215</sup>



Source: ISFE 2021, data covers Italy France, Germany, Spain and the United Kingdom

Several issues are particularly relevant in terms of minor protection online. Most of these (except gaming addiction) are however not specific to video games, and are issues related to online behaviours at large, be it on social media, online forums or messaging apps:<sup>216</sup>

- ▶ **Gaming addiction:** How much of their leisure time children spend in the digital world is an increasingly debated topic, raising concerns among some about the health implications of excessive use or over-training in competitive scenarios, especially since minors are still learning to moderate their behaviours and arguably more prone to addiction issues. The European Commission's Communication on a comprehensive approach to mental health notes both potential positive and effects on digital services (including video games), and promotes a "well-balanced use of gaming, which helps to prevent compulsive use and negative effects on daily life".<sup>217</sup>
- ▶ **Toxic behaviours:** minors and young people increasingly play online games, which become an important part in the social lives and interaction of children – as well as the cultural content they consume. Toxic or disruptive behaviour, including inappropriate, sexist or racist content, may happen in online gaming as it does in many other online environments, and children are exposed to, targeted by and participate in it. Minors may also be exposed to inappropriate language and behaviour they see and hear.
- ▶ **Commercial influence:** minors can be more susceptible than adults to commercial messages and techniques seeking to direct behaviour or manipulate emotions and are also less likely to recognize paid content. This is particularly prominent in freemium games where the limit between

<sup>215</sup> <https://www.isfe.eu/data-key-facts/key-facts-from-2021-europe-video-games-sector/>

<sup>216</sup> Based on UNICEF (2020) Recommendations for The Online Gaming Industry on Assessing Impact on Children. April 2020; and on European Parliament (2022) Report on consumer protection in online video games: a European single market approach. 19.12.2022 - (2022/2014(INI))

<sup>217</sup> European Commission (2023) Communication on a comprehensive approach to mental health. COM (2023) 298 final. Brussels, 7 June 2023.

free and paid content as well as the mix of in-game and real-world currencies may make it harder to distinguish between free and paid content.

- ▶ Grooming, radicalisation and sexual abuse: while comprehensive research and statistics are still lacking, there are examples where gaming platforms and communities have been misused by adults to find and connect to children and to groom them for ill-intended purposes, including sexual exploitation and radicalisation.<sup>218</sup>

Policymakers and the video games industry are addressing these issues in various ways. Regulating children's and adolescents' access to video games appeared on the agenda of media lawmakers from the 1990s on. Approaches in western countries have largely followed the approach of industry self-regulation, resulting in a diverse set of different types of self-regulation systems. In the case of Europe, a supra-national (pan-European) PEGI (Pan European Game Information) system was developed back in 2003, in response to a Council of Europe request for a harmonised age rating system. Used in 41 countries, the classification system comprises five age categories and eight content descriptors which classifies access to violence, drug, bad language, sexually explicit content, etc<sup>219</sup>

The years 2008 – 2009 marked a major step forward towards protecting minors in video games. In 2008, the European Commission published its Communication on the protection of consumers, in particular minors, in respect of the use of video games<sup>220</sup> which reviewed the measures in place across the EU and encouraged member States to integrate in their classification systems the PEGI code of conduct and encouraged the industry to adopt measures on the sale of games to minors; the European Parliament ensuing resolution was published on 12 March 2009, specifying 39 articles on detailed aspects of minors' protection in the video games environment, focusing mainly on the adaptations of existing tools (PEGI) to online games. These initiatives are however non-binding and focus on cooperation with national authorities and the industry self-regulation tools. As the industry evolves, amendments to the existing framework and updates to the PEGI code of conduct<sup>221</sup> were continuously developed to tackle new emerging issues, such as loot boxes and discriminative content in video games.

Beyond the initiatives focusing on video games, the protection of minors online is also pursued through the Better Internet for Kids strategy, updated in 2022. The objective of the Better Internet for Kids strategy (BIK+) is for every child in Europe to be protected, empowered and respected online.<sup>222</sup> The strategy includes a set of actions under 3 pillars: safe digital experiences, digital empowerment, and active digital participation, and Member States and the industry are invited to support the implementation of the BIK+.

The video games industry is also working on the issue, with initiatives such as PEGI which focus on aspects such as implementing rating system, prohibiting direct exhortations towards children and

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<sup>218</sup> Radicalisation Awareness Network (2020) Extremists' use of video gaming – Strategies and narratives. Conclusion paper, 15 and 17 September 2020 : [https://home-affairs.ec.europa.eu/system/files/2020-11/ran\\_cn\\_conclusion\\_paper\\_videogames\\_15-17092020\\_en.pdf](https://home-affairs.ec.europa.eu/system/files/2020-11/ran_cn_conclusion_paper_videogames_15-17092020_en.pdf)

<sup>219</sup> see also the next sub-section for additional information on PEGI

<sup>220</sup> Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the protection of consumers, in particular minors, in respect of the use of video games. COM/2008/0207 final

<sup>221</sup> Such as the PEGI Online Safety Code (2009) or an update of the PEGI code of conduct in 2020 to tackle the issue of loot boxes.

<sup>222</sup> European Commission (2022) Communication on A Digital Decade for children and youth: the new European strategy for a better internet for kids (BIK+) COM/2022/212 final. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52022DC0212>

preventing gambling, in the global scene, more strict and specific regulations have been introduced on national levels to tackle overtime-gaming issue for underaged users.

Apart from the rating system, it has been pointed out that protection of minors in video gaming environments should also take into consideration specific cultures of certain online video game communities. Online gaming and its connective chatbox functions may allow harmful comments to reach minor players, even though the game itself falls under a correct rating. Certain verbal abuses and gender-based discrimination children could experience in online games could arguably result in serious mental harm. Other online issues such as grooming, or the diffusion of child sexual abuse material may unfortunately occur in online games (e.g., via chat boxes and communication features). Recent studies also show the use of video games to spread extremist messages through in-game communication functions and adjacent social networks (platforms such as Discord for instance).

In some cases, in-game user-generated content (modding for example) is used for promoting extremist messages.<sup>223</sup> Video games companies are setting up advanced parental control mechanisms<sup>224</sup> (e.g. without explicit parental consent, interactive features are turned off) and auto-recognition of harmful content to address the issue (e.g. harmful language typed in chat boxes is automatically detected and cannot be posted, using AI tools or simply a blocklist of harmful content)<sup>225</sup>. Additionally, content moderation tools are included in all online games, including at the very least muting and blocking features, as well as reporting functionalities. This means players have tools at their disposal to create a healthier online gaming environment.<sup>226</sup> Most games also have moderators<sup>227</sup> (sometimes from the game companies' staff, and often from the players community) monitoring any harmful content, combined with the auto-recognition features mentioned above.

Additionally, in-game chats are designed to minimize harmful exchanges (e.g., most games do not enable picture or video-sharing, some include features to communicate mainly with predefined messages or emojis). As a result, the industry reports that fewer cases of grooming occur in video games than in other online environments.<sup>228</sup>

### 3.2.3.1 Video game rating systems for minors and parents

The PEGI system is now used in 41 countries (including all EU member States) and is based on a code of conduct and is a widely tested and accepted framework,<sup>229</sup> while products with PEGI labels can be found across the globe alongside other rating systems as a result of import for linguistic reasons (e.g.: English

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<sup>223</sup> NYU Stern Center (2023) Gaming The System: How Extremists Exploit Gaming Sites And What Can Be Done To Counter Them. May 2023. A survey (1000 respondents) conducted in the USA, South Korea, France, Germany and the UK show that 15-17% of players surveyed encountered messages related to extreme political violence.

<sup>224</sup> For instance, Nintendo is implementing advanced parental control tools at various levels: on embedded software communication tools, on eshop suggestions, and within game themselves.

<https://www.nintendo.co.uk/Support/Parents/Parents-642522.html>

All other game console manufacturers have set up similar tools, though further promotion towards parents would be helpful for a wider adoption of these tools.

<sup>225</sup> An overview of content moderation techniques is provided here, for instance: <https://getstream.io/blog/chat-moderation/#what-is-chat-moderation>

<sup>226</sup> This is particularly relevant as the study Amarasingam and Schlegel, (2021) 'Examining the Intersection Between Gaming and Violent Extremism'. UN Counter-Terrorism Centre (UNCCT) found that it is the members of the gaming communities themselves that have to take action to achieve lasting changes in the gaming culture.

<sup>227</sup> Moderators can come from the game companies themselves and are often handpicked from the active user community of a game. Different permission systems can also be set up to reflect the role of the various moderators.

<sup>228</sup> [https://www.isfe.eu/wp-content/uploads/2023/03/Final\\_ISFE\\_Position-Paper-Child-Sexual-Abuse-Online-February-2023.pdf](https://www.isfe.eu/wp-content/uploads/2023/03/Final_ISFE_Position-Paper-Child-Sexual-Abuse-Online-February-2023.pdf)

<sup>229</sup> The Pan-European Game Information (PEGI)m source: <https://pegi.info/page/pegi-organisation>

versions in India, South Africa and the United Arab Emirates, Spanish or Portuguese versions in Latin America). The official status of PEGI ratings varies from country to country, depending on the way national legislation deals with age classification and the protection of minors. In some countries, PEGI is the de facto standard without specific regulation, whereas other countries have officially acknowledged PEGI as the sole system for age ratings. Another number of countries have incorporated the PEGI rating system into laws governing the age classification of media, making the labelling system more enforceable.<sup>230</sup>

PEGI also includes a robust Code of Conduct for companies – a set of rules to which every publisher using the PEGI system is contractually committed to. The Code deals with age labelling, promotion and marketing, and provisions to ensure a safe online environment (ranging from a coherent privacy policy and appropriate reporting mechanisms to online community standards and the removal of inappropriate content).

The PEGI system has also evolved alongside the evolution of the market, with an expert group tasked with assessing the rating criteria regularly, suggest updates when relevant to keep the rating system up to date. Some major landmarks include:

- ▶ 2007: PEGI Online was developed thanks to an EU-funded project, with a view to develop new standards for online games, including the PEGI Online Safety Code (then included in the code of conduct), the obligation to keep websites free of illegal and offensive user-created content, provide user-friendly reporting mechanisms and maintain an effective protection of privacy.<sup>231</sup>
- ▶ The PEGI App was launched in 2019, making it possible to check the ratings and content of PEGI-rated games on a smartphone and access guidance on parental control tools.<sup>232</sup>
- ▶ Update of the code of conduct in 2020: games containing loot boxes carry a content descriptor for 'in-game purchases' and games released from April 2020 onwards will additionally carry the description 'paid for random items'. The terminology was chosen by PEGI based on an assessment that the term loot boxes might not be well understood by many consumers, in particular parents.<sup>233</sup>

### 3.2.3 Access to video games for minors

Half of the EU Member States have specific legal provisions, in both civil and criminal law, concerning the sale of video games with content that may be harmful to minors in retail shops. It has been pointed out that complementary measures such as media literacy campaigns and parental awareness-raising activities may also be necessary.<sup>234</sup>

In terms of online games, they are subject to general national legislation and the legislation concerning offline video games may also be applied by analogy. Some member States use the PEGI code of conduct standards for online games, which was designed to better protect young people against unsuitable gaming content and to help parents understand the dangers of the Internet. Because online games are readily accessible on the Internet, certain Member States have taken additional protection measures.

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<sup>230</sup> <https://www.mcvuk.com/business-news/retail/pegi-games-ratings-come-into-force-today/> Accessed on 20th July 2022.

<sup>231</sup> <https://pegi.info/page/pegi-online>

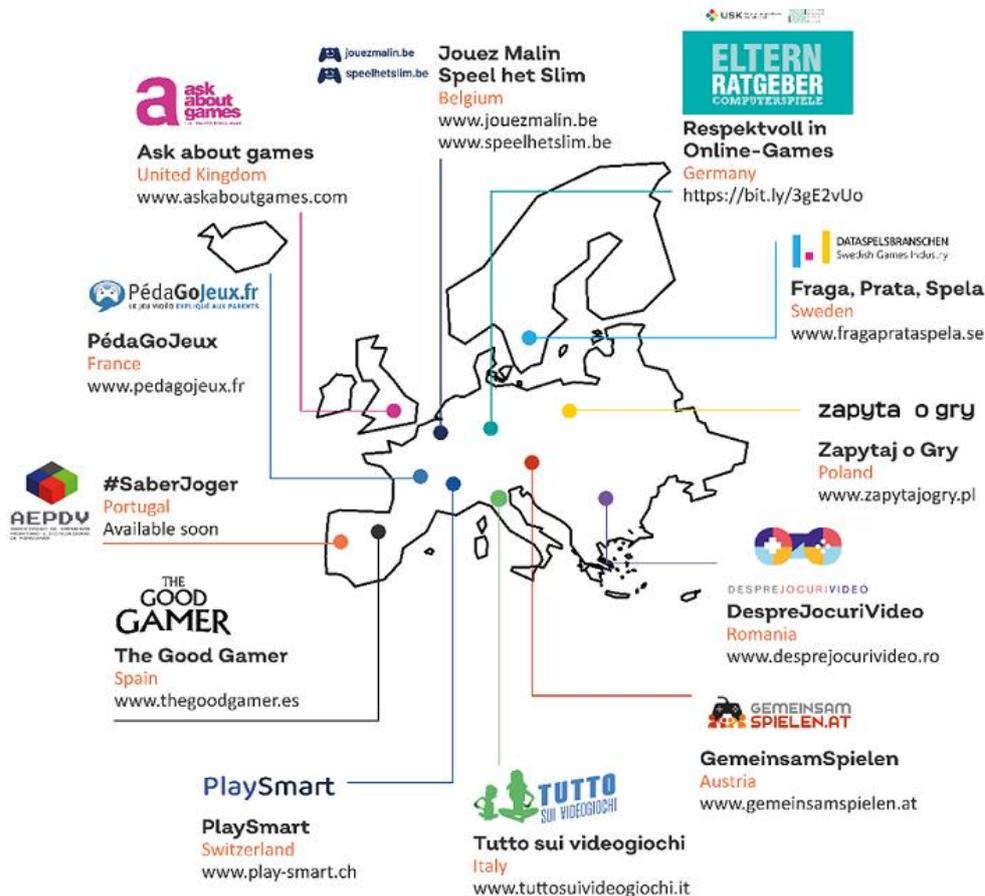
<sup>232</sup> <https://pegi.info/app>

<sup>233</sup> Cerulli-Harms, A. et al., Loot boxes in online games and their effect on consumers, in particular young consumers, Publication for the committee on the Internal Market and Consumer Protection (IMCO), Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, Luxembourg, 2020.

<sup>234</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=LEGISSUM:co0002&from=MT> Accessed on 20th July 2022

This is notably the case in Germany, which has created a Common Agency for Youth Protection on the Internet, in Ireland, where consumers can call a special hotline, and in Latvia, where the distribution of video games is subject to strict conditions.

Figure 25 Parental Control Tools per country<sup>235</sup>



Source: Euractiv 2021

In addition to PEGI and strict privacy tools, parental control tool for blocking by age-rating, limit time spent, purchasing control and communication restriction are made available by video game companies on all major video games platforms, allowing parents to manage their children's time and financial spent at home. Their example is increasingly followed by mobile and PC video games platforms. Research shows that 97% of parents who have agreements with their children on in-game spending monitor such spending, that only 1/3 of children are allowed to spend within games and that 69% of parents are aware of PEGI labelling.<sup>236</sup> The ongoing development of parental controls is making them simpler to use, and also to provide customised features to allow parents to apply settings they feel are appropriate for their own children. The industry also runs regular media education campaigns targeting national audiences in local languages, to draw attention to responsible gameplay, PEGI and all the available parental controls on the games and consoles.

<sup>235</sup> <https://www.euractiv.com/section/digital/opinion/video-games-a-long-history-of-commitment-to-protection-of-minors-its-in-our-dna/>

<sup>236</sup> <https://www.isfe.eu/news/85-of-parents-have-agreement-with-their-children-on-in-game-spending-in-video-games-reveals-new-survey/>

Beyond parental control tools, several solutions are considered to prevent minors from accessing harmful content. Age verification mechanisms are currently mainly limited to self-declaration tools, although they are often cross-checked with digital distribution platforms (e.g., to download a game from a given app store or gaming e-shop). Representatives of the video games industry argue that there are only a few trusted ID verification mechanisms on the market, and highlights that the use of such tools actually raise additional privacy concerns.<sup>237</sup> The use of parental control tools as a complementary or alternative solution is currently preferred.<sup>238</sup>

Interviewees engaged through this study responded positively to the parental control tools and EU measures on the protection of minors in general. Stakeholders generally agreed that a combination of well-designed self-regulation tools and responsible gaming behaviour by users and the minors' parents can be highly effective when practiced correctly. Moreover, concerns were expressed on the coverage of new emerging platforms and harmonisation across countries and platforms will continue to raise challenges. However, continuous monitoring and responses (including the monitoring of regulatory frameworks and the video game industry self-regulation) to the emerging trends and needs is seen as a right approach to ensure the protection of minors remains up-to-date.

### 3.2.4 Loot boxes in online games

Within the wide range of video game designs and innovations that have emerged, loot boxes have become increasingly popular, while also causing increasing controversy among video games players, consumer advocates, policymakers and regulators. In 2017, the game publisher Activision Blizzard reported that it had made more than \$4 billion (EUR 3.9 billion), or more than half its annual income, from microtransactions.<sup>239</sup>

Microtransactions enable players to obtain additional game content or premiums (e.g., virtual items, textures/skins, currency, levels or power-ups). These types of purchases are common in mobile game revenue models where the base game is 'free-to-play', but the player is encouraged to spend money to make unimpeded progress in the game (i.e., overcome a 'paywall').

Game monetisation schemes have become increasingly sophisticated and have been featured more prominently within popular online games. ISFE estimates that 34% of turnover comes from in-app purchases and paid apps, including loot boxes.<sup>240</sup> While more precise data on loot box spending is difficult to find, estimates from the UK Gambling Commission (2019) survey of almost 3 000 children aged 11 to 16 suggest that around 23% have paid money to open loot boxes.<sup>241</sup>

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<sup>237</sup> See for instance: [https://www.isfe.eu/wp-content/uploads/2023/03/Final\\_ISFE\\_Position-Paper-Child-Sexual-Abuse-Online-February-2023.pdf](https://www.isfe.eu/wp-content/uploads/2023/03/Final_ISFE_Position-Paper-Child-Sexual-Abuse-Online-February-2023.pdf)

<sup>238</sup> In its opinion on the of the Regulation to prevent and combat child sexual abuse, the European Data Protection Board noted the difficulty to rely on official digital identity, as it is not available to every European citizen at this stage. It also noted that the deployment of intrusive age verification tools might inhibit or discourage the legitimate use of the affected communication services, and recommended that parental control mechanisms should be included as a solution to protect minors in addition or as an alternative to age verification. EDPB-EDPS Joint Opinion 04/2022 on the Proposal for a Regulation of the European Parliament and of the Council laying down rules to prevent and combat child sexual abuse. Adopted on 28 July 2022. [https://edpb.europa.eu/system/files/2022-07/edpb\\_edps\\_jointopinion\\_202204\\_csam\\_en\\_0.pdf](https://edpb.europa.eu/system/files/2022-07/edpb_edps_jointopinion_202204_csam_en_0.pdf)

<sup>239</sup> Activision Blizzard, Inc. Activision Blizzard announces fourth quarter and 2017 financial results [internet]. 8 February 2018. Access on 20<sup>th</sup> July 2022

<sup>240</sup> See ISFE (2019b) Key Facts on 2018 trends and data citing sources from Newzoo 2018 Global Games Market and own data.

<sup>241</sup> Gambling Commission (2019), Young People and Gambling Survey 2019. Retrieved from <https://assets.ctfassets.net/j16ev64qyf6l/63wDDNviGT0GSA016xdmmu/f48c4367e839f41af17b71e7f695f07b/Young-People-Gambling-Report-2019.pdf>

In order to prevent harms associated with loot boxes the European Parliament Committee on the Internal Market and Consumer Protection (IMCO) prepared a report titled "Loot boxes in online games and their effect on consumers, in particular young consumers" in 2020, which was one of the first reports to reframe loot boxes as a matter of consumer protection.<sup>242</sup> European countries such as Netherlands, Germany and Belgium are among the first to take legislative steps towards banning loot boxes in games such as FIFA 18, Overwatch, and Counter-Strike: Global Offensive. The report calls other European Union countries to help harmonise their rules on loot boxes among the European Union. As noted in section 3.2.1, the guidelines on the interpretation of the Unfair Commercial Practices Directive (2005/29/EC – "UCPD") establishes rules on transparency and information obligations related to loot boxes (e.g., explanation of the probabilities of receiving a random item, informing consumers on the presence of paid random content).

Most recently in December 2022, the European Parliament issued a report calling for more attention to be paid to consumer protection regarding loot boxes in video games. The report stresses that consumers should have all the necessary information about an online video game, including on the presence of in-game purchases such as loot boxes and other apparently randomised in-game purchases, and should be aware of the type of content before starting to play and during the game. It also stresses that such information should be clearly displayed and easily understandable for all consumers before the purchase of the game and before each in-game purchase to better protect consumers, especially minors and young children, and to help parents to understand and control their spending. It notes that, when virtual currencies are used in online games, their value in real-world currency should always be clearly and prominently indicated to consumers for each purchase.

Over the recent years, the EU and member States have made significant efforts addressing the loot box issue in the video games sector. Such efforts continue as the EU continues to call for greater transparency from video games developers.

As highlighted in previous sections on consumer protection, in May 2022 the European Commission launched a Fitness Check of EU consumer law on digital fairness in order to evaluate whether the existing rules are still sufficient, including concerning the applicable rules on loot boxes.

### 3.2.5 Privacy and data protection

Data-driven business models such as the ability to collect gameplay data is common for video games companies. On the one hand, they make certain games accessible for all players regardless of their socio-economic background and allow game companies to improve the gaming experience; on the other hand, this practice creates privacy concerns for users.

The general rise and success of business models based on multi-sided intermediation, utilisation of personal data and monetisation of network effects has shifted the balance of control and power away from end-users. Incidents of competitive misconduct by dominant online platforms or abuse of personal data have led to calls to reinforce user control, based on a return to the user-centric origins of the digital products, including video games.

The video games industry is required to comply with the EU's personal data protection and e-privacy rules. Electronic communication remains subjected to specific rules based on the regulatory framework

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<sup>242</sup> Taylor, Haydn (July 27, 2020). "Loot boxes should be a consumer protection matter not a gambling one, says EU report". [GamesIndustry.biz](https://www.gamesindustry.biz). Retrieved July 27, 2020.

of the ePrivacy Directive<sup>243</sup> (European Directive 2002/58/EC) which is undergoing a reform process towards the e-Privacy Regulation.<sup>244</sup> Similar to its predecessor, the ePrivacy Regulation protects electronic communications data, including data relating to in-game communications. In addition, the ePrivacy Regulation is expected to widen the scope of the regulation of electronic communications data, regardless of whether the communication is an ancillary part of a game;<sup>245</sup> this implies further protection for communication data produced in video games-related live voice chat, video communication, and instant messaging.

Regarding the data protection framework, the ePrivacy framework sits alongside the General Data Protection Regulation (GDPR) which came into force in May 2018<sup>246</sup>. It provides a unified framework concerning data protection for all the member states, even though countries are still able to regulate to some extent the execution of rights and obligations created by the GDPR.<sup>247</sup> The GDPR consists of eleven chapters, concerning general provisions, principles, rights of the data subject, duties of data controllers or processors, transfers of personal data to third countries, supervisory authorities, cooperation among member states, remedies, liability or penalties for breach of rights, and miscellaneous final provisions.<sup>248</sup>

Key implications for the video games sector include:

- ▶ Key implications for the video games sector: Digital Consent: Articles 7 & 8 sets out digital consent rules, with a focus on children's consent. This often implies adding an in-game consent notice and or a data privacy label. Parental control tools may also be used to complement consent notices.
- ▶ Embedding data protection in game design: articles 5 & 25 entail including granular data control, in order to inform users on what kind of data is collected and why (e.g., via a privacy policy or in-game consent notice). Due consideration should be paid to the question of whether or not certain data types need to be collected, such as location or specific usage data from the game.
- ▶ Privacy policy and access to data: user's right to access the data collected about them (Article 15 GDPR) should be specified. The privacy policy should inform players they have the right to obtain a copy of their personal information that is undergoing processing by a video game company or third-party partners. Similarly, privacy policies should clearly inform players of their right to erase player information under Article 17 (Right to be Forgotten), which includes game usage data and diagnostics. In case a user seeks to access its data, the information provided to the user should be presented in a clear, transparent and accessible way (article 12) within one month, free of charge.
- ▶ Secure storage of sensitive data (article 32): the user and device-identifying data should be stored encrypted on the device and on secure servers. This includes any logs, such as crash and analytics reports which might identify a user or their device, as well as user account profiles.

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<sup>243</sup> Directive 2002/58/EC of the European Parliament and of the Council, 12 July 2002

<sup>244</sup> <https://eur-lex.europa.eu/legal-content/EN/HIS/?uri=CELEX:52017PC0010>

<sup>245</sup> <https://www.osborneclarke.com/insights/e-privacy-regulation-implications-for-voice-chat-video-communication-and-instant-messaging-in-video-games-and-interactive-entertainment>

<sup>246</sup> EU General Data Protection Regulation (GDPR): 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), OJ 2016 L 119/1.

<sup>247</sup> J. Chen (2016) How the best-laid plans go awry: the (unsolved) issues of applicable law in the General Data Protection Regulation, in: International Data Privacy Law, Vol. 6, No. 4, 2016, p. 310.

<sup>248</sup> <https://www.eckerson.com/articles/gdpr-reference-guide-all-99-articles-in-25-minutes>

- ▶ Data security breaches (articles 33 and 34): video game companies should consider security issues that might come from disclosure, access to data, loss of sensitive personal data, and other linked information, such as financial data.

Overall, the crucial impact of the legislative framework around data protection is the ability to analyse in-game data. The video games sector states that most data collected by games publishers is non-personal data that provides insight on gameplay habits. Importantly, user identification data (user account) is mostly separate from in-game data.<sup>249</sup> Game studios collect information on how players move and interact in their games and use that to refine gameplay, known as telemetrics.<sup>250</sup> Such data analysis techniques are chiefly used to identify bugs, improve the user experience, and adjust the game difficulty for instance. It is a crucial feature to refine and develop new games and is analysed in batches (big data approaches). This is used both by large studios but also by mobile games companies using the game-as-a-service model. However, the in-game data always include some form of device identification, which may be considered as personal data. The video games sector is thus particularly mindful of any legal development around the data protection regulatory framework and its implications on the treatment of in-game data.

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<sup>249</sup> See for instance: PRIVSEC (2020) Fun and games: Protecting children's data in the gaming industry. Intervention by Jürgen Bänsch, Director for Policy and Public Affairs at ISFE. October 2020. This was corroborated by interviews carried out by the research team behind this report.

<sup>250</sup> A detailed overview of telemetrics and their potential uses is available here: <https://gameanalytics.com/blog/maximizing-the-value-of-player-data/>



# 04

Employment, education, and skills  
needs in the EU video games  
sector

## Chapter Summary

### Employment

Around 74,000 people across 5,000 game developing and publishing studios are employed in the video games sector in the EU. This number has been steadily increasing over recent years. Despite cycles of layoffs (which are a feature of the industry), there is confidence that the sector workforce will continue to grow.

There is not a formally established categorisation of sector job roles, and employees often work flexibly across roles, combining tasks and responsibilities of different sorts. This is especially the case for small companies lacking the resource and capacity to recruit staff and also to train existing staff. Temporary or freelance staff are a feature of the sector workforce. However, reliance of flexible staff limits the opportunities for ongoing training and development, and the degree of contractual security within the sectors workforce.

The EU market attracts staff by offering creative opportunities and positive working conditions and labour protection practices compared to elsewhere in the world. Factors making other geographic markets more attractive include the prestige of large companies and the generally higher salaries offered in other markets (such as North America). Increasing levels of unionisation in the sector has increased representation for employees, especially in relation to legal and contractual issues. There are also a growing number of trade unions and workers' rights protection organisation associated with the sector.

### Skills

A typical production process for a new video game usually requires a wide range of skills when designing, producing, and distributing the new product.

The video game sector workforce in the EU is marked by challenges with the supply of skilled labour. Around 40% of firms report difficulties recruiting to the posts that they have open. There are challenges for video game companies to find the skills that they need, right across a range of role types. Retention is also a challenge where workers leave the sector for positions in aligned sectors such as IT. Meanwhile, the EU sector sees some drain of skilled labour to other parts of the global market and there are several 'push' factors at play (e.g., salary levels relative to related sectors, worker protection relative to other sectors, employment stability and security).

## Chapter Summary

Employers are finding that it takes longer than expected to fill positions and are spending increasing levels of resource on recruitment as they diversify the avenues and advertising used to attract staff, often from beyond local and national markets. Employers are using temporary or freelance staff to plug their staffing gaps, although this approach has its drawbacks in terms of the development and retention of staff by employers but also the degree of contractual security and employee rights within the overall workforce.

There are also some limitations around how the sector is perceived, and whilst this is beginning to change, the image and stereotypes associated with the industry still limit the degree to which the sector is seen as a viable and attractive career option for a diversity of entrants. There is a need to recruit and retain women in particular as they are currently underrepresented in the sector.

### **Diversity and inclusion**

There have been developments and improvements over recent years in the range of diversity and inclusion initiatives across the sector but there could be continued development in this area. In particular, only 30% of the workforce is made up of women (less in some Member States). The sector is still not regarded as an attractive career prospect for many segments of the population including those with protected characteristics (e.g., age, race, disability, sex, sexual orientation). The workforce does not presently reflect the characteristics of its community of users. This is an important goal to attain to, not least as a widened range of skills and experiences within the workforce can contribute to enhanced creativity, innovation and competitiveness within the sector.

### **Education and training**

Non-formal education and self-led skill development plays a crucial role in the sector. Development opportunities of this kind include education material found online and events organised by the developer community. Costs for such self-led education usually needs to be met by the individual, although private companies might sponsor the creation of such resources and events. Provision of this type of development within companies is limited, and often dependent on the companies' availability of resources. Smaller and medium-sized companies often lack the expertise and resources to design and implement internal learning opportunities.

The provision of formal education in the video game sector varies across Member States, with France and Germany having the highest concentration of institutions. Formal education includes HEIs and VET, which can be either publicly or privately owned.

## Chapter Summary

The high costs of studying at some (mostly private) institutions can pose a barrier to sector entry for some individuals.

The research highlights weaknesses around the quality of formal education and training provision linked to the video game sector. There are generally low levels of collaboration between educationalists and the video game sector when designing and delivering education provision. This means that curriculum development is often undertaken in isolation from the video game sector's skills needs. The result is that mainstream education is not providing graduates with up-to-date skills nor the practical skills that they need in an industry setting. A lack of accreditation of video game courses also means that quality of provision is not upheld and recognised as it is for courses across many other sectors.

## 4.0 Employment, Education and Skills needs in the EU video games sector

This chapter analyses the employment, education and skills needs in the European video game sector. It examines:

- ▶ The EU video games labour market including the numbers in employment, the working conditions and the attractiveness of the sector;
- ▶ Skills and recruitment challenges experienced by video games companies; and
- ▶ Routes into the sector and education / training.

This chapter is based on the desk-based evidence review, industry data, interviews with policymakers, practitioners and stakeholders in the education and labour market areas. In particular, evidence is drawn from workshops (mainly Workshop 3: Education, research, and skills' needs in the gaming industry, Workshop 10: Market trends in the video games sector: today and tomorrow, Workshop 11: Policy actions for boosting the EU video games sector).

### 4.1 Employment and the Labour Market

In this section, we review the size of the workforce and the main professions in the sector, before turning to consider working conditions and the attractiveness of the EU sector for employment relative to other geographical actors and adjacent sectors. Finally, we review diversity, legal considerations and industrial relations.

#### 4.1.1 Size of the workforce

This sub-section sets out the scale and size of the video games workforce in the EU and details available figures in relation to companies' activities and size.

##### 4.1.1.1 Number of employees and companies in the EU video games sector

According to the last available estimates from the EGDF (2019), the European video games sector contained around 5,000 businesses split between game developer studios and publishers.<sup>251</sup> According to Video Games Europe, the sector provided more than 74,000 jobs in the EU in 2020.<sup>252</sup> Recent figures report a 12% increase in sector employment in 19 Member States between 2019 and 2020.<sup>253</sup> This reflects the overall growth of the industry, with EU video game sector revenues increasing by 15% since 2021.<sup>254</sup>

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<sup>251</sup> EGDF, [Report on the European game development industry in 2019](#) (EGDF, 2019).

<sup>252</sup> <https://www.videogameseurope.eu/news/europes-video-games-industry-publishes-annual-key-facts-report-authoritative-data-and-engagements-from-2021/#:~:text=Key%20Facts%20from%202021%20%E2%80%93%20highlights&text=Global%20revenue%20exceeded%20%E2%82%AC1,published%20the%20Guide%20to%20Esports>

<sup>253</sup> Belgium, Czechia, Denmark, Finland, France, Germany, Latvia, Lithuania, Ireland, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, and Sweden.

<sup>254</sup> <https://www.videogameseurope.eu/news/europes-video-games-sector-2020/>

Evidence indicating employment growth levels is corroborated by various national reports. For example, the Swedish Games Industry Report reports an 11% increase in employment in Sweden,<sup>255</sup> and the Game Industry of Poland Report estimates 24% annual growth in employment in the sector between 2019 and 2020.<sup>256</sup> However, in recent months some large companies in the video games and tech sector have announced layoffs<sup>257</sup>. These recent developments are due to a general contraction of the tech sector, reflecting the COVID-19 recovery; rising global inflation; geopolitical events such as the Russian war in Ukraine; and specific circumstances that can cyclically affect the sector, such as lack of hardware components. In the opinion of industry experts (such as those advising on this research) and a number of sources, these layoffs are unlikely to become structural, as they are “characteristic of the sector and have already been witnessed in the past”.<sup>258</sup>

The table below presents national estimates on the number of employees and companies found in the video games sector drawn from secondary literature.<sup>259</sup> Aggregated EU-level figures seen below correspond to the EU wide sources presented.

Table 4: Estimated number of employees and companies in EU Member States

EU Country	Number of employees	Number of companies	Source
Austria	500	90	WKO, <i>Game Development Studie 2019</i>
Belgium	825	84	Premortem Games, <i>Belgian games industry had a good year – but it's 'a fragile ecosystem'</i>
Bulgaria	1200	47	IFSE and EDGF, <i>Key facts 2020</i>
Croatia	326	45	CGDA, <i>DZS/HGK Lider Analysis</i> <sup>260</sup>
Cyprus	NA	NA	NA
Czechia	1750	110	GDA CZ, <i>Czech Video Game Industry</i>
Denmark	900	142	Vision Denmark, <i>Danske Indholdsproducenter Marts 2021</i>
Estonia	NA	NA	NA
Finland	3600	200	NeoGames, <i>The game industry of Finland</i>
France	15000	700	SNJV, <i>Annual survey of video games in France 2021</i> and IFSE and EDGF, <i>Key facts 2020</i>
Germany	10000	749	GAME, <i>Annual report of the German games industry 2021</i> and IFSE and EDGF, <i>Key facts 2020</i>
Greece	250	25	IFSE and EDGF, <i>Key facts 2020</i>
Hungary	NA	NA	NA

<sup>255</sup> Swedish Games Industry, *Game Development Index 2021* (Swedish Games Industry, 2021).

<sup>256</sup> TMarszalowski, J., Biedermann, S., Rutkowski, E., *The game industry of Poland — Report 2021*, pp 8 (PARP, 2021).

<sup>257</sup> Dring, C. *Analysis: Why are video game companies laying off staff?* (VIDEO GAMEEC, 2023).

<sup>258</sup> As stated by one of our interviewees and member of our advisory board.

<sup>259</sup> The table has an illustrative purpose, as the national sources found do not always refer to the same year and have used different methodologies to estimate the number of companies and employees found in the sector.

<sup>260</sup> This data has been retrieved through direct exchanges with the Croatian Game Developers Association.

Ireland	2000	60	The Journal.ie, <i>Game workers in Ireland are concerned about low pay, unpaid overtime and uncertain work</i>
Italy	1600	160	IIDEA, <i>Italian game developers census 2021</i>
Latvia	NA	44	IFSE and EDGF, <i>Key facts 2020</i>
Lithuania	773	47	LGDA, <i>Lithuanian Game Development Industry 2019</i>
Luxembourg	NA	NA	NA
Malta	200	15	Sovereign Group, <i>Malta launches vision for video game development and e-sports</i>
Netherlands	3000	330	Dutch Game Garden, <i>The Dutch Games Industry Facts &amp; Figures</i>
Poland	9710	440	Polish Ministries of Economic Development and of Culture, <i>The game industry of Poland – Report 2020</i>
Portugal	NA	72	IFSE and EDGF, <i>Key facts 2020</i>
Romania	6000	100	RGDA, <i>Romanian games industry report</i>
Slovakia	762	55	SGDA, <i>Statistics: Slovak Game development games industry 2020</i>
Slovenia	400	25	SGA, <i>About the Slovenian game industry</i>
Spain	8700	427	AEVI, <i>La industria del videojuego en Espana en 2021</i>
Sweden	6620	667	Swedish Game Industry, <i>Spelutvecklarindex 2021</i>
<b>Total</b>	<b>74,000</b>	<b>4,500</b>	

Source: Ecorys based on secondary literature.

#### 4.1.1.2 Size of the workforce in relation to video games companies' activities

Statistics and studies related to the size of the workforce tend to provide figures associated with the two most prominent segments of activities, i.e., game development and publishing. EU and national level reports<sup>261</sup> mostly exclude distribution and adjacent activities such as consultancy and legal advice from their calculations of the size of workforce.

This means that estimates may not fully capture the extent of sector employment including supply chain labour. For instance, the German Game Industry Association's report<sup>262</sup> defines developing and publishing as the video games sector's *core market*, with all other activities labelled as the *extended market*. In relation to these two categories of activities (where there is more data available), EGDF and Video Games Europe estimates that there are around 5000 game developing studios and 203 game publishers in the EU.<sup>263</sup>

This ratio is comparable to those indicated by some national level reports – for instance, according to national level sources there are 110 game developers and 10 publishers in Czechia<sup>264</sup> whilst in Germany

<sup>261</sup> Most sources are listed in this sub-section.

<sup>262</sup> GAME, *Annual report of the German games industry 2021* (GAME, 2021).

<sup>263</sup> EGDF, *Report on the European game development industry in 2019* (EGDF, 2019).

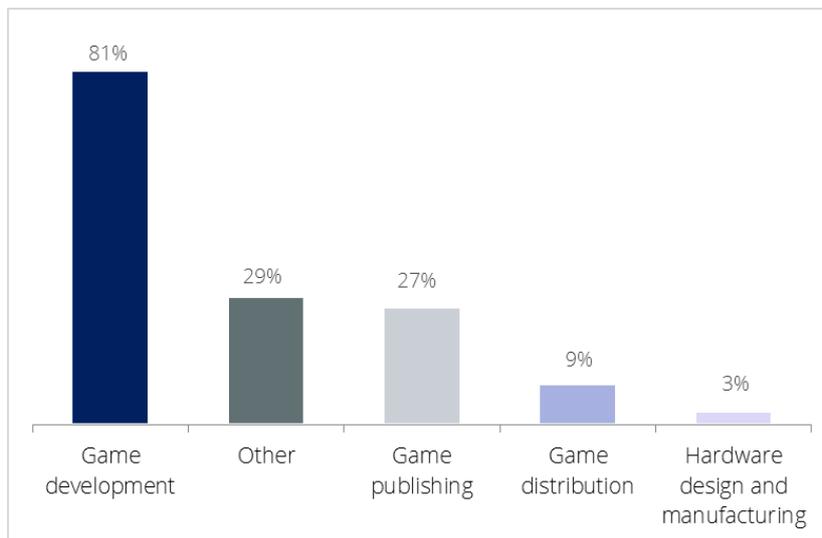
<sup>264</sup> GDA CZ, *Czech video game industry* (GDA CZ, 2020).

there are 314 developers and 32 publishers,<sup>265</sup> and in France an estimated 60% of the video games companies are active in the development side and 5% in the publishing side of the sector.<sup>266</sup>

Evidence and findings about the other segments of activities are scattered and unavailable at the EU level. Some examples include estimations from the SNJV report in France (mentioned above, which states that 33% of the market is represented by service and technology providers, and 1% by distributors) and the GAME report in Germany (mentioned above, which counts over 16,000 people employed in the so-called "extended market", comprising service providers, retailers, educational establishments, media and public sector in relation to the video games industry).

The final source providing a snapshot<sup>267</sup> of the activities carried out by video games companies in the EU is the survey conducted as part of this research report. Companies responding to the survey were most active in the areas of game development (80%), game publishing (27%), distribution (9%) and hardware (3%)<sup>268</sup>. Around 29% of respondents indicated "other", with the most common activities listed including translation and localisation of video games, esports organisers, and companies focusing on business and investments.

Figure 26: Which area of the sector is your company most active?



Source: Ecorys survey

The lack of employment data broken down by companies' activities reflects the general issue with obtaining aggregated sector data at EU and national level. This problem is caused by scattered and inhomogeneous statistical data. Updating NACE definitions on the sector to cover all video games-related activities could be beneficial as more up-to-date and accurate sector data would improve policy making.

<sup>265</sup> GAME, [Annual report of the German games industry 2021](#) (GAME, 2021).

<sup>266</sup> SNJV, [Annual survey of video games in France – 2021 edition](#) (SNJV, 2021).

<sup>267</sup> Note: the survey sample is not representative of the industry as a whole and should be considered only for illustrative purposes

<sup>268</sup> Respondents identified which areas they were most involved in, and could choose more than one option to best represent their activities

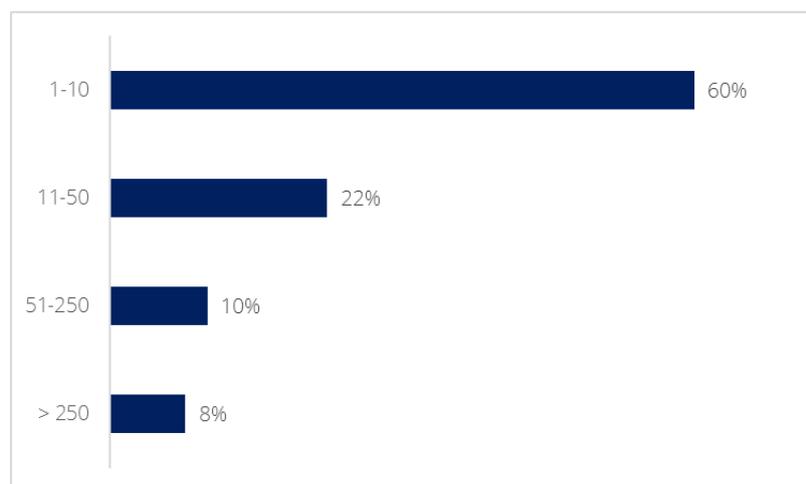
### 4.1.1.3 The size of video games companies

EU-level reports do not provide a broad and comparable picture of the size of video games companies in Europe. This section therefore draws on national publications, the survey results undertaken as part of this research as well as information from databases such as Crunchbase. The evidence reviewed shows that small companies feature prominently within European video game sector.

**Most national reports suggests that the majority of video game developers in Europe employ less than ten people**, and this reflects feedback from those involved in workshops and interviews.<sup>269</sup> For example, the German Games Industry Association<sup>270</sup> and the Italian Interactive Digital Entertainment Association<sup>271</sup> report that 70% of the game developers in both countries employed less than ten people in 2021. Similarly in Sweden, 85% of the companies employ less than ten people according to the Swedish Games Industry Report.<sup>272</sup> The Game Industry Report of Poland reports that the Polish market consists mostly of smaller studios - only nine out of 440 (2%) game development companies in Poland employ more than 200 people.<sup>273</sup> These figures are generally in line with overall EU employment figures, which show that nine out of ten companies in the Member States are micro enterprises (i.e. employing less than 10 people).<sup>274</sup>

Our survey also found that **60% of the respondents employed less than 10 people, and only 18% of them employed over 50 people**; whereas figures from Crunchbase show that only 15% of companies listed employ more than 50 people. Figure 27 outlines findings regarding number of employees drawing from the study survey.

Figure 27: How many people do you/ your employer currently employ?



Source: Ecorys survey (N=130)

A large proportion the European video game sector is made up of independent businesses, as highlighted by the survey responses (summarised in Figure 28 below). Around 70% of the respondents to the survey considered themselves to be part of the indie scene, with only three out of ten outlining that they did not consider their company to be part of the indie scene.

<sup>269</sup> As mentioned by our Advisory Board members.

<sup>270</sup> GAME, [Annual report of the German games industry 2021](#) (GAME, 2021).

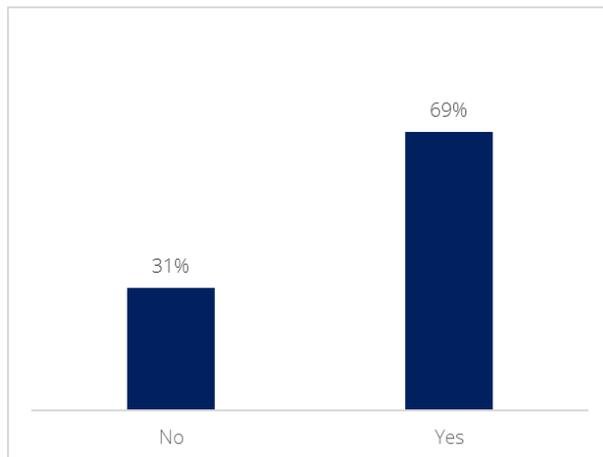
<sup>271</sup> IIDEA, [Italian Game Developers Census](#), pp 12 (IIDEA 2021).

<sup>272</sup> Swedish Games Industry, [Game Development Index 2021](#) (Swedish Games Industry, 2021).

<sup>273</sup> Flanders Investment and Trade, [The game industry of Poland](#), pp 15. (Flanders trade, 2021).

<sup>274</sup> Eurostat, [9 out of 10 enterprises in the EU employed fewer than 10 persons](#) (Eurostat news release, 2015)

Figure 28: Do you consider yourself or your company to be part of the Indie scene?



Source: Ecorys survey (N=134)

Video games policy should consider that companies are more likely than not to be small and independent. This has implications for the support that companies may need to scale up their operations. These issues are revisited in the discussion around sector skills and then in Chapter 6 concerning policy framing and recommendations.

#### 4.1.2 Professions and occupational profiles within the sector

In this sub-section, we outline the main professions and occupational profiles making up the video games sector workforce in the EU. We then describe the challenges in estimating the proportion of workers active across roles. Key sources for this sub-section are secondary literature sources, workshop findings and our survey.

The research showed that it is not possible to clearly understand which roles are more prevalent within the sector. Therefore, it is not possible to ascertain how some occupational profiles have evolved over time. This is linked to the 'multi-disciplinarity' that characterises the sector. Since video games sit at the crossroads of arts, technology, and business development and management – each of these requiring an in-depth experience and sector-specific knowledge – employees need to have varied and multiple skills.

This has been reiterated by multiple stakeholders across our research<sup>275</sup> and bears important considerations for the skills development and education of employees in the video game sector (as will be assessed later in this chapter). This multifaceted approach is particularly important for indie studios or individuals who need to develop, design, market and promote a game while taking care of the administrative, financial, and legal requirements necessary to keep their business sustainable.

Larger studios may have stronger financial muscle to hire professional staff specialised in these areas. As reported by stakeholders, while these larger studios hire on average 250 professionals to conduct all the activities necessary in the life cycle of a large video game, in some indie studios a single person may be in charge of coordinating all of these aspects.

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<sup>275</sup> During interviews and especially in occasion of Workshop 3: *Education, research and skills' needs in the gaming industry*.

The industry associations tend not to use the same segmentation when describing the main professions found in the EU's video games sector. In fact, national trade associations design their classifications to report on the nature of their video games market, to report around demand for new employees, or to create guidance for young professionals entering the sector. As an example, the Table below summarises a sample of classifications used by three sources from Czech Republic, UK and France.

Table 5: Examples of professional segmentation

Czech Game Developer Association <sup>276</sup>	Screen Skills <sup>277</sup>	SNJV – Syndicat National du Jeu Vidéo <sup>278</sup>
1. Programmers	1. Programming	1. Management
2. Artists	2. Design	2. Design
3. Level designer	3. Production	3. Sound and image
4. Game Designer	4. Art	4. Technology
5. Quality Assurance professionals	5. Animation	5. Publication and support
6. Animators	6. Audio	
7. Other (musicians, sound designer, producers, PR/marketing, technical support professionals)	7. Technical art	
	8. Quality Assurance	

Source: Ecorys, compiled from a range of sources Pavel Barák et al., *Czech Video Game Industry* (GDA, 2020), A career support association. See ScreenSkills, *Games Industry career map* (ScreenSkills, 2019), SNJV, *Référentiel des métiers du jeu vidéo*, 2020.

Another example comes from the ESF-funded *Chips For Game Skills*,<sup>279</sup> a project undertaken in Finland in 2020 which aimed to identify the competences of game industry employees and formalised the role categories. The project explicitly set out to standardise the sector through a highly collaborative process which involved industry professionals and academia.<sup>280</sup> The high degree of consultation, collaboration and peer-review process make this classification particularly relevant and credible. The project classified professionals and their competencies across five groups, making up the core jobs constituting the sector.

- ▶ Game programmers, such as gameplay programmers, UI/UX developers, tools programmer, back-end developers, QA testers;
- ▶ Artists, such as animators, concept artists, character artists, environment artists, sound designers;
- ▶ Designers, including narrative designers, system designers, gameplay designers, level designers;
- ▶ Producers, managers, and professionals in legal, budgeting, financing, and resource management;
- ▶ Community managers, meaning brand, marketing, and communication specialists.

<sup>276</sup> Pavel Barák et al., *Czech Video Game Industry* (GDA, 2020)

<sup>277</sup> A career support association. See ScreenSkills, *Games Industry career map* (ScreenSkills, 2019)

<sup>278</sup> SNJV, *Référentiel des métiers du jeu vidéo*, 2020

<sup>279</sup> Osaamisen pelimerkit, *Chips for game skills* (OP, 2020).

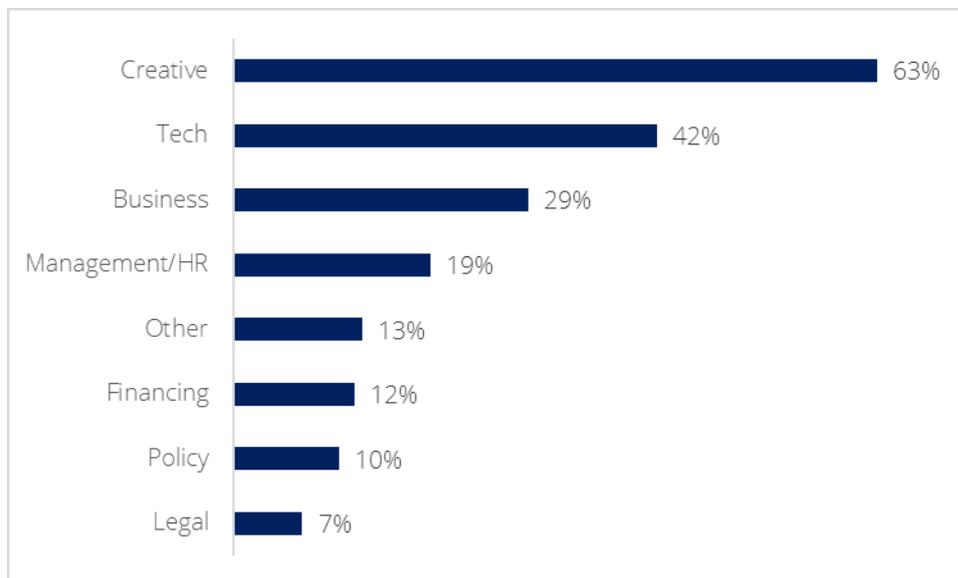
<sup>280</sup> Research process described: Saija Heinonen, *Identifying Competences with Digital Badges* (Osaamisen Pelimerkit, 2020)

Overall, there are two main challenges to understanding employment by roles across the EU video game sector. Firstly, employees tend to cover various roles, especially in smaller and medium-size companies (which as highlighted above make up the majority of the sector). Secondly, there is no standard way to classify occupational profiles in the sector to enable a consistent understanding across Europe.

The survey promoted by the International Game Developers Association<sup>281</sup> provides an indication of its respondents, showing that 33% were involved in management, 27% in design, 24% in programming, and only 6%, 3% and 2% dealing respectively in art, quality assurance and administrative roles. However, this survey specifically targets developers, which suggests that industry-wide figures may be different.

Our sample of respondents from the survey provides a further indication of the most popular occupations in the sector. Results show that the majority of workers are active in creative roles (selected by 63% of respondents), followed by tech (42% of respondents) and business (29%) of the roles <sup>282</sup> (see Figure 29).

Figure 29: What is your personal domain of expertise?



Source: KEA/ Ecorys survey (n= 134)

To conclude, in this section we report that professional roles in the video games sector often blend different skills and are not clearly defined by standard definitions. This has implications for the skills development of workers in the sector (considered later in the chapter), but also implications for how insights are gathered around the skills needs of the industry (and therefore the areas in which education and training may need to focus). Despite this challenge, we noted that companies in the video games sector employ people with various types of backgrounds, in order to provide the team with the skills needed to develop or publish a video game – which vary from creative, to technical and business-related roles.

Overall, the study highlights that roles in the sector are often blurred as the majority of companies are small and lack the resource to recruit to specialist roles. If small companies working in the sector were

<sup>281</sup> International game developers association, [Developer satisfaction survey 2021](#) (IGDA, 2021).

<sup>282</sup> The categories used in this question are different from the *Chips for Game Skills ones* as they were designed at an earlier stage.

facilitated to scale up their operations, then the occupational roles making up the sector would become more clearly defined and specialist. Overall, whilst there is much energy and creativity that may be associated with the operations of small businesses, there are also benefits for competitiveness where companies are able to grow and recruit specialist labour for example around human resources, legal and managerial functions. An EU sector strategy might then usefully focus on enabling small companies to scale up, in order to grow the capacity and competitiveness of the EU sector overall. The study builds on this in Chapter 6, where it presents recommendations for the further growth of the sector.

The box below presents more in detail the situation of indie developers in the EU.

The independent production of video games is often chosen by workers due to the flexibility it brings them. Professionals also choose to pursue independent projects to build hands-on experience, create a portfolio, and build connections and visibility – especially when in the early stages of their careers. It has been reported that many young graduates feel that working independently (or as a freelancer) is a core path to employability within the sector.

In addition, indie developers are increasingly associated with freelance and casual forms of work, where they get to take on tasks outsourced by larger players or peers for a proportion of their time. This introduces a series of challenges and risks for industry and policy makers to be aware of, and work to mitigate. These challenges are traditionally linked to freelance work typical of all sectors, but also reflect some industry-specific challenges:

1. Barriers to entry, due to high costs in purchasing specific software licenses and tools;
2. Reliance on informal connections, linkages, and friendships, which might be perceived as exclusive and contribute in part to the development of 'club cultures';
3. Dependency on gatekeepers such as digital distribution platforms (e.g., Steam, GOG, AppStore) that retain a margin of profit in return for the necessary visibility to consumers.

### 4.1.3 Working conditions

This sub-section presents findings on the current working conditions experienced by the video games workforce in the EU. Given the wide differences existing between the labour markets of different Member States, generalising findings at the EU-level is complex. We can however reflect on some overall issues and trends from the sources examined as part of this research.

The term working conditions, as defined by Eurofound, refers to "an employee's terms and conditions of employment" in matters such as "organisation of work and work activities; training, skills and employability; health safety and well-being; and working time and work-life balance" as well as salary.<sup>283</sup> In this section, using findings from the literature review, workshops, interviews and our online survey, we will focus on aspects relating to working conditions, while training and skills will be addressed in later in the Chapter.

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<sup>283</sup> Based on Eurofund, [Working conditions](#) (Eurofund, 2011).

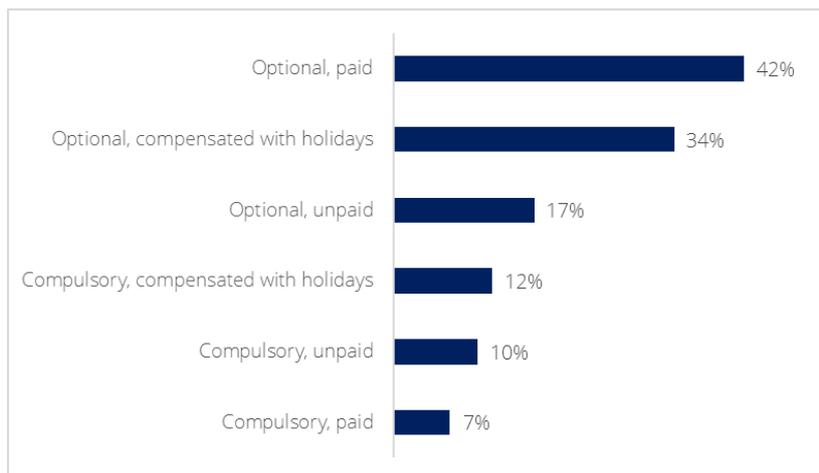
### 4.1.3.1 Working environment

Since the initial growth of the video games industry, there has sometimes been a perception that it is hard for employees to achieve a good work-life balance in the sector.<sup>284</sup> Literature has tended to suggest that this is often as a result of overtime (which can be compulsory and unpaid in the worst instances) worked by employees during the development phase of a video game, usually to speed up lagging projects and to meet deadlines imposed by internal or external actors to the company.<sup>285</sup>

Traditionally, the sector has suffered a challenge with its image in this respect – and has not always been perceived as one in which is easy for workers to balance work with wider life commitments. The issues around work-life balance for workers were explored throughout our survey. When asked to rate them from 1 to 5 in terms of importance, “Too many hours of work” was rated 3 out of 5 or above by 64% of respondents; “Work-life balance issues” by 66% and “High level of stress” by 70%.<sup>286</sup>

Although the survey indicates that some employees still have concerns about achieving a good work-life balance, the consultations conducted as part of the research indicate that this issue is becoming less problematic over time. Improvements can be seen as the skillsets and the demography of the workforce becomes more diverse. Furthermore, the survey indicated that there are a range of interventions which are in place to guard against ‘crunch culture’.

Figure 30: What kind of regulation is in place, in case of crunch?



Source: Ecorys survey (N = 59)

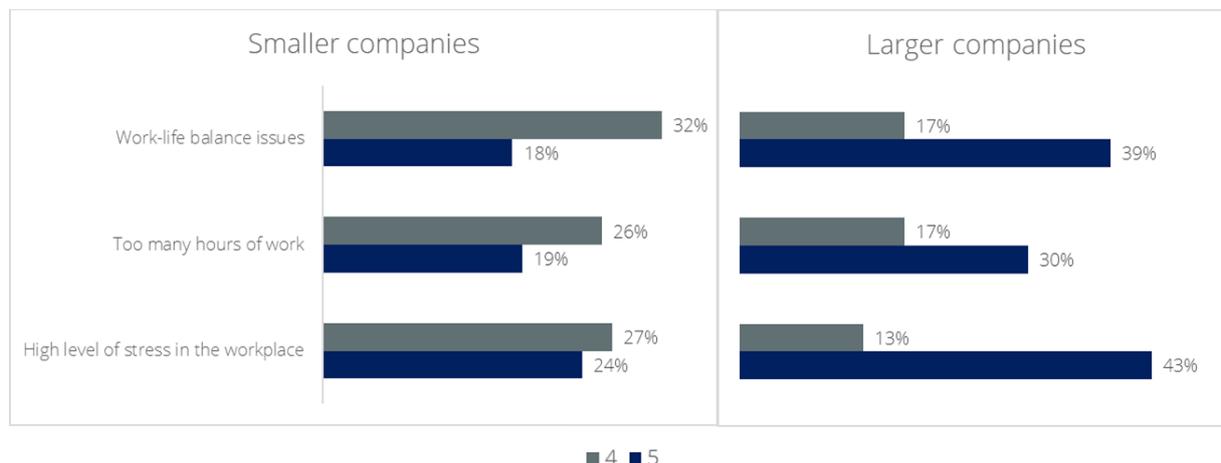
When analysing differences between smaller companies (with less than 50 employees) and larger ones (with more than 50 employees), the ratings regarding perceived issues in the workplace change considerably. The figure below shows how, with regards to three working-related issues, higher percentages of respondents from larger companies rate them as 5/5 in terms of importance.

<sup>284</sup> Schreier J., [The horrible world of video game crunch](#) (Kotaku, 2016).

<sup>285</sup> Cote, A. C., Harris, B. C., [‘Weekend became something other people did’: Understanding the intervening in the habitus of video game crunch](#) (Convergence, 2021).

<sup>286</sup> Ecorys survey, N = 134.

Figure 31: In terms of labour and skills issues, how important are the following issues for (positively or negatively affect) your company? [only 4 and 5/5 ratings shown]



Source: Ecorys survey (N = 134)

In terms of **working environment**, the evidence suggests that interventions designed to tackle unfair working practices have become more widespread over recent years. There are a range of positive examples on how these challenges can be tackled. Berlin-based company Wooga (which has 300 employees) which has had very few cases of harassment and discrimination due to its open culture of debate and has recently achieved a 40:60 ratio of female to male employees.<sup>287</sup> Sharing good practices such as this could allow video games companies to learn from one another in creating a more diverse and welcoming work environment. Ultimately this has implications for workforce satisfaction and retention, and sector productivity.

#### 4.1.3.2 Salary, type of contract and benefits found in the video games sector

The situation for employees in relation to salary and benefits can greatly vary depending on the country considered, the size of the company and the role and professional experience of each specific staff member.

In terms of **salaries**, providing average salary levels at the EU level proves particularly complicated, especially due to the vastly different economic conditions of Member States. However, desk research and interviews highlights that there are some concerns within the workforce in relation to the level of pay in the industry.<sup>288</sup> Employees from a range of companies in Europe highlight that salary levels can be around twice as high in the UK compared to Europe.<sup>289</sup> When consulted through our survey, over 70% of the respondents working in the sector indicated pay as a salient issue (receiving a rate of 3/5 or more), regardless of the size of the company. Moreover, 66% of the respondents to a global UNI survey complained about low pay being an issue; the percentage of Europeans referring to it was even higher, sitting at 77%.<sup>290</sup>

<sup>287</sup> Reymann-Schneider, K. Sexism and the video games industry. (2021). URL: <https://www.dw.com/en/sexism-and-the-video-games-industry/a-59881205> (last accessed 27 June 2022).

<sup>288</sup> Arguello, D. *Game companies are working developers hard. The pay isn't worth it.* (Digitaltrends, 2019).

<sup>289</sup> See Table 1 below.

<sup>290</sup> UNI Global Union, *The video game industry – A resource for organizers* (UNI, 2022).

Obtaining figures about average salaries is particularly complex. The table below presents figures from different sources, drawing a comparison in the salary of a video game designer between several Member States and some key global markets.

Table 6: Annual average salary in key EU and global markets

Country	Source and details		
	Salary Explorer <sup>291</sup> Annual average salary (EUR)	Salary Expert <sup>292</sup> Annual median salary (EUR)	Glassdoor <sup>293</sup> Annual average salary (EUR)
Romania	19,300	21,992	
Italy	42,000	65,898	30,000
Spain	29,900	51,891	33,203
Germany	37,800	86,414	43,785
France	43,500	75,336	56,655
Poland	17,800	31,559	
Sweden	45,000	79,024	58,406
US	86,200	103,585	75,268
Canada	79,000	72,265	63,466
Israel	24,500	57,571	
Japan	41,100	59,277	
China	42,600	37,340	

Source: Ecorys based on Salary Expert, Salary Explorer and Glassdoor data

Desk research, as well as findings from our dedicated workshop, suggest two opposing tendencies, mostly depending on employees' experience, in terms of **types of contracts** used:

- ▶ A primary use of permanent contracts, often including a range of benefits and good salaries, to contrast the increasing brain drain to adjacent ICT sectors and favour talent retention in the industry. The contractual security provided by larger companies can limit the high degree of rotation between jobs typical of the video games industry.<sup>294</sup> Therefore, permanent contracts, are quite common in the sector (73% in Spain,<sup>295</sup> 80% in France<sup>296</sup> 80% in Germany,<sup>297</sup> against an international average of 67%).<sup>298</sup> Nonetheless, experienced professionals are in high demand and, given the project-based nature of the video game development process, often decide to move to a different company pursuing their artistic interest.

<sup>291</sup> Website available [here](#).

<sup>292</sup> Website available [here](#).

<sup>293</sup> Website available [here](#).

<sup>294</sup> Our workshop highlighted how limiting this rotation is considered a priority by employers in the industry.

<sup>295</sup> DEV (Desarrollo Espanol de Videojuegos), [Libro Blanco del desarrollo espanol de videojuegos 2021](#) (DEV.org, 2021).

<sup>296</sup> SNJV (Syndicat National du Jeu Vidéo), [Annual survey of video games in France 2021 edition](#) (SNJV, 2021).

<sup>297</sup> German Games Industry Association, [Annual report of the German Games Industry 2021](#) (Game, 2021).

<sup>298</sup> International Game Developers Association, [Developer satisfaction survey 2021](#) (IGDA, 2021).

- ▶ A substantial share of temporary contracts, usually lasting for the duration of a project<sup>299</sup>, especially for lower positions and for non-specialised profiles. A survey conducted in Spain showed that two-thirds of the first-time employees in the video games sector lasted less than two years,<sup>300</sup> and that almost half of the respondents considered the possibility of being offered a promotion was 'zero' or 'low'. Moreover, there are recorded examples, in Poland<sup>301</sup> and France,<sup>302</sup> of employers looking for ways to work around the labour-law regime existing in their countries. This is in line with the high levels of turnover and job volatility identified as typical to the sector,<sup>303</sup> as lower professional profiles seldom receive permanent contracts and often work as freelancers.

The survey undertaken for this study highlights a difference in the type of contracts offered by companies based on their size. The data showed that for larger companies, full-time contracts were more popular and part-time contracts less common. This indicates that larger companies can offer more contractual security to employees.

This situation is mirrored when considering benefits, with larger companies often offering better benefits and contractual security than small companies are able to.<sup>304</sup> Larger companies are better able to offer various kinds of benefits such as social security coverage, flexible working hours, parental leave, vouchers, profit-sharing schemes, pension schemes, and medical insurance, especially to employees with experience.<sup>305</sup>

#### 4.1.4 Attractiveness of the EU video games sector

This section analyses the extent to which the EU video game sector is attractive for professionals and entrepreneurs in the field, in comparison to other geographical markets (especially in North America) and to adjacent ICT and cultural and creative sectors.

##### 4.1.4.1 EU video game sector in comparison to other geographical markets

The EU video game sector has some specific strengths and weaknesses for entrepreneurs and freelancers working in the sector. When asked about advantages and disadvantages of being based in the EU, respondents to our survey provided the following answers:

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<sup>299</sup> As highlighted by our discussions with stakeholders and by literature. For instance, see Amanda Peticca-Harris, Johanna Weststar, Steve McKenna, [The perils of project-based work: Attempting resistance to extreme work practices in video game development](#) (Sage Journal, 2015).

<sup>300</sup> The survey does not specify whether respondents left the VIDEO GAMEI industry altogether or just changed company.

<sup>301</sup> For instance, see Anna Ozimek, [The 'grey area' of employment relations in the Polish videogame industry](#) (International Journal of Cultural Studies, 2019).

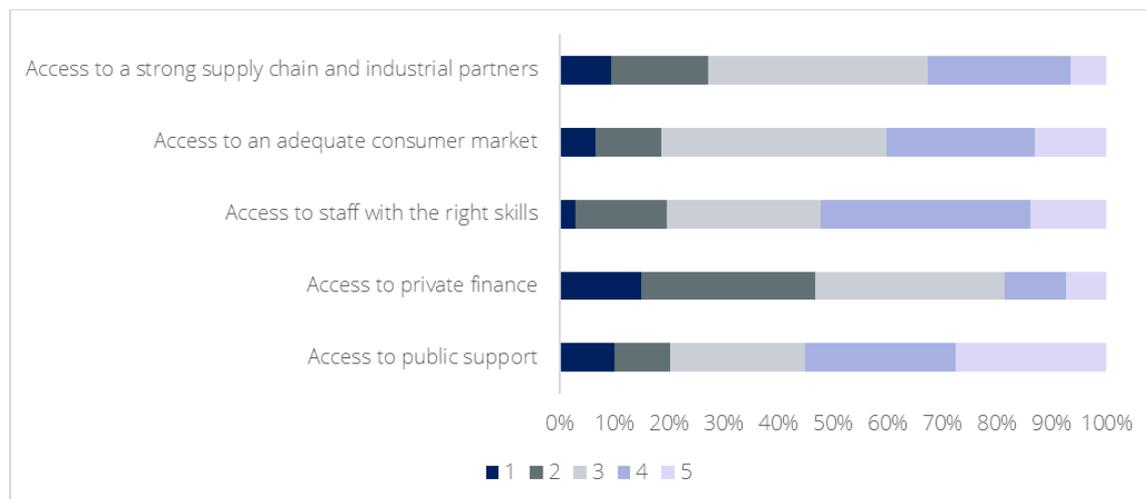
<sup>302</sup> Sébastien Lachaussée, Elisa Martin-Winkel, [Video games and French labour law](#) (L'Actualité, 2014).

<sup>303</sup> Niebord, D. B., de Kloet, J., [A patchwork of potential: A survey of the European game industry](#), in Fung, a. (ed), *Global game industries and cultural policy* (Palgrave, 2016)

<sup>304</sup> As emerged from discussions with stakeholders and interviews.

<sup>305</sup> See for instance Piotr Pacynko, [Law of the video games: An interview with the creator](#) (BDGD, 2019). This general consideration also emerged from our workshop and the interviews conducted.

Figure 32: To what extent is being based in the EU an advantage or disadvantage for your company compared to being located elsewhere in the world (1= large disadvantage and 5= large advantage)?



Source: Ecorys survey (N = 109)

The two key strengths emerging from the survey are that access to public support and access to staff with the right skills can be considered as a key strength, with over 50% of respondents indicating a score of 4 or 5/5. Access to an adequate consumer market and to a strong supply chain are viewed as average – suggesting these are not perceived either as key elements of the EU’s attractiveness or otherwise. On the other hand, the main problem highlighted by our survey is access to private finance – an aspect that emerged in several workshops and interviews as well and that is regarded to be common across the whole tech and ICT sector in the EU.<sup>306</sup>

From the perspective of professionals in the sector, there are several aspects influencing the attractiveness of the EU vis-à-vis other markets. The first one to be considered are the specific ambitions and interests of the employee. While the US may be more attractive for people interested in working in AAA games due to the high number of large and prestigious studios,<sup>307</sup> Asian markets are appealing for those with a “specific interest in new technologies... [such as] blockchain”.<sup>308</sup>

Europe also has its ‘pull’ factors for employees. These include a dynamic community of indie and smaller developers, appealing to those with creative skills who would like to be involved in the creative aspects of the production process. This focus on storytelling and the artistic and creative process is fostered by the European environment, as “culture and the history of Europe make [game developing] more interesting”.<sup>309</sup> However, the strengths and offer of the European market could be further strengthened and promoted at EU level as US is still perceived to be the biggest and most attractive market. This perhaps reflects its historic status of the US as the main market where video game professionals could make a living in the 1990s and early 2000s.<sup>310</sup>

The US is more attractive for workers in terms of the salary levels offered. For instance, entry level salaries in the US amount to around EUR 55,000 (USD 60,000), whereas in Germany (one of the strongest markets

<sup>306</sup> Quas, A. et al, [The scale-up finance gap in the EU: Causes, consequences, and policy solutions](#) (European Management Journal, 2022).

<sup>307</sup> Seven of the fifteen biggest video games companies are based in the US, see Companies Market Cap, [Largest video game companies by market cap](#) (CMC, 2023).

<sup>308</sup> As emerged during an interview with our Advisory Board members.

<sup>309</sup> Quote from one of our interviewees.

<sup>310</sup> As mentioned by one of our interviewees.

in the EU) salaries could range between EUR 24,000 and EUR 36,000.<sup>311</sup> However, it must be taken into account that North American salaries are on average higher than European ones, across sectors, due to the reduced welfare state – accounting aspects such as healthcare and services greatly reduces the EU-US divide in this sense. Moreover, Europe can count on a stronger workers' protection tradition than the US. Higher levels of workforce protection in the EU are demonstrated by legislation such as the EU Working Time Directive<sup>312</sup>, setting up a maximum weekly working time of 48 hours and minimum conditions in terms of annual leave, breaks, and night shifts. This aspect has been highlighted, as well, in various qualitative responses to our survey.

#### 4.1.4.2 EU video games sector in comparison to other ICT and cultural sectors

When comparing the video game sector with close industries sharing similar sets of skills, the video gaming sector is considered attractive and aspirational by many as there is a public perception/ narrative that the sector combines technical/ICT with creative skills.<sup>313</sup>

Comparisons in terms of salaries and working conditions are made particularly complex by the lack of reliable data. Anecdotal evidence suggests that technical positions such as programmers can be better remunerated outside of the game industry – especially when it comes to more senior and C-level positions.<sup>314</sup> On the other hand, the video games sector generally pays better than other cultural and creative sectors such as theatre and cinema<sup>315</sup> and employees with sufficient technical skills in those sectors (such as VFX experts) may find the video games industry more attractive.

#### 4.1.5 Diversity within the sector

This section sets out our key findings, rooted in desk research, interviews and our survey, in relation to diversity in the EU video games sector.

##### 4.1.5.1 Diversity in terms of gender representation

The European video gaming sector is made up predominantly of male employees, with them accounting for around 80% of the workforce in Europe according to research.<sup>316</sup> This figure is at the highest end of the spectrum in comparison to the whole audio-visual sector (including TV, film, IT and video games) in which, according to the EU OMC report published in 2021, women make up around 20-30% of the workforce. This is also higher compared to the proportion of men working in the European ICT sector

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<sup>311</sup> Comparing salaries implies many difficulties in terms of the job position considered, the benefits included, and the EU Member State considered. For this comparison, sources used were ZipRecruiter ([here](#)) for the US and University of Europe ([here](#)) for the EU/Germany.

<sup>312</sup> European Union, [Working Time Directive 2003/88/EC](#).

<sup>313</sup> Maarten Keune, Anne E. Green, Wike Been, Chris Warhurst, [Innovation and job quality in the games industry in Germany, the Netherlands, Sweden and the UK](#) (in Karen Jaehrling, Virtuous circles between innovations, job quality and employment in Europe? Case study evidence from the manufacturing sector, private and public service sector, 2018)

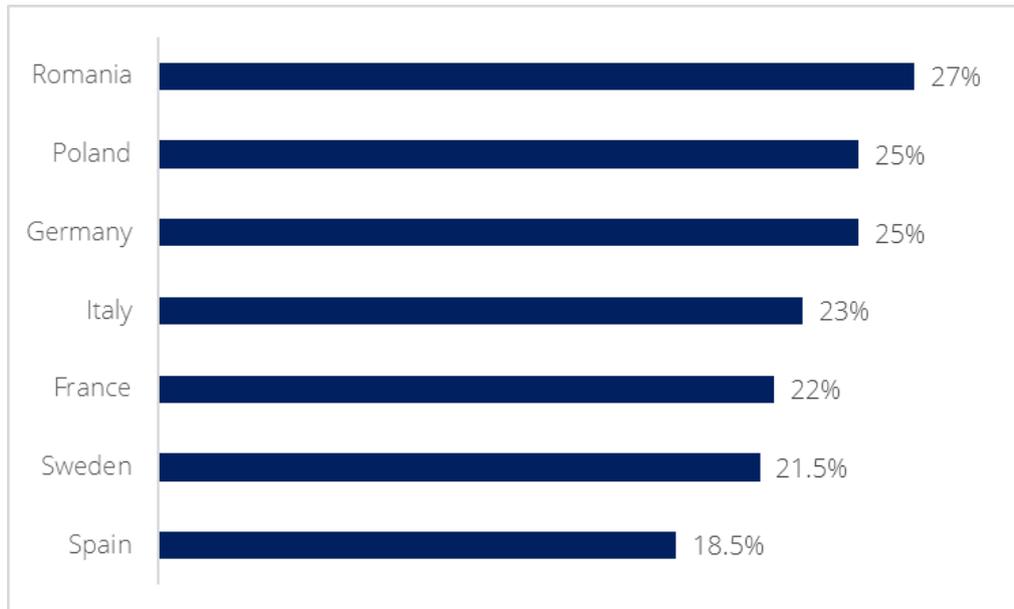
<sup>314</sup> As emerged during interviews and consultations with advisory board, and in desk research – for instance, see Wallace, F. Why aren't there more women in the gaming industry? (Headstuff, 2019).

<sup>315</sup> As emerged during one of our interviews (Mata). The situation vastly varies depending on the Member State and on the professional role of each employee.

<sup>316</sup> Irwin, K., [Data shows the gaming industry still has a pressing diversity problem](#) (Input, 2022); and ISFE. Driving diversity and inclusion is the socially responsible thing to do – the right thing to do. (2022). URL: <https://www.isfe.eu/games-in-society/diversity-commitment/#:~:text=Women%20currently%20represent%20only%2030,video%20game%20sector%20are%20female> (last accessed 27 June 2022).

(77.6% in 2018),<sup>317</sup> another typically male-dominated workforce. Figure 33 compiles various national sources on the proportion of female employees in the sector. As these are from different sources, comparability is limited. The national level data corresponds with Statista data which highlights that only 30% of game developers are women.<sup>318</sup> The consultations undertaken as part of the study indicate that whilst the sector is becoming more diverse over time, there is a need to boost female representation within the video game workforce.

Figure 33: Percentage of female employees in the video games sector in a sample of EU countries



Source: Compilation of national sources; *The Game Industry of Poland Report, 2021*; *Die Games-Branche in Deutschland 2018/19/20, 2020*; *DEV, El Libro Blanco, 2020*; *Morning Express, 2022*; *Annual survey of video games in France, 2021*; *Romanian Games Industry Report, 2021*; *Game developer index (Sweden), 2021* and have been compiled by Ecorys.<sup>319</sup>

For example, as is the case in many industries, female employees in the video gaming industry tend to be paid less than their male counterparts.<sup>320</sup> There is a role then for industry to ensure that the sector progresses equal opportunities and remuneration for women. Some industry trade bodies have taken measures to increase gender representation within the workforce, such as the French Syndicate of Leisure Software Publishers (SELL) creating **Women in Games France** and the Spanish Association of Video Games (AEVI) launching **#PlayEqual**<sup>321</sup> in a country where women make up around 18% of the total workforce.<sup>322</sup>

<sup>317</sup> European Commission. She Figures 2021. (2021). URL: [https://ec.europa.eu/info/publications/she-figures-2021\\_en#:~:text=The%20She%20Figures%202021%20publication%20uses%20the%20latest,comparable%20data%20and%20analysis%20for%20approximately%2088%20indicators](https://ec.europa.eu/info/publications/she-figures-2021_en#:~:text=The%20She%20Figures%202021%20publication%20uses%20the%20latest,comparable%20data%20and%20analysis%20for%20approximately%2088%20indicators) (last accessed 27 June 2022), p. 31.

<sup>318</sup> <https://www.statista.com/statistics/453634/game-developer-gender-distribution-worldwide/#:~:text=A%20game%20developer%20survey%20in,as%20either%20men%20or%20women>.

<sup>319</sup> These were the latest available figures found at the time of writing this report and may have changed. The data collection methods and sample sizes may also have been different for each national source which may make the comparisons between them less accurate.

<sup>320</sup> Hamburg Media School. *Die Games-Branche in Deutschland 2018/19/20*. (2020). URL: [https://www.game.de/wp-content/uploads/2020/12/Games-Studie\\_2018-20\\_HMS\\_2021-01-26\\_V3.pdf](https://www.game.de/wp-content/uploads/2020/12/Games-Studie_2018-20_HMS_2021-01-26_V3.pdf) (last accessed 27 June 2022), p. 37.

<sup>321</sup> Presswire (2022). URL: <https://presswire.com/content/5653/playequal-initiative-video-game-sector-spain-promotes-diversity-equality-and> (last accessed 27 June 2022).

<sup>322</sup> GWU España. Report about the living and working conditions in the Spanish Videogame sector. (2021). URL: <https://gwuspain.org/InformeCondicionesVidaYTrabajo.pdf> (last accessed 2 August 2022).

#### 4.1.5.2 Diversity in terms of age representation

The video games sector tends to be quite a 'young' sector, with a high proportion of employees aged under 35. This is suggested by country specific data and literature although there is a lack of EU level workforce data available due to restrictions with data collection. In 2020, for example, almost half of all employees in this sector in Spain were under 30,<sup>323</sup> and in Poland 72% of all video games sector employees were 35 years old or younger.<sup>324</sup> Industry, along with policy makers needs to consider how it can be regarded as a more attractive and stable career option for employees to remain in, relative to software development or IT for example.<sup>325</sup>

During our workshops industry stakeholders shared that short-term contracts, which are a feature of the sector especially amongst small companies, may pose a barrier to the continued diversification of the sector workforce. There is a need for employing companies to shift toward longer-term contracting arrangements which provide better security and stability for employees.

The benefit of diversifying the workforce is that the industry will benefit from a widened range of experience. The study interviews highlighted that in order to become a more diverse workforce, the sector needs to better communicate that it is suited as a career option for all demographics. The recommendations in Chapter 6 highlight scope for European and national partners to build the profile and image of an EU sector that is a welcoming and fulfilling career choice for those at different ages and stages of life, and one which brings the equivalent worker protection as other sectors.

#### 4.1.5.3 Diversity from the users' side: accessibility

An important issue is also the accessibility and diversity amongst users. There are some positive changes across the industry in this area – with the industry keen to appeal to, and accommodate the needs of a wide user community. A trend highlighted at Gamescom 2022 is the strategy and move amongst large video games companies (and specifically Xbox Europe and Asia) toward ensuring that a wide audience can access their games through reducing barriers associated with disability and also the affordability of devices.

**Diversi** in Sweden, formed in 2013, and the **resources** compiled by the German Games Sector Association also aim to improve diversity in the video gaming sector, especially with regard to accessibility. Diversity in the sector is not just related to the workforce, but also ensuring that everyone who wants to, is able to play video games. In Europe, 14% of the population faces accessibility problems in everyday life.<sup>326</sup> Diversi has examined ableism and gaming with disabilities as part of their podcast series.<sup>327</sup> GAME uses the example of Microsoft (Germany) making the Xbox more accessible through technology such as subtitles, contrast support, and remapping, as well as ensuring events are accessible for people with disabilities, e.g., including ramps and sign-language support in German and English.<sup>328</sup>

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<sup>323</sup> DEV. Libro blanco del desarrollo español de videojuegos. 2020. URL:

<https://www.dev.org.es/images/stories/docs/libro%20blanco%20del%20desarrollo%20espanol%20de%20videojuegos%202020.pdf> (last accessed 28 June 2022), p. 59.

<sup>324</sup> GRY-Online S.A and Polish Gamers Observatory. Raport Kondycja Polskiej Branży Gier 2020. (2020). URL:

[https://www.kpt.krakow.pl/wp-content/uploads/2021/02/raport\\_2021\\_long\\_final\\_web.pdf](https://www.kpt.krakow.pl/wp-content/uploads/2021/02/raport_2021_long_final_web.pdf) (last accessed 28 June 2022), p. 123.

<sup>325</sup> Versaveau, T. How video games are made. (2019). Documentary URL: <https://www.youtube.com/watch?v=E8G7zipy6bM> (last accessed 27 June 2022).

<sup>326</sup> ISFE. Accessibility. (2022). URL: <https://www.isfe.eu/accessibility/> (last accessed 11 August 2022).

<sup>327</sup> Diversi. Episode 6: Ableism and Gaming with Disabilities. (2016). URL: <http://diversi.nu/2016/02/01/episode-6-ableism-and-gaming-with-disabilities/> (last accessed 2 August 2022).

<sup>328</sup> GAME. Diversity Guide. (2019). URL: <https://www.game.de/en/guides/diversity-guide/05-examples-of-best-practices-in-companies/5-4-microsoft-accessibility-in-games/> (last accessed 2 August 2022).

In addition, a recent call from the Federal Ministry of Transport in Germany (BMVI) for video game funding applications, has as a requirement that applicants show how the game they want to receive funding for will enable as many gamers to play as possible, highlighting in particular techniques such as adjustable keyboard layout, optional subtitles, reduced level of difficulty.<sup>329</sup> The French organisation CapGames, founded 2013, also works on accessibility in video games through research, evaluation of video game suitability for disabled persons, and consulting professionals, from companies such as Ubisoft and Capital Games, on these matters too.<sup>330</sup> They also present solutions for people struggling with accessibility issues through tutorials, e.g., on how to use voice control to play games.<sup>331</sup>

#### 4.1.6 Legal considerations and industrial relations

This sub-section examines legal considerations in relation to working conditions and the status of professionals working in the video game sector, as well as the role of industrial relations (i.e., how relevant social partners are able to shape working relationships). The evidence with regards to these topics is to be found in desk research, in findings from our workshops, in interviews to relevant stakeholders and to targeted questions in our online survey.

##### 4.1.6.1 Legal considerations

One main issue often associated<sup>332</sup> with the quick growth of the industry (both in a technological and economic/commercial sense) is that legal developments dealing with workers' protection, rights and status have not always kept up the same pace. Here we present some of the main issues, backed by evidence coming from desk research and targeted interviews:<sup>333</sup>

- ▶ *Status of video game workers.* No regulation at EU level harmonising the legal status of workers in the sector exist as the moment, due to the fact that as in other cultural and creative sectors, the matter is mostly a national competence. The EU can intervene only in limited cases related to competition and management of the Single Market.<sup>334</sup> Currently, ongoing discussions at EU level aim to ensure the national competition rules do not hinder possibilities related to collective agreements.<sup>335</sup> Such a lack of harmonisation results in a lack of representation of the sector in many member states, often lacking specific collective agreements. The implications in terms of industrial relations and the role of social partners are described below. Currently, the French *Syndicat des Travailleurs et Travailleuses du Jeu Vidéo* (STJV) is pursuing legal action on this topic, to ensure video game workers are properly categorised and their rights (in terms, for instance, of salary and benefits) are preserved.
- ▶ *Crediting issues.* There have been reported cases of companies not recognising game authorship amongst workers that left the company before the conclusion of a contract or the game itself,<sup>336</sup>

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<sup>329</sup> BMVI. Zweiter Aufruf zur Einreichung von Anträgen gemäß der Förderrichtlinie „Computerspieleförderung des Bundes“ (2021). URL: [https://www.bmvi.de/SharedDocs/DE/Anlage/DG/games/computerspielefoerderung-zweiter-aufruf.pdf?\\_blob=publicationFile](https://www.bmvi.de/SharedDocs/DE/Anlage/DG/games/computerspielefoerderung-zweiter-aufruf.pdf?_blob=publicationFile) (last accessed 11 August 2022). p.4

<sup>330</sup> CapGames. CapGames website. (2022). URL: <https://www.capgame.fr/> (last accessed 11 August 2022).

<sup>331</sup> CapGames. Jouer avec la voix? C'est possible avec VoiceAttack ! - HS#1. (2022). URL: <https://www.youtube.com/watch?v=GvikRNW-4JU> (last accessed 11 August 2022).

<sup>332</sup> Reinforced by workshop findings.

<sup>333</sup> This list is loosely based on the report UNI Global Union, *The video game industry – A resource for organizers* (UNI, 2022).

<sup>334</sup> As emerged during interviews.

<sup>335</sup> For instance, see Van Bale & Bellis, *VBB on Competition Law* (VBB, 2021).

<sup>336</sup> For instance, see Tom Philips, *100 staff cut from LA Noire credits – Former workers list missing names* (Eurogamer, 2011).

or to fail to credit all the staff involved in the development of a game.<sup>337</sup> Currently, no international or national regulations in this field exist.<sup>338</sup> The complexity of distinguishing the different types of original works created for a game, and therefore the applicable IP protection and regulatory framework (see Chapter 3) further complicates the matter.

- ▶ *Unrestricted use of non-compete agreements.* These employer/ employee agreements are not regulated at EU level, and Member States' regulations widely differ;<sup>339</sup> and are starting to be considered anti-competitive by many European players.<sup>340</sup>

#### 4.1.6.2 Industrial relations

The role of social partners in shaping industrial relations appears to be quite limited<sup>341</sup> – which is reflected in the scarcity of literature on the topic. The video games sector has started unionising only very recently, both in the EU and elsewhere in the world, with the frontrunners in Europe being the previously mentioned STJV in France and the UK branch of the Game Workers Unite (GWU) trade union, nowadays called IWGB Game Workers. IWGB has several chapters in Europe (Ireland, Spain, Germany, Italy, Sweden, Poland, and Ukraine), which are starting to spread awareness of video game sector workers' rights issues.

In the EU, France is the most advanced country in terms of trade unions specifically dedicated to video games sector employees with at least three different unions.<sup>342</sup> Most of the literature focuses on unionisation attempts regarding large AAA studios.<sup>343</sup> However, unionisation in smaller and indie studios<sup>344</sup> would be largely different and is mostly unexplored at the moment.<sup>345</sup> The general lack of awareness of many employees in the sector about the possibility of joining trade unions is reflected in our survey's responses. 70% of the respondents indicated either their lack of knowledge regarding existing trade unions, or the fact they know these unions do not exist at the moment.

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<sup>337</sup> Robinson, A., [Game credits are still a broken mess](#) (VIDEO GAMEEC, 2021).

<sup>338</sup> UNI Global Union, [The video game industry – A resource for organizers](#) (UNI, 2022).

<sup>339</sup> An overview covering Italy, Germany, France, Poland, the Netherlands and the UK can be found in Norton Rose Fulbright, [A comparison of laws in selected EU jurisdiction relating to post-contractual, non-competition agreements between employers and employees](#) (Norton Rose Fulbright, 2017).

<sup>340</sup> For instance, see Aisleen Pugh, Alan Davis, [European scrutiny of non-compete and no-poach clauses grows](#) (Pinsent Masons, 2021).

<sup>341</sup> Maarten Keune, Anne E. Green, Wike Been, Chris Warhurst, [Innovation and job quality in the games industry in Germany, the Netherlands, Sweden and the UK](#) (in Karen Jaehrling, *Virtuous circles between innovations, job quality and employment in Europe? Case study evidence from the manufacturing sector, private and public service sector*, 2018)

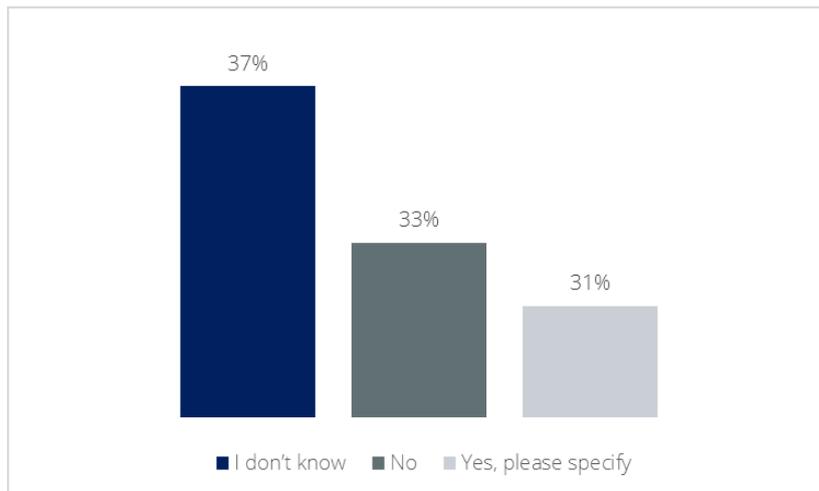
<sup>342</sup> The already mentioned STJV, the *Syndicat National des Jeux Vidéo* (SNJV) and *Solidaire Informatique Jeu Vidéo* (SIJV).

<sup>343</sup> With Raven Software, a subsidiary of Activision Studio, being the first AAA studio to recognise unionisation. See Amid Amidi, [A historic first for gaming industry: Workers at Activision Studio vote to unionise](#) (Cartoon Brew, 2022).

<sup>344</sup> With the frontrunners being the indie studio Vodeo Games. See Shannon Liao, [The video game industry is closer to unionisation than ever before](#) (The Washington Post, 2021).

<sup>345</sup> Jamie Woodcock, [Game workers unite – Unionisation among independent developers](#) (Independent Videogames, 2020).

Figure 34: To your knowledge, are there trade unions that employees can join?



Source: Ecorys survey (N = 134)

Since trade unions and social actors specifically dedicated to the video games sector have started emerging only recently, workers need to sign collective agreements designed for other sectors, and not tailored to the rights that apply to them. Therefore, for instance, French video game developers used to be included under an IT workers convention called SYNTEC,<sup>346</sup> Italian video games companies used to refer to metalworking or retail agreements,<sup>347</sup> and it is common in many countries such as Denmark for different professionals in the sector to join adjacent unions such as the engineer or film worker ones.<sup>348</sup>

Several reasons underpin the low unionisation culture in the sector. In general, the demand from the employees' side tends to be low, which can lead to cases of regulation without representation. This is caused by a general reluctance towards collective action due to: i) the importance of personal reputation in the market; ii) the fact that working in the video games sector is perceived as fulfilling one's dream, which is inherently more important than working conditions; iii) the entrepreneurial mentality among creative workers, who perceive that good working conditions are a right to be earned or achieved as they progress (rather than being entitled to them early in their careers).<sup>349</sup>

However, social partners are becoming more prevalent in the sector, and representative organisations are shedding light on issues where the industry can improve and develop. Our survey results indicated that the industry could develop in this area: only 35% of the respondents know that their company has employee representatives, against the 53% that indicated "No" and the 11% that is unaware.

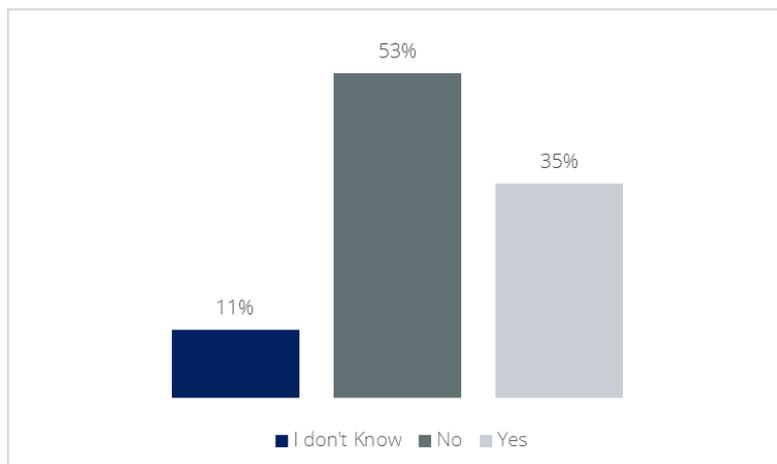
<sup>346</sup> STYNTEC [website](#).

<sup>347</sup> Lisa Dorigatti, Andrea Bellini, Cecilia Manzo, [Interest representation in graphic design and video game development in Italy: Demand, supply and influence on working conditions](#) (in Valeria Pulignano, Frank Hendrickx, *Employment Relations in the 21st Century: Challenges for Theory and Research in a Changing World of Work*, 2019).

<sup>348</sup> Qualitative response to the survey.

<sup>349</sup> Formulation from Dorigatti, Bellini, Manzo, op cit. These findings have been confirmed by our interviews and our workshop.

Figure 35: Are there employee representatives in the company?



Source: Ecorys survey (N = 116)

## 4.2 Skills

The video games sector is made of a variety of professional profiles, all of which have different skills and needs.

This section starts by outlining the typical skills sets within the sector. It then reviews the current gaps in skills among the EU video games workforce, key challenges in recruitment and future skills needs for the sector.

### 4.2.1 Overview of typical skills found in the video games sector

To explore the typical skills needs in the sector (building on section 4.1.2 concerning the professions and occupational profiles within the sector) we consider the key skills employers need for a range of roles. The sub-section draws on grey literature, which has been triangulated with insights from the industry workshops and interviews with video games companies.

A typical production process for a new video game normally requires a wide range of skills to competitively perform when designing, producing and distributing the new product. A typical Triple AAA video game requires around 350 staff and around 100 separate skills<sup>350</sup>, many of which are highly specialised and sought after. The sector also needs access to professionals that work outside of a studio setting, such as publishers or professionals involved in the education of the new workforce. The specific skills needed for the most common roles in the sector, as described by interviews with industry stakeholders, by organisations working to promote careers in the film, TV and games sectors<sup>351</sup>, and by the ESF-funded project Chips For Game Skills.<sup>352</sup>

**Art and animation** professionals ideate and produce artwork, both 2D and 3D for the characters, vehicles and environments in each video games. This group of professions includes roles such as animators, 3D modelling artists, concept artists, character artists, environment artists and texturing

<sup>350</sup> Source: focus group. Although not a formal classification, a triple AAA game generally refer to games that has a large budget for both production and marketing.

<sup>351</sup> <https://www.screenskills.com/job-profiles/browse/games>

<sup>352</sup> Osaamisen pelimerkit, Chips for game skills (OP, 2020).

artists. Typically, artists are skilled at drawing by hand, understand composition, light, texture and form. They are able to stylise outputs to reflect the genres and style of the product but also can create a character or location based on a written brief. These professionals usually need to know how to use 3D animation software (Maya, Motion Builder, 3Ds Max), image editing software (Adobe Photoshop), and (depending on the role) 3D painting software. In many cases, they will also need to understand game engines (Unity, Unreal, and as appropriate property engines), programming languages (most commonly C++) as well as have a good understanding of the industry and its markets. They are also required to be experienced communicators and collaborate effectively with colleagues in the team, both in the arts department and beyond.

The sector also draws on **technical arts skills**. Professionals in this group act as a bridge between artists and programmers. Typical roles in this group are graphics programmers, technical artists and visual effects artists. Skills needed for these roles vary, but often include an in-depth knowledge of technical aspects such programming, the mathematical aspects of graphics (e.g., to understand how elements like light and water behave in various conditions) and knowledge of engine and platforms.

Similar to artists, professionals active in the **audio** aspects of video games also need to blend different types of knowledge and skills. Audio engineers, composers, sound designers, and audio developers need to compose, record, edit, mix and code the music and sounds effects in a game. As with technical artists, skills in maths and physics are useful. In addition, they also might need to know how game engines work, to understand limitations and possibilities of the medium.

**Game programmers** include e.g., generalist developers, tools programmer, back-end developers, engine programmers, artificial intelligence programmers, QA engineers, and network programmers. Programming skills are important but programmers need also to understand game engines and be able to imagine and develop game mechanics. In some cases, programmers also need to know about network protocols and client/server engineering (particularly useful if developing multiplayer games) or how to programme in machine learning (in order to build the non-playable characters in a game, if present). Backgrounds in mathematics, physics and statistics are highly sought after as help teams to tailor code based on the specific needs of the product being developed. Programmers also need to be able to effectively communicate with artists, to be able to build their vision into the video games, as well as adhere to deadlines and workplans.

**Designers** are responsible for creating the story, characters, and ways that video games are played. This group of professionals include gameplay designers, level designers, user experience designers, and writers. These roles require a mix of technical skills, such as knowing game engines, usability and UX concepts, monetisation and psychological dynamics but also soft skills, such as collaboration and project management.

Studios also need a number of professionals to produce, coordinate, publish and market products. Professionals in **production departments** usually need skills in project management, marketing, communication, sales and budgeting. They also benefit from knowledge in rights and licensing. In-depth knowledge of the games sector is important in order to understand consumer demand and future trends.

The video games sector also includes professionals not necessarily directly employed by the studios. These include **games publishers, distributors and marketers**. These roles require similar skills to the production roles, and include project management, communication, knowledge of copyright and licensing, and in-depth knowledge of the sector. Other roles include for example **educators** employed by public or private education institutions. Educators need to be able to teach concepts and key aspects of video games design and production, while maintaining their knowledge of technical skills.

## 4.2.2 Skills shortages within the sector

This sub-section highlights the key skills shortages in the sector as reported in literature and highlighted by the industry during the workshops and interviews with video games companies as well as data gathered through the online survey.

The evidence gathered during the fieldwork phase of this project identifies that the video games industry is experiencing challenges in accessing sufficient and high-quality talent.<sup>353</sup> Stakeholders report that there is an “unfulfilled demand” for workers in the sector, with a large proportion of production studios outlining that they are struggling to fill open positions. In our survey, 40% of respondents said that their company is not able to recruit the skills and talent that it needs. Interviewees reported that many people hire “under-skilled people because of lack of better options”. Evidence gathered in consultations reinforces these findings. For example, ISFE reported that 76% of EU video game companies experience difficulties in finding skilled technical staff.<sup>354</sup> This figure is twice as high as other EU businesses found outside of the sector who also recruit ICT related specialists, suggesting the shortages of technical skills in the video gaming sector is particularly acute.

Sector skill shortages are prevalent across Member States. Looking into some individual Member States, in 2019 six out of ten Czech video games companies reported they were having problems finding skilled technical staff,<sup>355</sup> and 21% of French video game companies faced similar difficulties in recruiting in 2021.<sup>356</sup> In Denmark, the capacity of highly qualified people that could be hired for the Games industry is “close to fully utilised”, constituting “a real production barrier for the companies and is slow growth”.<sup>357</sup> Results from the Polish “Gamedev 2017” study show that, while nearly 93% of the companies indicated that skillset is the key determining factor in choosing a new team member, only 10% were satisfied with graduates’ preparedness.

### Technical Skills

Turning to consider the nature of skills gaps, there is evidence that there is a shortfall of technical skills (reviewed here), but also soft skills such as communication (reviewed below). When looking at **hard or technical skills**, consultees often cited issues in securing employees with appropriate **programming skills**. In our survey, 68% of respondents said that programming skills are among the top three skills most needed by the game industry, and 69% of respondents reported that this is the hardest area of expertise to recruit for. During interviews, consultees reported that many education institutions, and especially courses that focus on video games development, do not provide sufficient coverage of technical skills. For example, there is often exposed to a limited number of tools, such as the game engine Unity. In fact, game engines such as Unity are also the most preferred among self-learners, thanks to their popularity, because they are relatively easy and intuitive to learn, as well as for the large amount of support and material available online and produced by communities. Unity, in particular, is chosen for its “plug and play” system, which is easy to learn and teach. However, these specific software products do not always fulfil the needs of studios, which need specialist engineers able to proficiently develop in

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<sup>353</sup> This seems to remain the case even when considering the most recent wave of redundancies that have been reported among the tech sector, of which video games is an important part. Experts engaged throughout the process reported that the recent wave of layoffs experienced by some companies in January 2022, reflect the normal expansion and contraction of the consumer and labour market, and that they are not causing concerns for the video games market when seen as a whole.

<sup>354</sup> <https://www.isfe.eu/news/eu-needs-to-bridge-skill-gap-video-games-companies-struggle-to-recruit-talent-from-within-the-eu/>

<sup>355</sup> [https://gda.cz/wp-content/uploads/2020/07/GDACZ\\_Study\\_2020.pdf](https://gda.cz/wp-content/uploads/2020/07/GDACZ_Study_2020.pdf)

<sup>356</sup> [http://snjv.org/wp-content/uploads/2021/10/Barometre\\_2021\\_V3\\_traduction\\_\\_V2.pdf](http://snjv.org/wp-content/uploads/2021/10/Barometre_2021_V3_traduction__V2.pdf)

<sup>357</sup> HBS Economics, *Arbejdskraftanalyse af den Digitale Visuelle Industri* (Producentforeningen og Vision Denmark, 2021)

C++, adapt code and internal tools, or develop very specific aspects of products sometimes even with companies' proprietary engines. Industry representatives interviewed reported that not many education institutions provide the strong coding foundations that are needed to work and develop with proprietary engines, whose skills are mostly developed at STEM higher educational courses such as mathematics and physics.

Consultees reported that creative team staff (including visual artists and sound designers) need to start developing technical skills linked to **artificial intelligence**. Interviews indicated that whilst AI has been used in the video games sector for decades among developers and testers, artists will very soon need to adapt their skills and learn how this can be embedded into their practice. The fast development of AI means that studios will want to adopt practices into their arts department, to streamline processes and save costs, potentially making it harder for artists to enter the sector. Artists as well as relevant education institutions should start embedding AI more broadly and see AI as a tool for artistic production.

Finally, workshop participants from across the industry reported that junior employees often lack **sector knowledge**. This includes a knowledge of the supply chain but also the landscape of video games and studios that make up the sector. Being able to know about landmark productions of the past, the structure, key components, characters, solutions developed for each of those games, as well as the aesthetics and visual imaginary, is necessary to for innovation in today's market.

### Soft skills – Communication and Teamwork

Interviews and workshops identified shortages around **soft skills**. Employers reported how important, and challenging is to hire staff members that are skilled communicators and team players. They often mentioned that they look for individuals capable of communicating and collaborating effectively. Given the nature of video game production, employees also need to know how to effectively work across teams and with people with different expertise (e.g., artists and developers, or artists and marketers), how to share responsibility and how to delegate work.<sup>358</sup> Employers also want to recruit staff who are able to work to deliver to deadlines, and that have attention to detail when preparing documentation for team members.

### Future Skills Needs

The survey undertaken as part of this research asked stakeholders about the skills that they felt will be most needed by the games industry in the future. The most frequently cited needs were technical, digital and programming skills, with the highest proportion (57%) outlining a future need for games programming skills (gameplay UI/UX developers, tools programmer, back-end developers, QA). Nearly one-third (31%) highlighted a need for digital skills related to new technologies (for example artificial intelligence, coding, data analytics). A lesser, but still notable, proportion identified that the sector will need business skills such as marketing, sales and branding (29%), and creative skills such as in 3D modelling, animation, character artists, environment artists and sound designers (27%). Design skills, for example those of narrative designers, system designers, gameplay designers were cited as needed into the future by 22%. Teamwork skills and entrepreneurial skills (HR, management financial skills) were each

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<sup>358</sup> The importance of soft skills in the video games sector was also highlighted by the 'Best Practice in Games Education' (February 2022) conference organised by the UK trade association representing the video games industry (TIGA). Speakers from games studios including Creative Assembly, Payload and Rebellion reported that gaps they experience are "not simply technical in nature, but rather 'softer' skills, including communication skills and team working [and] that successful students needed to develop a sense of resilience, an ability to work as a team and a capacity to give and receive feedback." <https://tiga.org/news/tiga-best-practice-in-games-education-conference-theres-a-skills-gap-in-the-uk-video-game-industry-but-not-just-where-you-may-think>

cited by one fifth of respondents. Regulatory and ethical skills on the other hand were identified as needed into the future by 9%.

Findings from this research show that companies are struggling to find adequate technical skills in certain areas of production (e.g., especially video games development), but that soft skills are also important and sought after across roles. As the sector is varied and ever-changing, industry stakeholders outlined that they find it challenging to forecast what kind of skills will be needed in the future. Education providers and policy makers need to therefore ensure that games education continually evolves based on the needs of, and connections with industry.

### 4.2.3 Recruitment challenges

This section considers recruitment to the video games industry. We review the key challenges in terms of recruiting skills and staff, how video game companies are responding, and possible recruitment issues and solutions into the future.

#### 4.2.3.1 Recruitment and retention challenges

The research undertaken across the course of this study highlights that video games companies are experiencing challenges with the recruitment of staff. A management representative for Ubisoft Entertainment, a French video game publisher, appealed to European policymakers at Gamescom 2022<sup>359</sup> for support in promoting better access to skilled labour. Video game company representatives engaged as part of the workshops and interviews reported that they are struggling to recruit the skilled labour they need across a range of roles and outlined that this is a constraint to the growth and competitiveness of the EU video games sector.

Stakeholders interviewed and taking part in workshops also highlighted that recruitment practices have become increasingly expensive as video companies are needing to invest in a number of different channels (for example, placing adverts across a range of online and social media, using agencies, or partnering with educational institutions), in order to find the recruits that they need to fill their vacancies. This has implications for the length of time it takes to fill vacant positions. Across the workshops, stakeholders reported that it is not uncommon, in the current climate, for vacancies across a range of developer roles to stay unfilled for six months or more.

Challenges with recruitment are a result of skills shortages in the labour market across a range of roles. The reasons for the skills shortages relate to a complex mix of factors mainly relating to the quality, scope and scale of education provision to develop skills amongst those due to enter the workforce, but also the degree to which the sector is seen as a viable career choice. The challenge of recruiting to fill vacant positions is exacerbated by a 'drain' effect, where skills within the video game industry workforce are lost when employees leave the sector.

Competition for skills and labour from other parts of the ICT sector was highlighted as a key threat to video game sector recruitment by experts and stakeholders, as the overall tech sector continues to grow (by about 4% per annum as suggested by some sources) and requires similar skills and competencies to those demanded by the video games industry. Workshop attendees also highlighted competition for labour from other parts of the creative sector, across roles linked to animation, visual arts and sound engineering – particularly film and TV. The latter has experienced a boom and subsequent recruitment

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<sup>359</sup> Ubisoft president speech to VIP tour attendees as part of Gamescom

drive across the COVID-19 pandemic, and competition for skills from these sub-sectors may reduce into the future.

Those recruiting to the video game sector in Europe face the challenge that some workers within the labour market are leaving for roles in other parts of the globe. This is more of a challenge for some Member States (central and Eastern European Member States) than others (Sweden, Poland, Spain).

The length of time that it takes to fill positions inhibits productivity and the ability of video companies to fulfil their commitments and contractual obligations, but also their ability to innovate. Industry stakeholders across the workshops and interviews highlighted the importance of product development and innovation for the future competitiveness of the sector, and that recruitment challenges are hampering video game companies' ability to compete effectively.

Where positions can't be filled easily, the cost and resource needed for recruitment increases. Since the majority of video game companies are small in size, they can often lack the HR resources that they need to find the right candidates. With most EU video games companies employing less than 10 people, roles tend not to be solely focussed on an HR function and instead dedicated to core areas of the business such as the design and development of games, rather than recruitment. Stakeholders attending workshops (*Workshop 3: Education, research, and skills' needs in the gaming industry*) outlined that recruitment activities were often undertaken by senior members of staff such as Directors and CEOs, with limited time to invest alongside their other management tasks.

#### 4.2.3.2 Addressing the recruitment and retention challenges

With skills shortage reported within local labour markets, video games companies report having to look beyond the city or country in which they are based in order to recruit. A recruiter with Betsson Group, which serves the online gaming industry, reports that *"talent isn't always available locally to supply demand. More often than not, this means searching outside, which complicates and lengthens the process in both ends."*<sup>360</sup> Where recruitment needs to search beyond local and national labour markets, then resource also needs to be tailored to consider relocation and often the cultural/ linguistic factors associated with attracting staff from international markets.

The survey conducted as part of this research asked a range of stakeholders which schemes their company had implemented in order to address the skills and labour gaps they were experiencing. It is clear that video games companies are adopting a range of approaches to plugging their staffing needs, with many pursuing a number of different approaches. A majority (83%) reported that they used freelancers to address skills gaps, also 58% used an outsourcing model. The approach of using temporary, and sometimes agency staff to fill skills gaps is not unusual across sectors experiencing supply issues with the labour market. This approach has a number of drawbacks however in that it only offers a short-term solution to the employment challenges across the sector and also means that a proportion of the sector workforce has limited legal and contractual rights. It also means that companies are investing in the development of temporary staff and will not retain these skills across the medium to long term.

A lesser, but still notable proportion of survey respondents reported having partnerships with education stakeholders and internal training programmes (44% and 40% respectively) as a way of addressing their recruitment challenges. Just over one third of respondents outlined that a cooperation with national and

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<sup>360</sup> <https://nederlia.com/technical-recruiting-challenges-in-the-online-gaming-industry/>

local authorities was in place (38%), whilst 28% reported that they had sponsoring training programmes for specific skills needs or specialisations.

The HR Manager for Giants Software, creator of the hugely popular Farming Simulator<sup>367</sup> (with over 2 million copies sold of its 2019 title), also reports challenges in attracting recruits with the right skills. Here she cites that there are not sufficient people within the workforce who are trained in the specific code used to create the Farming Simulator title. Instead of seeing this as a barrier to growth, Giants Software focus on attracting staff who are not experienced in the required coding language, but who can be **trained and developed in-house**.

Their recruitment then focuses on hiring those with other attributes and alignment with Giant Software's vision and ways of working, and who are eager to learn skills through continuous company training. Training up staff in-house with the required skills is an acknowledged solution to the skills gap – with a number of video games companies reporting that they take this approach. There are resource implications, where new staff need to be supported and nurtured to develop the right skills sets. Video game companies report that the benefits are that new staff with a 'fresh outlook' can be trained to suit the specific needs of the company. A common experience on the other hand is that resource is ploughed into training unskilled staff, only for them to move on to another employer (within the sector or sometimes outside of it) once they have acquired these skills. This is more so the case where video game companies use some of the more common code languages (which are in greater demand within the workforce). Working on initiatives to boost staff retention are seen as key to addressing the recruitment challenge, both at a company, as well as a sector level.

Despite this popular approach of 'growing their own', recruiters and video games companies report that attracting the right candidates is however still challenging, in the context of a competitive market. Many have thought carefully about the 'pull' factors for potential candidates with Giants Software focussed on **creating a package which is attractive** to new staff. **Office location** is a factor which is deemed important here, perhaps surprisingly where remote working has become the norm, and which for many sectors has widened the pool of possible recruits.

To attract the recruits with the right competencies and interests, and who often tend to be age 18-30, video games companies are investing in office locations in well-connected cities, and which can also offer recruits a concentration of services and opportunities which are attractive for achieving a good quality work-life balance. The HR Manager for Giants Software outlines how the company has had to think strategically about the location of its offices, since this also can act as a pull factor for attracting new and relocating staff. European video game companies are conscious that they compete with those in other parts of the globe and be attractive in what they are offering recruits in terms of location, package and development opportunities. Whilst virtual working is a feature of the modern workforce, and brings opportunities in terms of recruitment (where employees are working remotely), there are particular dynamics of the video games industry which means that recruiting teams to physical offices is important. In this sector, there is recognition of the positive aspects of office culture, for supporting the creative process and the development of social connections, reflecting that many within the workforce are at a similar age and stage of their lives. Some stakeholders reported that employees have left the sector for an enhanced pay package only to find that they miss the 'buzz' of working alongside colleagues closely as part of a creative process.

The main initiatives aimed at improving retention are mainly reported by stakeholders as being linked to **inclusion and diversity**. The research identifies that there has been a huge shift in this area in the last 2-3 years. Employers across the sector are expressing a keen and pronounced commitment to

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<sup>367</sup> <https://www.giants-software.com/>

demonstrating that they are inclusive and supportive of diversity within the existing workforce, but also want to express this message to those who are not yet part of the workforce and may be put off by traditional stereotypes of gamers and developers.

The interviews and workshops (also those taking part across Gamescom 2022) highlight that a range of initiatives are being implemented with the aim to broaden diversity and inclusion within the sector, partly driven by the need to address the recruitment challenge and to widen the pool of prospective labour. These often focus on initiatives which promote positive role models of those working within the sector with protected characteristics. These tend to focus on race, disability and gender, and some stakeholders report that the image of the industry is beginning to change.

When reflecting on sector recruitment, stakeholders across the course of the research were asked about how attractive they feel that the European video games sector is for employees, compared to other global markets. Two observations were made by the research team on this aspect. Firstly, stakeholders often did not seem to clearly associate or identify themselves with a European market (unless they represented a European body or association). Secondly, many stakeholders were often not able to identify specifically what 'pull' and 'push' factors are at play when it comes to comparing the European market with other international markets, for example the USA and Asia. The desk research highlighted that higher relative levels of remuneration outside of Europe may cause a drain to the European labour force. This was not particularly reinforced by the interviews and workshops (and as cited above was more of an issue for some national markets than others). Here, the research team reflects that there may be merit in explicit communication and marketing around the characteristics and opportunities of the European video games sector to the global marketplace. The research indicates that the 'brand' or identity of the European video games sector is not particularly established within stakeholders' minds, and there may be some positive interventions which better market the European sector and attract staff from a global marketplace.

#### 4.2.3.3 The impact of changing economic circumstances

Staff layoffs and redundancies across the tech and digital sector overall<sup>362[4]</sup> will also have a bearing on the staffing needs of the video game sector into the future, and especially in the context of a global recession. Employers reported that layoffs across the wider tech sector were necessitated by a slowdown in digital spending that had accelerated during the first years of the Covid-19 pandemic, as well as a broader industry concern about a looming recession.

Research will need to explore the changing profile and economic health of the sector over the coming years. Where this is accompanied by greater and more established linkages between the gaming industry and education providers, there is potential for skills supply to better reflect changing demand. The recommendations made as part of this research (below) consider how improved data might inform an assessment of workforce trends over the coming years (including the impact of changing market conditions on the profile, size and composition of the workforce). They also highlight the importance of strengthening a feedback loop of engagement between industry and education providers, in order that insights and information on skill needs can be shared on an ongoing basis and as economic and market circumstances evolve into the future.

Our research has indicated a good degree of confidence amongst stakeholders around the future prospects of the video game sector, with many reflecting that the tech and gaming sector has tended

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<sup>362</sup> <https://www.pcgamer.com/one-year-after-announcing-activision-blizzard-acquisition-microsoft-is-laying-off-10000-employees/>

to feature inevitable cycles of boom, bust and layoffs as an inherent sector characteristic (sometimes reflecting patterns of product development). Sector experts are overwhelmingly of the view that existing recruitment challenges will remain, even where market circumstances and consumer demand act to change the shape of the skills needed from the workforce over time.

## 4.3 Education and Training

This section explores the most common routes into the video games sector and the education provision across Member States. It then analyses the quality of effectiveness of such provision and outlines some key recommendations for its development.

As outlined in the previous section, the EU video games sector currently faces some challenges to effectively hire skilled professionals that can respond to their needs. The availability, quality, and attractiveness of education and training opportunities are of central importance when considering labour market and the development of a flourishing EU video games sector. According to the 2021 EU Commission Digital Economy and Society Index (DESI), only 3.9% of all EU students graduated with an ICT diploma in 2019, which is insufficient to meet the demand from companies, as well as to meet the objective of the EU's Digital Decade to have 20 million ICT specialists within the EU population by 2030.

### 4.3.1 Routes into the sector and education provision

Evidence collected during interviews, workshops and the survey show that in most cases, workers enter the video games sector combining knowledge they acquire through formal education (course or degree) with skills and experience acquired independently.

In our survey, 61% of respondents outlined that non-formal education or self-taught skills are among the most common educational pathways taken by employees in their companies to develop relevant skills for the video games sector. Meanwhile, 56% flagged higher education courses specific for game designing and development, and 49% reported higher education courses (such as computer science and software engineering, art and creative courses, businesses and marketing). Internal training programmes were selected by 18%, vocational education by 12% and re-training schemes by 5%.

Figure 36: What is the most common educational pathway taken by employees in your company to develop relevant skills for the video games sector? (n=114)



Source: Ecorys and KEA, 2023 EGVS survey, n=114. Other = "Translation and localisation programs such as ETIV, or ISTRAD"; "Mentorship".

Interviews and consultations with stakeholders, including education providers and employers in European video games studios, confirm that both formal education and informal (or "self-taught") learning are present in the educational and professional development of a typical video games worker. Consultees highlighted that motivation and the willingness to specialise and grow personal skills and practice often by using self-taught methods are necessary to complement more formal types of education.

In the following sub-sections, we will break down each route by analysing the key characteristics and provision in the EU.

#### 4.3.1.1 Formal education

This section of the report considers formal education routes into this sector, via specialised Higher Education Institutions, specialised courses and VET providers. Data from EGDF identifies that in Europe there are at least 630 EU educational institutions offering games development programmes in HEIs, Vocational Upper Secondary Education and Training Institutions, as well as private providers.<sup>363</sup>

The picture of educational provision for the sector varies across Member States. While countries such as France (130 institutions) and Germany (117 institutions) are reported having a relatively large number of institutions providing courses linked to video games, many countries tend to have a limited access to specialist provisions.

This is reinforced by evidence shared by individual sector associations – such as the Czech Game Developers Association, which reports that education in the field of video games is still developing as there are very limited study programmes focused specifically on this area, meaning that they only generate "a few dozen graduates with the skill set required by the game industry".<sup>364</sup> Industry

<sup>363</sup> EGDF supported by ISFE, 2020 European Video Games Industry Insights report, published September 2022

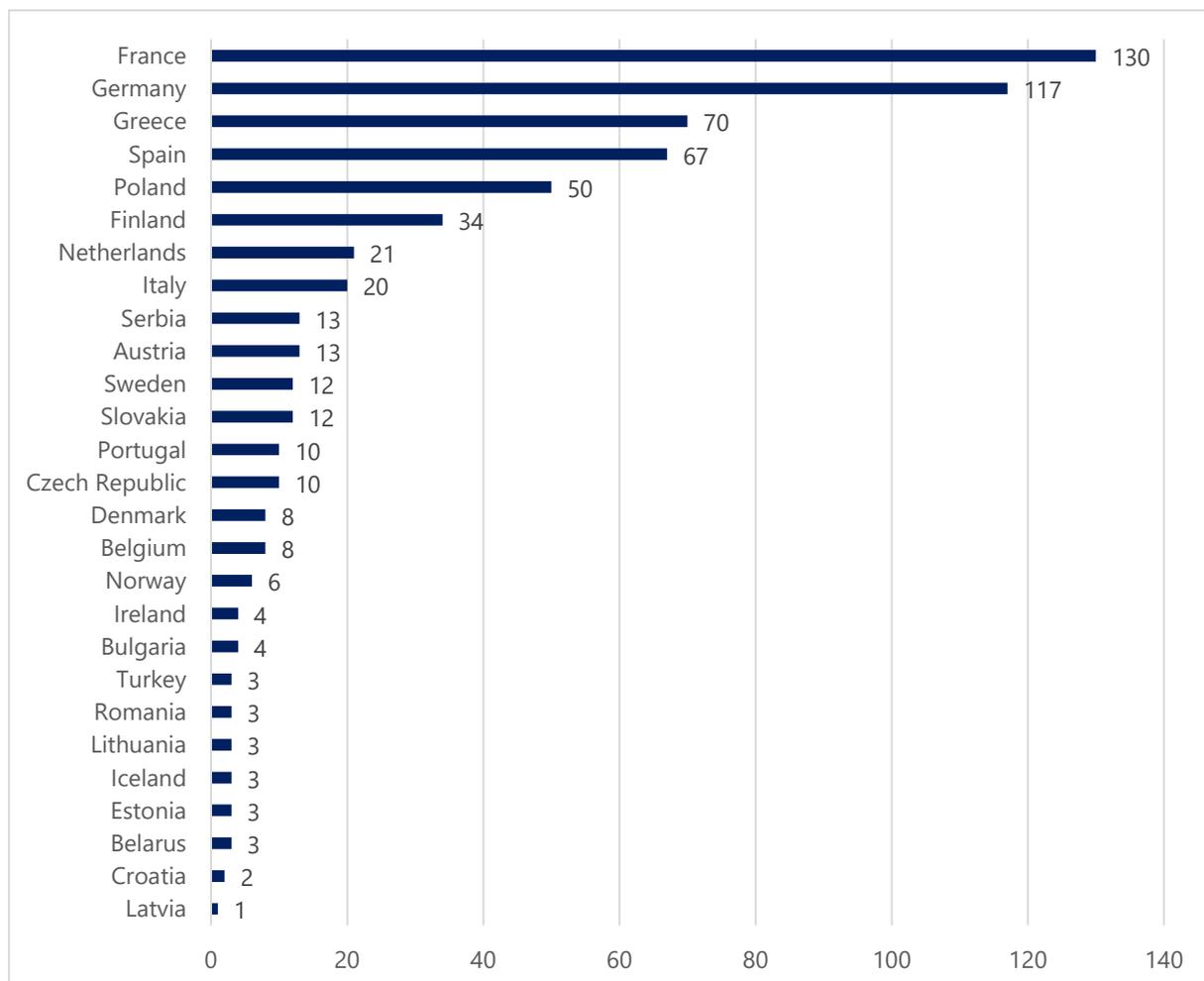
<sup>364</sup> Pavel Barák et al., *Czech Video Game Industry* (GDA, 2020)

interviewees based in Sweden and France reported that the number of institutions is in line with current needs, while interviewees and workshop participants from Poland and Czech Republic reported that provision was too low to support promising development of the sector in their respective countries.

Evidence from workshop consultations with the industry highlights that type of education provided also varies. The fact that private institutions most of the times do not have to follow the structure and organisation required in a publicly funded and recognised public institution means that these institutions can offer hands-on learning, and an opportunity to experiment how video games are created in practice. Practical approaches are especially valued in the sector because allow students to improve their own portfolio by developing a video game which allows graduates to enter the industry with some prior experience in team working and product development.

On the other hand, public institutions, such as bachelor or masters’ programmes focusing specifically on video games, do not tend to provide the practical experience needed within the labour market. As one stakeholder put it, *“students in university courses often are not allowed to spend the prerequisite time to learn their skills at a level that makes them competent enough to be useful”*. In addition, *“you don’t become as good at making the games when you use theories about them”*.

Figure 37: Number of European educational institutions offering game development programmes (2021)



Source: EGDF and ISFE 2022; numbers are based on latest data available as shared by EGDF/ISFE members and includes both public and private institutions. Data from Bulgaria, Greece, and Ireland was collected in 2018 and data from France was collected in 2019.

Besides traditional education providers teaching industry-specific skills, people entering the industry also hold degrees from more generalist courses such as software development, IT, mathematics, physics, arts, business studies, or marketing. Graduates then build their experience adapting their background with additional specific skills or experience – such as internship opportunities, self-taught skills, or in-company training.

In addition, interviewees reported some examples of private studios that have established an educational arm as a side activity (further discussed in 4.3.1.3 below). In addition to representing an alternative source of income, this solution allows studios to have a direct access to employees trained to work specifically with their systems and processes.

Overall, industry consultees engaged during the course of this project, reported concerns with the quality (rather than quantity) of provision, as well as with availability of opportunities to access video games education. It is therefore essential to further develop the relevance and quality of course content offered by public institutions. Such degrees must also be recognised by the relevant national authorities to ensure access for students to work placement having completed their studies, but also to ensure that companies know that the degree is of high standards. This will support local access to talent in the industry, which will in turn lead to job creation and economic growth in the EU.

#### 4.3.1.2 Self-taught skills and informal settings

As described above, industry consultees reported that whilst there are a number of different formal and mainstream education routes into the workforce, in most cases people looking to enter the sector need to combine these formal educational paths with self-taught skills. This includes online training acquired via participation in online communities.<sup>365</sup>

Sector events (such as 'game jams') are often funded by the individual participants with participation fees, and/or with the support of private companies in the form of sponsorship or with-kind support – such as the provision of location or technical equipment. As found during consultation with stakeholders, game jams are often organised by groups or specific communities of game developers and can focus on thematic themes such as diversity and inclusion. They also offer opportunities to create links between the industry with the wider community, as seen in the case of the group Games[4Diversity].<sup>366</sup>

Currently, there are no reliable statistics on how self-led education happens in practice, including the number of hours an average developer spends consulting online libraries and resources on these matters, or the proportion of developers who are actively involved in game jams and marathons. Interviews with the industry, however, highlighted the importance of this learning method for the development of highly specialist skills and knowledge, at any point of an individual's career.

In order to reach a high standard of (games) development skills, it is necessary to continuously develop knowledge and experience on the latest languages and techniques used across the industry. This requires substantive lifelong learning, including self-taught, and a high number of hours spent developing these skills. Interviewees also reported that specialist self-taught skills and a strong portfolio showing these is often what makes a good candidate looking for employment stand out from the crowd – and is often more important than any formal education they had. ISFE also acknowledged the

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<sup>365</sup> This may include education material found on YouTube, libraries, blogs or forums, educational material produced by software companies such as Unity, and participation in game jams

<sup>366</sup> [https://www.youtube.com/watch?v=-YDG0R\\_ahRE](https://www.youtube.com/watch?v=-YDG0R_ahRE)

importance of informal skills development routes, highlighting that “non-formal education has always played a crucial role in industries operating with emerging technologies”, including the Video Game industry.<sup>367</sup>

Building skills and experience this way needs motivation, enthusiasm, and self-discipline. Educators engaged in the qualitative fieldwork reported that this may act as a barrier for people that are not able, for various reasons (such as lack of time, or experience), to pursue self-led education. In addition, it has been reported that this type of learning does not expose learners to opportunities to develop soft skills – which are of central importance when working in a team.

#### **4.3.1.3 In-company training**

There is currently very limited information available on the availability and characteristics of in-company training opportunities. Evidence from interviews with stakeholders suggests that provision of this type of development within companies is scarce, and often dependent on the individual companies’ availability of resources and interest on this area. Although this can happen in larger and more established companies, stakeholders report that smaller and medium-sized companies often lack the expertise and resources to design and activate internal learning opportunities. As most game developer studios are SMEs with limited resources, they rarely have sufficient resources for hiring HR professionals to build internal training plans, models and structures. Professional development in smaller studios therefore happens primarily when employees shadow senior team members or are self-led in their learning.

A significant gap identified by interviewees is the lack of education and skills development opportunities among medium/senior levels. It has been reported that the industry itself has, in some cases, developed opportunities in this sense, but that the current provision is very limited. An example of such provision is GameDevHub<sup>368</sup> in Czech Republic – a subsidiary of the game studio Allodium which was born to educate new and current developers by providing sector knowledge by collaborating with both academics and veteran mentors. In other cases, continuous professional development happens thanks to game developer organisations and often during conferences and industry events, where masterclasses and specialist learning is also offered.

However, it is also reported that for some professions in the games sector, e.g., designers and professionals ideating and building narrative, the best way to develop their practice is discuss it with other people and talk about their ideas. It would be therefore important to provide opportunities for professionals in this area to meet, test and discuss ideas during industry events or networking opportunities.

#### **4.3.1.4 Policy support for education and skills development**

Evidence collected through the study suggests that public policy support for education and skills development is accessed by a minority of the European video games industry. For instance, 75% respondents to the survey run in the context of this study said that they never accessed any EU, national and/or local funding scheme to support education and training opportunities for individuals interested in joining the industry. Those who reported using public funding to support education and training,

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<sup>367</sup> <https://www.isfe.eu/wp-content/uploads/2021/09/EGDF-ISFE-Position-Paper-Digital-Principles-September-2021.pdf>

<sup>368</sup> <https://www.gamedevhub.cz/about>

reported using both schemes provided at EU level (16% of respondents) and at national or local level (16%).

The evidence collected through the survey and consultations highlights that Erasmus+ is among the most used schemes available at EU level, together with the Interreg programme. In fact, while Erasmus funding plays a role in the cross-border development of games education and enabling cross-border exchange programs between game education institutions, Interreg funding is often used to support and develop support measures for student start-ups (e.g., incubators linked with higher education institutions).

At a national level, the funding available to support education for workers in the video games sector varies considerably across Member States, and is often provided as part of national funding for the wider audio-visual or tech sector more widely. For example, industry stakeholders have reported having received funding to develop skills and education among their workers from e.g., the Centre for the Development of Industrial Technology in Spain (CDTI), the Middle German Film Fund (MDM), the Croatian Audiovisual Centre, or the Vlaams Audiovisueel Fonds (VAF in Belgium and Netherlands).

#### **Examples of EU-funded projects supporting education in the VIDEO GAME sector**

Gamehighed (2019-2022) was an Erasmus+ funded project connecting four universities and a game industry association in a 3-year project to develop innovative teaching programmes, open edu-resources and recommendations for higher education leading to game dev careers. It involved Kazimierz Wielki University in Bydgoszcz, Poland (Coordinator), University of Jyväskylä, Finland, Charles University, Czechia, Bahcesehir University, Turkey, and the Czech Game Developers Association. Thanks to mutual study visits to Partner universities, long-term exchanges of teaching staff, and dissemination events, the consortium co-created research outputs outlining the situation of game-focused higher-ed in the four countries involved, as well as curricula, lessons plans, syllabi and manuals for the game dev education at HEI level.

GameEduc (2018-2022) is an Erasmus+ project funded connected four secondary and tertiary education providers to gather and sort knowledge and create a common framework for teaching game development. It involved VET provider Yrgo (Sweden) Graphic Lyceum Utrecht (Netherlands), Dania Academy (Denmark), and Keilir Academy in (Iceland). The partners jointly created a framework for seeking to improve education within game development. The framework consists of guidelines spanning topics such as communication, equality, digital learning, and vocabulary, aiming to increase understanding and transnational mobility, as well as to increase gender equality within the field.

The 'Baltic Game Industry' project (2017-2021) aimed to foster innovation power and the emergence of a powerful game business scene around the Baltic Sea, to strengthen internationalisation and cooperation across stakeholders and countries, and to make the region a game business hotspot with a joint branding. Funded by Interreg Baltic Sea Region programme, the project involves 22 partners and 25 associates from Germany, Denmark, Estonia, Finland, Lithuania, Latvia, Poland, and Sweden.

In some cases, regional or national authorities drove or supported the creation of local hubs, accelerators, or catalysts for the video games sector. These institutions or groups often provide education and mentoring opportunities, together with investment capital and networking events. An example of this model is SpielFabrique, which is described as a “video games ecosystem catalyst” with the goal to “stimulate international activity and strengthen ecosystems”<sup>369</sup>, which offers mentoring and networking support for indie games studios. SpielFabrique is currently funded by a mix of public and private institutions, including The Institut Français, the French Embassy, EU Funding from Creative Europe (French and German Creative Europe Desks), Ubisoft, and Arte.

### 4.3.2 Quality and effectiveness of existing provision

This sub-section reviews the quality and effectiveness of education and skills provision serving the European video games sector. The section particularly draws on the opinions shared by the industry during the workshops and interviews with video games companies as well as comments made in the online survey.

The research has shown that there are a number of weaknesses associated with the quality and effectiveness of education and training provision for the sector. A key challenge is that content is not relevant or tailored enough to produce the skills needed by the sector. Industry representatives highlight concerns that there is an **insufficient focus on practical skills**, and also a lack of relevance where **content does not reflect the up to date and evolving needs of the industry**. These core issues are explored in more detail below.

Although video games courses across the EU tended to have some element of practical learning (e.g., project-based work) industry stakeholders reported that courses rely too much on short practical activities rather than integrating the acquisition of practical and technical skills across the duration of the whole course. A positive example reported was a Polish University video games course which has built its entire course curricula around developing, building and marketing a video game concept and/or product. This allowed the students to leave the course with a ready built games concept that proved useful when gaining their first job in the sector.

A key challenge identified by industry stakeholders is the low level of collaboration between educationalists and the video games sector when designing and delivering education and skills provision. Curriculum development for video games courses was reported as being isolated from the needs of the sector. More involvement by video games companies would increase the relevance of the course and the eventual employability of students.

Employer representatives could help inform the content of the courses in a number of ways. This could include advising on relevant modules (topics) and software, as well as the latest trends in consumer behaviour and technological advances. Examples of potential university- business collaboration activities that were highlighted by industry stakeholders include:

- ▶ establishing a community of stakeholders from the sector to help advise on curriculum development relevant for the future video games sector.
- ▶ encouraging guest lectures from the sector to teach students and give them first-hand knowledge of the sector.

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<sup>369</sup> <https://spielfabrique.eu/about-us-2/>

- ▶ setting up collaborations between students and alumni.
- ▶ encouraging academic staff to attend key video games sector events (e.g., Gamescom) to understand the latest products, technologies and key employers in the sector.

University-business cooperation in the video games sector was reported as being particularly useful as the demands of the sector are changing rapidly. Companies present at the workshops stated that mainstream video games courses often teach learners outdated skills and using outdated and redundant software.

Industry stakeholders reported that mainstream education tends not to prepare graduates to work on games across a range of genres and styles. The video game industry wants to encourage mainstream education to prepare graduates to diversity game narratives and imagery beyond a traditional and limited understanding of video games. For example, to address issues as far ranging as mental health, grief, food production, and energy consumption.

Representatives in the sector highlighted the lack of collaboration between universities and business and outlined that they felt that video games companies facilitate partnerships with universities in order to ensure the courses teaching their future workforce were completely informed of their needs. It was highlighted that other tech sectors and companies are more proactive in developing partnerships with the education sector.

In interviews and workshops, industry stakeholders highlighted a need for accreditation of video games courses, to ensure a recognised and consistent standard of quality. Stakeholders highlighted the work of the Higher Education Video Game alliance which is mainly focussed on the US video games market. Part of the role of this alliance is to assess and accredit video games courses following an assessment of curriculum, teaching methods and learning outcomes.

As highlighted earlier in this section, there are a wide range of skills which are required by the video game workforce, and which should feature in education and training provision. For example, skills linked to monetarisation, marketing, financing, narrative design and social media are also seen as important areas to feature in education provision.

A more positive reflection of the quality of education and training on offer was in relation to the growing amount of provision linked to the self-taught route. As mentioned earlier, this route into the sector is important to recognise and there is a range of provision available online to help individuals develop skills useful for a career in the video games sector. The clear benefit of this type of provision is that it tends to be cost effective to the learner and be flexible in terms of when and how individuals access the provision. Although not all of the support is free, the various online courses and virtual modules tend to be affordable and easily available to all.

It was also noted by businesses taking part in the workshops that the quality of self-taught provision has vastly improved over recent years as the demand for it has increased. It is highly user-friendly and is seen as intuitive and not as technical as it once was. Businesses compared the online courses to learn video games development to the courses that were formally available to help build websites. Ten years ago, the type of software to self-teach people to build their own websites was deemed to be difficult to use and required high levels of technical knowledge. Current online website development software is now increasingly simple and requires little in the way of pre-existing technical knowledge, allowing people with limited IT skills to build their own website within under an hour. It was highlighted that

although online games development software is not at this point yet, it had seen large steps forward in recent years.

Although the quality and effectiveness of online self-teaching tools linked to video games production were generally portrayed in a positive light, there were a small number of limitations that were highlighted during consultations with the sector. Firstly, the tools are almost entirely in English, which means that any individual across the EU who is not confident with English cannot use and benefit from the tools. Secondly, some of the more developed software packages have to be purchased meaning this might restrict the number of people aged under 18 years, or with a limited income, who can again benefit from this type of provision. Perhaps the main issue with online self-teaching tools linked to video games development is that they cannot, in themselves, teach an individual all the necessary skills needed to work effectively in the sector. They are often seen as being a useful starting point for people to either gain some of the core skills or refresh themselves on key aspects of the job but cannot be solely relied upon to teach all the knowledge they need to have a successful career in this sector.



**05**

**Cultural, social and educational  
dimensions of the EU Video  
Games sector**

## Chapter Summary

### Key findings:

Video games play an undeniably important role in the cultural dimension of European society, not only because of the specific features and mechanisms of games, but also because they bring together large player communities. This chapter approaches the discussion around the cultural dimension of video games from two angles:

▷ **Video games AS culture.** The video game industry in Europe has a rich and diverse scene filled with both technological advancements and artistic creativity. It is now recognised that video games are part of the CCS and that their artistic and creative dimension distinguish them from purely technological products.

This recognition has implications from a policy point of view, as video games is regarded as a relevant cultural and creative sector and games can be supported as a cultural product. Governmental organisations such as the European Commission and UNESCO have also recognised video games as cultural products and part of the cultural and creative sectors. Several State aid schemes across Europe also include support for the Video Game industry.

From a cultural perspective, video games are acknowledged as a form of cultural heritage, but safeguarding the complex software, content and hardware combination of video games raise several issues. Preserving video games doesn't only imply preserving all of its components, from the game code to the storylines to the technical tools necessary for its operation, but also its playability (including the operating system and potentially online functionalities). Furthermore, video games are original creations protected by IP, and their conservation implies also figuring out how to solve the trade-off between copyright and IP protection and safeguarding efforts.

▷ **Video games FOR culture:** video games are generating a broad range of economic and social spillovers. Video games are becoming platforms to promote creative content from other cultural and creative sectors, ranging from fashion and design items to live concerts.

The role of video games in improving and promoting education and well-being is gaining greater recognition. There are several fields in which using video games for learning purposes has proven to be effective. An important finding is that multiplayer video games can offer a testing ground to practise communication skills and language learning.

Video games for health is beginning to produce some interesting results on the role that video games can play in enhancing health recovery, improving brain function and motor coordination, and promoting stress reduction and relaxation. Video games can be an effective supplement to traditional care thanks to AR/VR applications and movement-based game controllers

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Recent technological advancements (and the restrictions put in place during the Covid-19 pandemic) have given a significant boost to the formation of online gaming communities and enabled millions of people to interact.

Nonetheless, online interactions (and anonymity) in gaming are also subject to inappropriate and harmful behaviours. This includes cases of cyber-bullying such as in the case of the 2014 Gamergate which prompted intervention from the UN urging game studios to act on such negative behaviours.

In terms of environmental aspects, the Games Consoles Voluntary Agreement under the Eco-design Directive is the main action to reduce the environmental impact of game consoles over their life cycle, which achieved important energy savings. "Playing for the planet" is also a landmark action from the video games sector and UNEP to raise awareness and prompt to take action against environmental issues. Thanks to game jams and an important uptake from the sector, more than 130 million people engaged with green content created through the initiative.

### Main trends

In terms of spillovers, the Video Game Industry is increasingly offering opportunities for other CCS. It is most notably the case of films and TV, where productions using video games IPs are increasing both in number and perceived quality (2023 saw the release of the much-anticipated Super Mario Bros movie and of a TV series based on The Last of Us).

The music industry benefits from crossovers with the video game industry as well, both indirectly as most players are avid music listeners while consuming video games, and directly, with game developers investing in original music productions for their games.

In this context (as discussed in chapter 2) the metaverse is opening the door for closer collaborations between video games developers and other CCS. Cultural institutions are increasingly adopting video games and gamification practices in their audience engagement strategies and several research has shown the positive impacts of video games on tourism, such as in the case of the Assassin's Creed saga.

Video games are also seen to have a significant role in representing minorities, with studios rapidly adapting to evolving sensibilities and societal requirements in this domain, as well as to have growing applications in the educational and in the healthcare sectors. Notwithstanding that research focusing on the positive aspects of gaming is growing, serious concerns remain to be answered regarding its negative effects as well. In 2018, the World Health Organisation (WHO) included gaming disorder in the list of official diseases, urging for further research on its extent among gamers.

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### Conclusion

To conclude, video games are now largely considered as cultural products but their categorisation as such is not harmonised across countries and organisations. The issue of safeguarding video games as heritage artefacts, although several Directives are addressing the issue, is posing new questions given by the original digital and creative nature of the works. Video games are also increasingly interconnected with other CCS and offering new ways to reach broader audiences and to cross-monetise IPs. At the same time, although video games are seen to have beneficial impacts on individuals and societies, negative consequences such as gaming syndrome disorder or harmful online behaviours are still to be fully analysed and handled adequately.

## 5.0 Cultural, social and educational dimensions of the EU video game sector

The report so far has focused on the industry dynamics of the video games sector, be it in its market dimension, the regulatory frameworks applicable, and the employment and skills in video games. This chapter rather focuses on the socio-cultural dimension of the video games sector and its contribution to the wider economy and society. The cultural, economic, and social relevance of video games has gradually taken on greater importance over time. Starting from its birth in the 1940s, the first "proto videogames", the video game industry has evolved into an economic sector in its own right, and the video game industry has been established and institutionalised in a very short time. Today, video games are a worldwide phenomenon, involving millions of people of all genders, ages, and cultures, and they represent one of the most important, productive, and profitable cultural enterprises in the world. In fact, its diffusion and popularity have allowed it to grow into a mass trend, opening the possibility of new and opportunities arising from the application of video games and gaming activities across many other sectors of entertainment, education and beyond. This chapter, looking at societal and cultural dimensions of the video game industry aims to investigate several dimensions of culture and society that are affected by its impact. Video games present many benefits, and policy is increasingly supporting the sector to realise its full potential. On the one hand, thanks to video games' ability to reach out to young people, video games have become platforms to encourage youth participation and civil engagement. On the other hand, video games' development has the potential to support economic development across Member States. This section focuses on mapping and understanding the social, educational, and cultural dimension of the EU's video game sector. It examines:

- ▶ How the video games sector is emerging as a cultural sector and the relationships with other cultural and creative sectors.
- ▶ The role of video games for online and offline community building.
- ▶ The role of video games in cultural heritage preservation, valorisation and promotion of museums and cultural sites.
- ▶ The role of video games for health, well-being, and education.
- ▶ The potential of video games for promoting social representation and social diversity.
- ▶ The environmental aspects of video games.

The section is mainly based on a literature review, including academic literature, and grey literature (including specialised press and reports produced by industry associations), as well as interviews and workshops (especially Workshop 4 on Games as cultural and artistic expression) that have been undertaken as part of this study.

### 5.1 Analysing the multi-faceted dimensions of video games in the EU

This sub-section presents the findings regarding the key characteristics of the EU video games social and cultural panorama. The section covers the following questions:

- ▶ Can video games be considered a cultural good? Do video games have cultural and artistic qualities?

- ▶ How does the sector relate to other creative sectors (sound, music, design, artworks, etc.)?
- ▶ What effect do video games have on their users when it comes to socialising? Are they able to provide means to create meaningful engagement and social inclusion?
- ▶ Is the video games environment able to create alternative spaces of interaction?
- ▶ How can videogames and education improve skills and competences?
- ▶ Is the video game sector able to represent social diversity and create bridges among people?
- ▶ Can video games be considered as an alternative media to play a role in increasing social capital?
- ▶ How are video games turning into cultural expressions and becoming heritage themselves or help to promote and enhance cultural heritage?

### 5.1.1 Video games as a cultural good/sector ~~and art~~

Video games are partly an expression of both art and technology: they include many forms of traditional artistic expression and can provide an aesthetic experience— sculpture in the form of 3D modelling, illustration, narrative arcs, and dynamic music— that combine to create something that transcends the individual artistic works involved in a game. The artistic and creative input that goes into video games distinguishes it as a creative industry rather than a purely technological product.

Nevertheless, the claim that video games can be appreciated as a modern art form is still contested and many people do not agree that video games should be considered as more than entertainment products, even if they provoke genuine emotional responses in players. In 2010, Roger Ebert, a film critic, famously started a debate on the artistic value of the medium by stating that video games could not be considered art since games are *conceived with the goal of providing a win condition or state for the player while art has no concrete objective aside from the experience of it*.<sup>370</sup> Other art critics joined in the debate arguing that while video games require extensive artistic skills and content, they lack the purity of artistic intent that a work of art usually has (due to their commercial or entertainment dimension).<sup>371</sup> Still, it is clear that this vision of video games as solely an entertainment media is slowly eroding<sup>372</sup>, with some museums such as the Smithsonian and the MOMA including video games as part of their permanent exhibitions in 2012, or the Institut du monde Arabe in Paris in 2017.<sup>373</sup> Interestingly, these two museums took two different approaches to their subject matter, with the Smithsonian choosing to focus on *video games as an artistic medium with striking visual effects and the creative use of new technologies*<sup>374</sup> and the MOMA focusing on video games as examples of *interaction design*, meaning the *combination of historical and cultural relevance, aesthetic expression, functional and structural soundness, innovative approaches to technology and behaviour, and a successful synthesis of materials and techniques in achieving the goal set by the initial program*.<sup>375</sup> The entry of video game into museums, even if at an early stage and with many unresolved questions on how to display it, demonstrates the new role assumed by the game in contemporary society. Indeed, museums are part of the validation of the status of digital games in contemporary culture. By preserving and exhibiting them, they affirm their value. An important

<sup>370</sup> Ebert R (2010), Video games can never be art, available at: <https://www.rogerebert.com/roger-ebert/video-games-can-never-be-art>

<sup>371</sup> Jonathan J (2012), Sorry MoMA, video games are not art, available at: <https://www.theguardian.com/artanddesign/jonathanjonesblog/2012/nov/30/moma-video-games-art>

<sup>372</sup> Parissis C (2018), Video games are an art form, available at: <http://honisoit.com/2018/08/video-games-are-an-art-form/>

<sup>373</sup> <https://www.club-innovation-culture.fr/the-enemy-ima-guerre-realite-virtuelle/>

<sup>374</sup> More information at: <https://americanart.si.edu/exhibitions/games>

<sup>375</sup> More information at: [https://www.moma.org/explore/inside\\_out/2012/11/29/video-games-14-in-the-collection-for-starters/](https://www.moma.org/explore/inside_out/2012/11/29/video-games-14-in-the-collection-for-starters/)

role in this process is played by the EFGAMP - European Federation of Video Game Archives, Museums and Preservation - that through an international network of partners seeks to encourage the creation of archives, increase the accessibility to European digital heritage and raise awareness on the importance of video games in European culture.

The discussion over the cultural value of video games was also taken up in the context of State aid for video games. In 2007, the Commission decision on the tax credit introduced by France for the creation of video games required to assess whether video games were considered as cultural products and thus fall under Art. 107(3)(d) TFEU, which allows to “promote culture and heritage conservation where such aid does not affect trading conditions and competition in the Union to an extent that is contrary to the common interest”. Video games were then presented as audiovisual products that can act « as a vehicle for images, values and themes that reflect the cultural environment in which they are created and may act on the ways of thinking and the cultural references of users, especially among young people. », notably those in the 15-25 age category.<sup>376</sup> This echoes the recognition by UNESCO of video games as a cultural industry and its role in terms of protecting and promoting cultural diversity.<sup>377</sup> The cultural value of video games, in the context of State aid, is considered against a cultural test. Similar discussions occurred in adopting a video games tax shelter schemes in Belgium in 2022<sup>378</sup> or in the UK in 2017<sup>379</sup>, and the cultural value of video games can be considered different dimensions, according to the criteria set out in these three State aid schemes:

according to the criteria set out in these three State aid schemes:

- ▶ Connection with local cultural heritage (Video game based on national subject matter or relates to an EEA State or underlying material)
- ▶ The game must have cultural and artistic qualities (e.g. storytelling in France),
- ▶ The production activities and the parties concerned must have links with companies based in member States,
- ▶ Game development must involve a certain amount of artistic/creative jobs;
- ▶ The game concerned must be innovative and creative.

This cultural value approach runs alongside other policies focusing on the cultural, economic or innovative potential of video games. For instance, in Poland, various programmes offer support to the video games sector: the Ministry of Culture and National Heritage supports the Creative Industries Development programme with a cultural and economic approach, the National Research and Development Centre has kicked off the GameINN initiative, offering annual R&D subsidies, whereas the

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<sup>376</sup> Commission Decision of 11 December 2007 on State Aid C 47/06 (ex N 648/05) Tax credit introduced by France for the creation of video games

<sup>377</sup> Charter on the Preservation of the Digital Heritage, 2003. Article 1 leads directly to the conclusion that video games, as software, as a unique resource for the expression of human knowledge, should be considered as digital in the cultural field. Accordingly, it shall be preserved in accordance with Article 2. Convention adopted at the General Conference of Unesco on 20 October 2005 and incorporated into Community law by Council Decision 2006/515/EC of 18 May 2006 on the conclusion of the Convention on the Protection and Promotion of the Diversity of Cultural Expressions (OJ L 201, 25.7.2006, p. 15)

<sup>378</sup> Commission Decision (EU) 2022/1978 of 25 July 2022 ON AID SCHEME SA.54817 (2020/C) (ex 2019/N) which Belgium plans to implement to support the production of video games. C/2022/5130

<sup>379</sup> <https://www.bfi.org.uk/apply-british-certification-tax-relief/cultural-test-video-games/summary-points-cultural-test-video-games>

Polish Agency for Enterprise Development provides financial support for the promotion of product brands on foreign markets.<sup>380</sup>

The digital nature of gaming and its ability to involve players in the story and, to some extent, in the artistic content of the experience, makes it an important media form in contemporary society. Many video games with high artistic standards explore new ways of emotionally engaging people. However, due to the costs involved in creating video games, triple A developers and publishers in the industry may be tempted to produce remakes or sequels of games based on ideas and dynamics that have proven successful in the past. In contrast, independent studios, while still striving for economic viability, have more artistic freedom. It is the case of Raw Fury, a game publisher company known for its highly artistic video games which implemented various initiatives to encourage art among videogame developers – examples included Art of Fury and Art of NORCO, art galleries showcasing various videogames artworks. More support to these studios would ensure them even more liberty in pursuing video games as forms of art. In terms of video games development, the emergence of game engines such as Unity or Unreal which provide access to common archives, has substantially reduced the cost of development, resulting in the flourishing of artistic-focused video games.

The balance between sales product and form of artistic expression in video games is often questioned on the basis of traditional artistic conceptions, remaining one of the most controversial areas of debate in the industry. A singular case is that of the video game *Gris*, developed in 2018 by Spanish studio Nomada, partnered with artist Conrad Roset to turn his evocative drawing style into a videogame. The game tells a journey through the orchestration of colour, movement, and music, creating a mixture of interactive art and game. The experiment was a success: *Gris* sold over 1 million copies and it can be played on Nintendo Switch or PC.

#### 5.1.1.1 Video games and the broader CCS

As a complex mix of technology, visual art, musical arrangements and, in some cases, interactive storytelling, video games can provide to their players stories and experiences that rival the breath and scope of other art forms such as movies, painting, music or literature. Many of these games and stories became part of the collective imagination, with many characters such as Mario, Sonic, Pikachu and Pac-Man becoming cultural icons on themselves, instantly recognisable by millions of players and non-players<sup>381</sup>. Video game characters, music and stories are also more and more present in other media we consume from movies, TV series, books and music platforms, being an integral part of the media ecosystem that we all take part in<sup>382</sup>.

The movie and TV industry are among the best examples of cultural crossovers between the video game industry and other CCIs. Recent years have seen the surge of movie productions based on video games' storylines, most of which produced by major American companies and grossing significant revenues at the box office.

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<sup>380</sup>Eryk Rutkowski, Jakub Marszałkowski, Sławomir Biedermann (2022). The game industry of Poland – report 2021. Available at: <https://en.parp.gov.pl/publications/publication/the-game-industry-of-poland-report-2021-1>

<sup>381</sup> The Economist (2016), How Super Mario became a global cultural icon, available at: <https://www.economist.com/christmas-specials/2016/12/24/how-super-mario-became-a-global-cultural-icon>

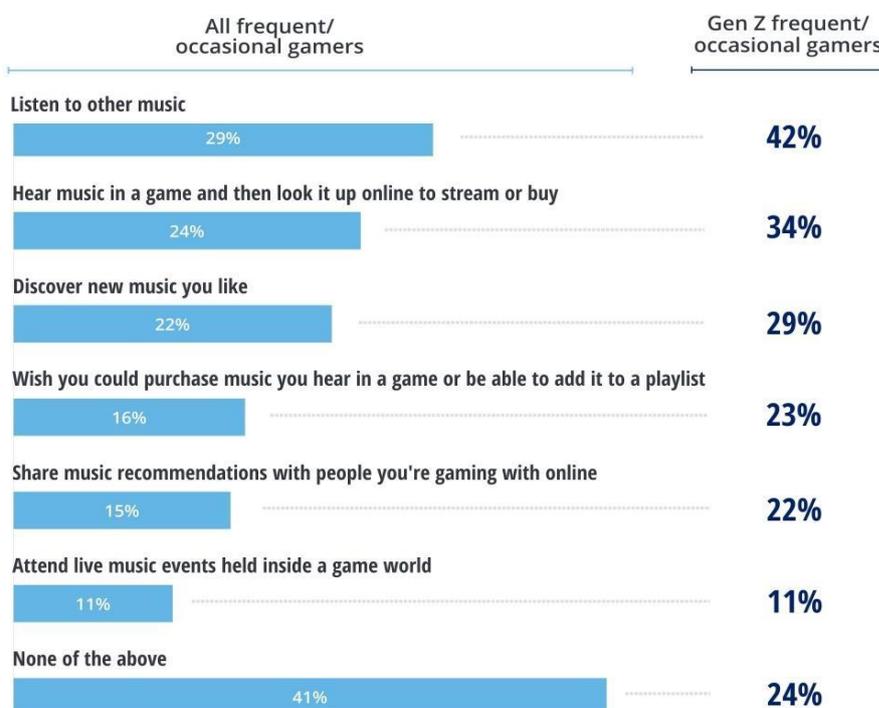
<sup>382</sup> Muriel D, Crawford G (2018), Video Games As Culture: Considering the Role and Importance of Video Games in Contemporary Society, available at: [https://www.researchgate.net/publication/323881060\\_Video\\_Games\\_As\\_Culture\\_Considering\\_the\\_Role\\_and\\_Importance\\_of\\_Video\\_Games\\_in\\_Contemporary\\_Society](https://www.researchgate.net/publication/323881060_Video_Games_As_Culture_Considering_the_Role_and_Importance_of_Video_Games_in_Contemporary_Society)

Examples include the Sonic (2020 and 2022) and the Angry Birds (2016 and 2019) movie franchises, as well as the Super Mario Bros 2023 movie. The same goes for TV productions, with relevant examples such as The Last of Us (2023) and Halo (2022). Even if in a less straightforward way, the music industry has significantly benefited from the surge of video games as well. As Steve Schnur, the worldwide executive and president of music at game publisher EA, explains: "We knew that video games could become what MTV and commercial radio had once been in the 80s and 90s. Any given song in FIFA 19, will be heard around the world nearly 1bn times. Clearly, no medium in the history of recorded music can deliver such massive and instantaneous global exposure."<sup>383</sup> Furthermore, recent survey data shows that music is increasingly becoming a fundamental part of the gaming experience, particularly for younger players<sup>384</sup>, leading game developers to invest in original high-profile value productions, such as the GTA collaboration with Dr. Dre.<sup>385</sup>

Figure 38: Music as a key component of the gaming experience

### For younger gamers, music is a big part of the experience

While playing games, do you do any of the following? (Select all that apply.)



Note: N (frequent/occasional gamers) = 792.

Source: *Digital media trends, 15th edition (Fall pulse survey, October 2021)*. Deloitte insights.

The influence of video games aesthetics and approaches into other arts is also increasingly apparent. As denoted by the existence of movies, such as Scott Pilgrim against the World (2010 – itself an adaptation of a comic book) or the Edge of Tomorrow (2014), which borrow heavily from game aesthetics and mechanics (such as reset states, scores and sounds), and artists from electronic music (Skrillex<sup>386</sup>) to

<sup>383</sup> Available at: <https://www.theguardian.com/games/2018/aug/22/video-games-music-industry>

<sup>384</sup> Available at: <https://www2.deloitte.com/xe/en/insights/industry/technology/music-gaming-video-games.html>

<sup>385</sup> Available at: <https://pitchfork.com/news/new-dr-dre-songs-with-eminem-snoop-dogg-more-featured-in-grand-theft-auto-online-the-contract/>

<sup>386</sup> Bonafide (2020), 3 Artists That Draw Influence from Video Games, available at: <http://www.bonafidemag.com/influence-gaming-music/>

classical music (Yoko Shimomura<sup>387</sup>) drawing inspiration from video games music, it shows that the medium has gone from a derivative medium that took its cues from other media, such as books, films, and music, to a media that other sectors derive new ideas from and contributing to change and innovate in their own practice<sup>388</sup>. International artists such as Anna Anthropy<sup>389</sup>, Daniel Benmergui<sup>390</sup> and Jenova Chen<sup>391</sup> or European indie developers (the Pixel Hunt (FR)<sup>392</sup>, the Astronauts (PL)<sup>393</sup>, or ZA/UM (UK/PT)<sup>394</sup>) are also some examples of how independent game designers and artists are exploring the boundaries of video games and video game mechanics to engage with traditional arts and stretch the possibilities of what a video game can be about. Nonetheless, the concept of video game artists remains a nebulous concept and, while some very famous game directors (e.g., Sid Meier, Shigeru Miyamoto, Hideo Kojima, Will Wright) exist, video games are often more associated with the game studio than the artists themselves, contributing to the anonymity and lack of artistic recognition of many of those who work for the video game industry.

### 5.1.2 Video games for community building processes

In a context of digitisation and connectivity, video games have assumed an increasingly important role among popular media. Indeed, the number of video games players in Europe has reached 246 million in 2021, making the European video game market the second largest in the world.<sup>395</sup> In recent years, not only has the number of players increased, but also the amount of time spent playing- in 2018 the average number of hours spent playing in a week in Europe was 8.4 hours, this rose to 10.2 hours by the end of 2020, therefore seeing a 34% growth. As a result of the long periods of confinement at home caused by the COVID-19 pandemic, many people turned to video games as a form of entertainment and socialisation. Indeed, video games have provided platforms for people to connect with their peers of similar interests. Recent studies have shown that some games can provide a "highly socially interactive environment" that creates 'opportunities for strong friendships and emotional relationships'.<sup>396</sup>

Video games have been from its very inception consumed as a collective activity, attracting interested players or curious bystanders alike, in places such as arcade centres, living rooms, game tournaments and game conventions. Before the internet dominated gaming communities, most gamers built their culture, relationships, and communities in garages coding video games or in arcades playing Pac-Man and Galaga: gaming communities used to be very small-scale and local. With the advent of the internet, many of these social interactions also coalesced around video game forums and fan pages, putting millions of people together through their collective passion for a game or a game genre, sharing tips, tricks and even developing their own variants of their favourite games (mods) or art and stories with their favourite game characters (fan fiction). Many people identify themselves as *Gamers* and have developed specific codes and languages that are unique to this sub-culture<sup>397</sup>. While this happens with

<sup>387</sup> <https://www.konserthuset.se/en/merregnon>

<sup>388</sup> Stuart K (2012), Are video games art: the debate that shouldn't be, available at: <https://www.theguardian.com/technology/gamesblog/2012/dec/06/video-games-as-art>

<sup>389</sup> More information at: <https://w.itch.io/the-art-crowd>

<sup>390</sup> More information at: <http://ludomancy.com/>

<sup>391</sup> More information at: <http://jenovachen.info/>

<sup>392</sup> <https://www.thepixelhunt.com/>

<sup>393</sup> <https://www.theastronauts.com/>

<sup>394</sup> <https://zaumstudio.com/>

<sup>395</sup> Data source: [Statista.com](https://www.statista.com)

<sup>396</sup> H. Cole, M. D Griffiths (2007), Social interactions in massively multiplayer online role-playing gamers, *Cyberpsychol Behav*, 2007 Aug;10(4):575-83

<sup>397</sup> Carbone M-B & Ruffino P (2014), Games and subcultural theory, available at: [https://www.gamejournal.it/wp-content/uploads/2014/04/GAME\\_3\\_Subcultures\\_Carbone-Ruffino.pdf](https://www.gamejournal.it/wp-content/uploads/2014/04/GAME_3_Subcultures_Carbone-Ruffino.pdf)

other creative industries, video games also have created virtual worlds, such as Massively Multiplayer Online Role-Playing Game (MMORPG), in which millions of players interact, compete and play together. Launched in 2004, the game *World of Warcraft* had at its peak 12 million players playing daily and competing against each other for peer recognition and prestige. Social groups in MMORPGs can become extremely complex and involve the coordination and commitment of hundreds of players around common goals which can forge very strong social bonds of friendship, comradery and love between players even if they have never met them in person<sup>398</sup>. Video games and other online spaces are also "safe spaces" for individuals with social anxiety or issues with personal attachment because they allow people to communicate when they want to, with little or no pressure to respond immediately and without requiring them to be in the same physical space with others.<sup>399</sup>

In Europe, the largest communities tend to coincide with the largest (often multiplayer) games: a handful of the top multiplayer games with consistent, involved communities are: PUBG, Minecraft, Fortnite, LoL, Among Us, Runescape, Candy Crush, GTA 5, WoW, Apex Legends, Roblox, and Hearthstone. Discord, Twitch, Reddit, Twitter and In-Game are among some of the main video game community platforms.<sup>400</sup>

Since the Covid-19 pandemic, many social interactions switched to online games and the numbers of casual gamers are on the rise.<sup>401</sup> Survey data specifically shows that over 40% of new gamers say that they are likely to continue to play beyond the lockdown periods. The increasing number of online players and the need to find alternatives socialisation options turned video games into popular platforms for people to connect and communicate. Nintendo's social simulation video game *Animal Crossing's* gained surging popularity during 2020, and InnerSloth's *Among Us* became the go-to multiplayer game for friends during the pandemic. During a time when physical connectivity became restrained, online multiplayer video games provided an entertaining alternative which helped people gain relaxation and relief when facing isolation.

Although the community around video games is generally online, the reasons for participating are largely the same as those that drive individuals to interact in real life - to gain a sense of togetherness, to socialise and to be recognised. The communities to which players join are a mirror of their virtual - and sometimes real - identity, where they can explore, participate and experience aspects of themselves. An ethnographic study found that players connect with a "community of other players for the specific purpose of being recognised as members of that community".<sup>402</sup> Communities exist online as much as in the real world, giving players groups to identify and socialise with. Games are also extensively used to address social issues and bring awareness about current problems to broader audiences. As an example, Games for Change<sup>403</sup> - a not-for-profit organisation that has been building a community of practice around the premise that games can be a powerful driver for social change - supports and bring together game developers and social innovators to build communities and foster learn through gameplay. The contribution of games to social impact topics is behind the development of several serious games projects, with projects like Games 4 Sustainability providing comprehensive lists of sustainability-themed

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<sup>398</sup> For a first-hand account of the strength of the social bonds created within these online spaces (and its issues), see Lisi D (2016), *World of Warcraft*, Boss Fight Books

<sup>399</sup> Fishman A (2019), *Video Games Are Social Spaces: How video games help people connect*, available at: <https://www.psychologytoday.com/us/blog/video-game-health/201901/video-games-are-social-spaces>

<sup>400</sup> <https://weplayholding.com/blog/online-gaming-communities-how-to-become-a-part-of-this-well-oiled-machine/>

<sup>401</sup> Kristina Narusk, *The impact of lockdown on mobile gamers behaviors* <https://medium.com/googleplaydev/the-impact-of-lockdown-on-mobile-gamers-behaviors-dffb05f07c4e>

<sup>402</sup> E. Moore, S. Mazvanchery, L. Rego (1996), *The Bolo Game: exploration of a high-tech virtual community*, *Advances in Consumer Research*, 1996, 23(1), 167-171

<sup>403</sup> <https://www.gamesforchange.org>

games resources for serious games categorised according to the sustainable development goals.<sup>404</sup> Innovation in technology has enabled game designers to create immersive, rich and highly detailed worlds but the elements that seem to sanction the success of games today are interaction and connectivity, indicating a need for connection of social experiences within the game. Mobile gaming apps, for example, typically offer online functionalities and options for interaction, and it is quite remarkable that games topping today's rankings offer a variety of social functions built into their mechanics. For example, Fortnite is one of the most successful and it has reached over 350 million players as of May 2021 thanks to the social features added to the mobile version of the game in 2019. Specifically, the game introduced a new mode called Party Royale – a location just for interacting with friends, a space for players to chat, exchange ideas, build community and bring their avatar to life within the game context.

However, beyond these positive social effects, potential problems sometimes arise in gaming communities, including cyber bullying. Studies<sup>405</sup> have shown a connection between gaming and bullying behaviour, but also specifies that this influence is mediated by many other factors (social environment, personal traits, hours spent playing, type of games) in video games. Players internalise the whole culture around games and the influence of certain types of games and the surrounding community may change their gaming identity.<sup>406</sup> The creation of a fictional character and identity can have both positive and negative consequences: in some cases, it creates relationships between players and allows them to experiment with different identities. In others, by hiding their identity behind an avatar, it lets some players behave improperly and go beyond the boundaries of acceptability. The 2014 events, known as "Gamergate", constitute an example of this cyberbullying dynamic where a stream of insults, threats and online harassment perpetrated mainly by fake profiles and people hiding behind avatars. The issue that it led to a UN report<sup>407</sup> that prompted some of the major video game companies (such as Sony) to denounce the events as a "campaign of harassment".

Over the recent years, video game platforms and companies have made a series of efforts to build a healthy community environment through measures such as curse-words censoring (e.g., Overwatch I & II), blocking and reporting users, as well as community rules for users to follow. Measures like this could potentially limit the negative elements of video game communities, and maximise the positive effects of video games as platforms of common interests and connectivity.

### 5.1.3 Video games as tools for social representation and social diversity

Often set in interesting cultural and historical contexts, video games have the potential to bring underrepresented cultures and communities to the attention of a mainstream audience: on the one hand because of the large number of people they reach, and on the other hand because of their great communication potential. In video games, the player can take on the role of a superhero, a military, an alien or even create his own virtual identity. With the possibility of immersing into a virtual environment, connecting with people and exploring identities, players can discover and empathise with different cultures, personalities and communities. Research shows that if a male player takes on a female role and

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<sup>404</sup> <https://games4sustainability.org/gamepedia/>

<sup>405</sup> Y. J. Halbrook, A. T. O'Donnell, R. M. Msetfi (2019), When and How Video Games Can Be Good: A Review of the Positive Effects of Video Games on Well-Being, in *Perspectives on Psychological Science*, vol. 14, 2019

<sup>406</sup> C. Ecenbarger (2014), The Impact of Video Games on Identity Construction, in *Pennsylvania Communication Annual*, 2014; 70(3): 34-50

<sup>407</sup> Cyber Violence against Women and Girls: A world-wide wake-up call. Available at: <https://www.broadbandcommission.org/publication/cyber-violence-against-women/>

experiences a typical feminine experience, it might generate an opportunity to internalise not only virtual situations, but real life from a different perspective.<sup>408</sup> If players are inspired or motivated by a video game, this can lead them to participate in external activities that reinforce who they are and how they approach different people.

The video game sector is traditionally considered as lacking in representing diversity, both when it comes to different cultures and gender representation. Consultations at Gamescom indicated that representation in video games has become increasingly important to developers (keen to ensure that products appeal to and resonate with a diverse audience). Nonetheless various efforts have been implemented to increase diversity within narratives and artistic design, for example if in 2017 the 7% of game protagonist were female character while 26% of them were male, in 2020 the balance between the two sides has improved with 18% of female and 21% of male.<sup>409</sup> Although many of the female characters in games are still stereotyped, sexualised and may have fewer abilities and accessories in the game, and even if the different cultures are still not enough represented, the situation is gradually improving. Most importantly, there is a growing awareness that these representations can influence judgement and cultural perception in the real world. The casting and modelling of video game characters are making a statement about cultural, racial and gender diversity. Games such as APEX legends have included 50% playable female characters, non-binary characters, 30% homosexual or bisexual characters, as well as 50% ethnically non-white characters. Even game franchises that traditionally involve only male protagonists are starting to provide free gender choices in their new role-playing games. Even games that traditionally involve only male protagonists are starting to provide free gender choices in their new role-playing games. As female user groups continue to grow, gender norms in video games continue to be challenged. Female characters in video games are going beyond being only symbols of hyper-sexualisation, video games such as *Hellblade: Senua's Sacrifice* created stand-alone female protagonists with deep and intriguing character.<sup>410</sup> Other notable initiatives include the Finnish association of game developers, which launched the project "Gender in Play – Representations of Gender in Games" to analyse the main issues around gender and diversity in video games, and developed guidelines for inclusive game character design.<sup>411</sup>

#### 5.1.4 Video games as a space for politics and civil participation

New media platforms and video games offer numerous opportunities for social contact between users and may expose players to a range of situations with civic implications. Indeed, just as movements born on social media (such as Friday for Future) have brought groups of young people into the streets, many events and movements born on gaming platforms have mobilised large numbers of people. An example of activist gaming is the Games Done Quick event, a speed run marathon for charity, held in the United States. The first edition was held in 2010 and since then more than \$19 million has been raised and donated. The events are broadcast live on Twitch, and during the event viewers are encouraged to donate to be part of the speed run (by choosing character names or having the runner take on particular challenges) and to win prizes. The Z Event in France is another noteworthy example: this charity event organised on Twitch has raised millions of euros for Amnesty International.<sup>412</sup>

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<sup>408</sup> C. Ecenbarger, *The Impact of Video Games on Identity Construction*, in Pennsylvania Communication Annual, 2014; 70(3): 34-50

<sup>409</sup> Data source: A. Sarkeesian (2020), Gender Breakdown of Games in 2020, Feminist Frequency, Oct 2020

<sup>410</sup> <https://www.standard.co.uk/tech/gaming/video-game-diversity-representation-a4461266.html>

<sup>411</sup> <https://weingames.fi/best-practices-for-creating-diverse-characters/>

<sup>412</sup> <https://zevent.fr/>

The role of video games in terms of civic engagement is not limited to fundraising. For example, during the periods of isolation caused by the Covid-19, video games became a popular way for politicians to connect with youth audiences, to share political ideologies and to inspire civic participation in politics and elections. One example that bridged the world of video games and political participation took place in 2020, when US Congresswoman Alexandria Ocasio-Cortez and colleague Ilhan Omar played a streaming game of the popular Among Us game, during which Ocasio-Cortez appealed to gamers to join her online "to get out the vote" ahead of the 2020 US elections. The challenge was a success: Ocasio-Cortez's Twitch channel garnered an audience of 439,000 viewers, all watching in real time (the record for a Twitch stream is about 628,000 concurrent viewers) and with about 5.2 million viewers in total.<sup>413</sup> Video games become increasingly popular for electoral campaigns as a way to target younger electors. Two years later, as part of his drive for re-election, French President Emmanuel Macron's campaign has created its own official Minecraft server for potential voters to visit. Within the games, non-playable characters (NPCs) were provided with election information and political agendas, such as how the number of police has increased for security, how the government has kept the price of fuel in check, or how the population could benefit from electric vehicle subsidies.

## 5.2 Safeguarding and promoting cultural heritage through video games

This sub-section discusses both practices used to valorise cultural heritage through the use of Video Games and methods to safeguard Video Games themselves as part of cultural heritage.

### 5.2.1 Video games for Heritage

Virtual heritage, defined as the practice of creating virtual landscapes imbued with heritage content and presented in digital media, has emerged as a significant area of video games application. Considerable attention has been devoted to the benefits of applying video game technology to cultural heritage, particularly in relation to archaeological reconstruction, such as the collection of 3D modelling data of monuments and heritage sites. While the cultural world has focused a lot on the application of video game technology for the development of virtual heritage tools, the video game world also studies cultural heritage with interest. A large amount of data on artistic, architectural, and historical heritage is collected in the creation of games based on events of the past or set in cities and heritage sites. This has created a mechanism of mutual exchange. However, one of the criticisms levelled at the world of games in relation to cultural heritage is the preference given to the aesthetics of the game over historical accuracy. This tension between accuracy and popularity leads scholars and heritage professionals to explore alternative routes to commercial games, including so-called serious games and other hybrid approaches.

In fact, commercial games are oriented towards entertainment and mass market appeal, and cultural heritage is mainly used to enhance the credibility of the game world. The growing interest in the application of these video games in the cultural sector is justified by the impact on the cultural economy and tourism. The appearance of cultural heritage in popular video games can raise public awareness on heritage sites and artistic items. This is the case of Assassin's Creed, an action-adventure game apparently set in the real world. The series explores a number of different places and periods, in each case devoting significant attention to the cultural context. Three Assassin's Creed games - Origins,

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<sup>413</sup> <https://www.theguardian.com/games/2020/oct/22/alexandria-ocasio-cortez-ilhan-omar-among-us-twitch-stream-aoc>

Odyssey and Valhalla, respectively set in ancient Egypt, Greece and in the Viking era - feature a discovery tour module that allows gamers to roam the game without extensive gameplay but focusing on discovering history and cultural heritage. The module is specifically built to allow students, teachers and players to discover the culture and history of these eras at their own pace, or to embark on guided tours and stories curated by historians and experts.<sup>414</sup> In addition, Ubisoft also cooperates with public organisations that use their game engine and modelling systems for exhibitions purposes, for instance the Institut du Monde Arabe in Paris used it for an exhibition on Palmyre.<sup>415</sup> A striking example of the attractiveness of cultural heritage sites displayed in-game is found in Tuscany (Italy), where the town of Monteriggioni, which appears in the second chapter of the Assassin's Creed saga, has seen its number of tourists increase exponentially. From 1 January to 30 June 2010, there was an increase of 7.24% in arrivals and 16.28% in overnight stays, compared to the same period in 2009.<sup>416</sup> During 2010, there was also a 30% increase in admissions to the Armoury Museum and the walkways on the walls. Surveys launched by the Monteriggioni municipal administration provide interesting evidence of the impact of video games on tourism: 11.4% of visitors said they came to know Monteriggioni thanks to a video game. Destinations in the real world are finding that visitors have first experienced their tourist destination in a video game and are following up with a physical visit to relive the places they have passed through in the game or out of curiosity to see how close the game comes to reality. This is also related to the phenomenon known as Game Transfer Phenomena<sup>417</sup> which indicates how elements within video games can be associated with real world characteristics with the effect of generating specific thoughts, feelings, and behaviours even outside the game, such as physically wanting to reach a place and discover it.

The appearance of cultural heritage in popular video games greatly aids the valorisation process by raising public awareness of heritage sites and objects. This does not only apply to tangible heritage, but also to cultural routes (see *Unearthed: Trail of Ibn Battuta*) and intangible heritage (see the case of the Sami Game Jam, a collaborative game which supports the revitalisation of Indigenous self-narratives in the context of Sámi culture).<sup>418</sup> The value of video gaming for education and for enhancing cultural awareness and appreciation is clear from the trends and experiences reported by the industry stakeholders engaged in workshops and interviews through this study. The final chapter of this study reflects on how policy framing and future strategy might maximise the potential and positive impacts of video gaming in this area.

According to the contemporary concept of edutainment, cultural institutions, in order to use more engaging storytelling and language strategies, have started to include the ludic dimension in their cultural offer. The word edutainment (i.e., the relationship between education and entertainment: the interaction between the educational process and the ludic dimension) has become the subject of a rich debate.<sup>419</sup> Cultural heritage games (video games based on cultural heritage) also help to engage younger audiences with cultural heritage and provide an interactive way to educate people about the importance of preserving cultural heritage. The game design can bring important learning points: by interacting with heritage, players can learn how to best protect and conserve their heritage. The

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<sup>414</sup> <https://www.ubisoft.com/en-gb/game/assassins-creed/discovery-tour?isSso=true&refreshStatus=noLoginData>

<sup>415</sup> <https://www.imarabe.org/fr/evenement-exceptionnel/nocturne-cites-millenaires-imaubisoft>

<sup>416</sup> <https://ivipro.it/it/speciale/monteriggioni-e-assassins-creed-ii-otto-anni-dopo/>

<sup>417</sup> A. B. Ortiz de Gortari, M. D. Griffiths (2012), *An Introduction to Game Transfer Phenomena in Video Game Playing*, Nova Publisher, March 2012

<sup>418</sup> Annakaisa Kultima, Jaakko Stenros, J. Tuomas Harviainen. 2021. Jamography: How to Document and Reference Design Jams in Academia. *New Trends and Challenges in Information Science and Information Seeking Behaviour*, pages 153-165.

<sup>419</sup> Malegiannaki, I.; Daradoumis, T. Analyzing the educational design, use and effect of spatial games for cultural heritage: A literature review. *Comput. Educ.* **2017**, *108*, 1–10.

interactive dimension of video games can also encourage players to think critically about the effects of their decisions on heritage assets or on the environment.<sup>420</sup>

The increasing number of exhibitions and museums making use of video games demonstrates a growing process that could be long-lasting and have a significant impact on the development strategies of cultural audiences. It is crucial for museums to find new means of engagement while maintaining cultural and curatorial quality. Video games are seen as an interesting avenue to attract new audiences, and engage more deeply with younger audiences. In recent years, video games and gamification have played a valuable role enhancing cultural heritage across territories and is often promoted also by local authorities. This is the case of the game *Father and Son*, designed in collaboration with the Archaeological Museum of Naples, which allows players to travel back in time during significant historical events, weaving the characters' storyline with the museum collection.<sup>421</sup> Video games can be used not only to attract new audiences, but also to enhance experiences and understanding of a physical destination, and its cultural context / importance.

Serious games (defined in section 2.2.2), on the other hand, prioritise non-entertainment utility while aiming to be fun, and are used for many different applications such as exploring and promoting cultural heritage. Academics or heritage-oriented organisations can also use the approach of these games to reach a wider audience. One example is *World of Temasek*, an online role-playing game depicting Singapore in the 14th century. The game was partially funded by the National Heritage Board of Singapore and developed in collaboration with research centres for dual use, both academic and for the general public. Although the game incorporates heritage-related quests and dialogues, its cultural depth remains limited, while its commercial purpose has failed to capture a significant audience outside the university classroom. This shows how difficult it is to maintain the right balance between these two aspects. This practice of serious games applies not only to tangible heritage, but also to intangible heritage. This is the case with *The Elder Scrolls V: Skyrim*, an example of a game set in a fantasy world populated by extensive references to a real culture, built on a layer of pre-Christian Scandinavian culture and depicting the recognisable Scandinavian landscape, even if adapted to a fantasy world of dragons and magic. This game tells the story of the heritage of the landscape and ancient traditions.

Another virtuous example can be found in Stockholm, at the National Museum of Science and Technology, a well-established institution with a long history and high status as a national museum with a statute to preserve technology and industry as part of Swedish cultural heritage. In 2013-2014 the museum hosted an exhibition called *GameOn 2.0* that opened the floodgates to important reflections on the relationship between video games and museums. The exhibition was conceived in a didactic manner, as a tool for knowledge and in-depth exploration of the game themes. The novelty factor combined with the growing interest in video games greatly contributed to the success of the exhibition, which convinced the museum management team that video games should be part of the permanent collection both as a pedagogical tool and as cultural heritage.

## 5.2.2 Safeguarding video games as heritage

As previously mentioned, video games are complex, intricate works of art that include computer programme creations, i.e., software, graphical elements, musical compositions, sound recordings, other

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<sup>420</sup> Camuñas-García, Daniel, María Pilar Cáceres-Reche, and María de la Encarnación Cambil-Hernández (2023). "Maximizing Engagement with Cultural Heritage through Video Games" *Sustainability* 15, no. 3: 2350. <https://doi.org/10.3390/su15032350>

<sup>421</sup> Available at: <https://www.euronews.com/culture/2022/10/03/father-and-son-the-hit-time-travel-video-game-produced-by-a-museum-in-naples>

copyright-protected subject matter and sometimes performances by artists. The recognition of video games as a form of heritage, and by extension, safeguarding this digital heritage, is therefore necessary but also rather complex. The availability of older video games is a known issue and games become unavailable as the hardware and software required to run them become obsolete, or simply because of commercial decisions (e.g. the costs to maintain the games becomes higher than the revenues generated). A study on the US market estimates that 87% of games are not available anymore, and only 3% of games published before 1985 are still available.

This new cultural awareness of video games brings up issues related to safeguarding and preservation. Video games were born in digital form. Hence, the instruments required for their safeguarding are different from those of other heritage objects. To properly preserve and safeguard video games, it is necessary to consider their different components: from the game code to the storylines to the technical tools necessary for its operation. This is facilitated today using emulators or streaming services, which allow old retro games to be run without the need for the original hardware. This aspect has important implications for the preservation of copyright and intellectual property (IP) rights, which can be centrally controlled if video games are not offered for download. Safeguarding video games therefore entails two main components: 1) "migration" or the conversion of videogame data into a media-neutral storage format, which is typically done by creating an exact, bit-for-bit replica of the disk on which the videogame was originally stored; and 2) "emulation" which involves the reverse engineering of the operating system which it seeks to replicate, and most often requires the de-compilation of parts of that system's programme code.<sup>422</sup>

However, the above aspects are not fully defined within the existing regulatory framework and require clarifications. Directive 2019/790 (the CDSM Directive)<sup>423</sup> introduced new rules on the conservation of cultural heritage, with a partially mandatory new regime of limitations and exceptions for uses exercised by cultural heritage institutions. Article 6 of the Directive specifies that the exception allows "cultural heritage institutions to make copies of any works or other subject matter that are permanently in their collections, in any format or medium, for purposes of preservation of such works or other subject matter and to the extent necessary for such preservation".<sup>424</sup> This exception may be appropriate to ensure that cultural heritage institutions can properly preserve video games in their collections.<sup>425</sup>

As noted above, the adequate preservation means not only preserving the source code itself and the associated documentation and media but also ensuring the playability of the game. This requires emulation, which is potentially permitted under the Software Directive. Article 5(1)(3) of the Software Directive Paragraph (1) (a) allows a person lawfully acquiring the software to reproduce the computer program by any means and in any form, in whole or in part, permanently or temporarily, for the purpose of loading, displaying, running, transmitting or storing it, without the rightsholder's authorisation, for the purpose of its intended use. The translation, adaptation, arrangement and any other alteration of a computer program provided for in paragraph 1(b) are also relevant for the purpose of preserving

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<sup>422</sup> Lee, Y. (2018) Making videogame history: videogame preservation and copyright law. *Interactive Entertainment Law Review*, 1 (2). pp. 103-108. ISSN 2515-3870 <https://doi.org/10.4337/ielr.2018.02.03>

<sup>423</sup> Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on the copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC.

<sup>424</sup> Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on the copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC.

<sup>425</sup> István Harkai (2022) Preservation of video games and their role as cultural heritage, *Journal of Intellectual Property Law & Practice*, Volume 17, Issue 10, October 2022, Pages 844–856, <https://doi.org/10.1093/jiplp/jpac090>

playability, if such an act is necessary to enable the person lawfully acquiring the program to use it for its intended purpose, including the correction of errors.<sup>426</sup>

A few caveats should be mentioned here: 1) the copyright exception only applies to recognised cultural institutions, whereas game preservation is often worked on by gaming communities online; 2) locating the relevant rightsholders for video games can be very complex, as game development entails complex contractual arrangements between multiple parties, leading to situations where the rightsholder of a particular videogame cannot be found easily; 3) Some analyses do point out that while emulators could be deemed lawful for game preservation purposes, they may lead to some form of liability in relation to infringements carried out by its users, on the basis that emulation software enables gamers to play unlawfully downloaded copies of video games.<sup>427</sup> It should also be noted that investment in game preservation is most often done by specialised companies, universities and cultural institutions rather than game developers themselves (except larger studios which sometimes develop and maintain their own archives).<sup>428</sup> In most cases game preservation is welcomed by game developers, provided that the process does not entail any liabilities for them (e.g. due to licensing contracts with third parties) or impede their ability to further monetise the game's IP.

In response to these questions, the example of the International Computer Game Collection<sup>429</sup> in Berlin is interesting. The project has the objective of creating the world's biggest collection of video and computer games and shows how agreements between rightsholders can work in the interest of the public and allow access to older games.

Moreover, the cultural importance of video games is not only about the software in itself but also in the way it expresses and represent the culture it is part of. Therefore, it is crucial also to preserve what the game means to society and what they say about the culture of their time.

Although awareness around video game preservation and safeguarding is gradually rising among academics, publishers and policy makers, challenges still exist for safeguarding video games heritage in the European context. Most notably, existing copyrights and licensing rules raises much difficulty for museums and archives to obtain (and possibly display) older video games for preservation purposes. Certain video game companies, such as CDPR (Warsaw), are commercialising older video games, which also helps to safeguard and retain important components.

Understanding video games as cultural heritage needs to consider a balance between the economic and cultural value of games. The video game industry is highly capital-intensive and seeks to maximize IP rights for the products it produces (including remakes and further exploitation of older games); however, it can be argued that video games, in addition to being contemporary works that are protected by copyright, are also part of cultural heritage. In this respect, it is legitimate to expect rightsholders to tolerate the exercise, within a limited framework, of the exclusive economic rights necessary for the safeguarding of digital heritage by professional heritage institutions that are responsible for the preservation and safeguarding of cultural heritage and to make the video games available to the public.<sup>430</sup> There is a pronounced need for a certain form of unified authority to take on decision-making regarding video games heritage's valorisation and safeguarding. While the exception under article 6 of

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<sup>426</sup> Ibid

<sup>427</sup> Lee, Y. (2018) Making videogame history: videogame preservation and copyright law. *Interactive Entertainment Law Review*, 1 (2). pp. 103-108. ISSN 2515-3870 <https://doi.org/10.4337/ielr.2018.02.03>

<sup>428</sup> Interviews

<sup>429</sup> <https://www.internationale-computerspielesammlung.de/en/>

<sup>430</sup> István Harkai, Preservation of video games and their role as cultural heritage, *Journal of Intellectual Property Law & Practice*, 2022, Vol. 17, No. 10.

the CDSM Directive seem like an important step forward, the practical implications and how this facilitates game preservation in practice has not been appraised yet.<sup>431</sup> The involvement of the gaming community, as well as the cooperation between cultural heritage institutions and the video game sector (e.g. to identify and preserve the source codes of older games) are also important aspects to consider.<sup>432</sup>

### 5.2.3 Overview of the education and well-being potential of video games

This sub-section presents the findings regarding the use and exploitation of video games in education and increasing well-being and health.

The cultural and social dimensions of video games pose a complex challenge for the world of education and training, as presented in workshop 6 on Health, well-being and video games. The use of video games as a teaching method has proven to have beneficial aspects on the learning process of students, indeed video games can be a pedagogical tool both to bring the user closer to certain contents and to help them develop specific skills - for example, research<sup>433</sup> has shown that a few hours of training on a video game improves several aspects of attention, such as the ability to effectively allocate attentional resources between different tasks and locations in the pursuit of a goal.

The exploitation of video games teaching methods is based on a few key factors: firstly, it turns learning into a fun and exciting game without traditional lectures, so that students assimilate and retain information almost without realising it; secondly, it can increase motivation, as students become the protagonists of the story and their success is rewarded, so this captures and maintains their interest in the game.

The strength lies in the fact that the game is a metaphor, a translator of experiences, capable of conveying and transforming into clear terms the multiplicity of experiences and knowledge that the individual faces in the course of life. This is even more evident with modern, technological video games that allow immersive simulation experiences. Some research has shown that within the video game a learning-by-being<sup>434</sup> process is triggered (a step further than what we usually recognise as learning-by-doing). With the video game, it is possible to move from 'symbolic-recognitive' learning, typical of the traditional school system, to 'perceptual-motor' learning<sup>435</sup>, experienced first-hand. 'Repetition' and 'error'<sup>436</sup> as a pedagogical factor and constitutive element of video game structures, according to an active and critical model, make the learning experience more stimulating. However, these are often at odds with what is traditionally proposed and demanded at school (linear thinking, repetitive learning), video games can be the bridge to a new and open educational model.

There are several fields in which using video games for learning purposes has proven to be effective. An important finding is that multiplayer video games<sup>437</sup> can offer a testing ground to practise communication skills for those learning English as a second language (L2). Research has focused on

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<sup>431</sup> Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on the copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC.

<sup>432</sup> Interviews

<sup>433</sup> Y. J. Halbrook, A. T. O'Donnell, R. M. Msetfi (2019), When and How Video Games Can Be Good: A Review of the Positive Effects of Video Games on Well-Being, in *Perspectives on Psychological Science*, vol. 14, 2019

<sup>434</sup> A. K. Clinton (2006), *Being-in-the-digital-world: How videogames engage our prelinguistic sense-making abilities*, University of Wisconsin-Madison, 2006

<sup>435</sup> F. Antinucci (2001), *La scuola si è rotta. Perché cambiano I modi di apprendere*, Editori Laterza, 2001

<sup>436</sup> R. Nardone (2020), *Videogiochi e processi educativi: nuovi scenari di media literacy*, in S. Pescarin, *Videogames, Ricerca, Patrimonio Culturale*, Franco Angeli Editore, 2020, Milan

<sup>437</sup> Video games involving or allowing simultaneous play by more than one player through a shared interface.

multiplayer video games because, especially in the case of online video games, they have made it easier to interact with people from other cultures and use other languages. The need for a language learning environment where students can continuously practise English in authentic contexts has led many educators to turn to technology. Indeed, the use of video games among young people offers educators the potential to tap into a popular and familiar activity for their students. Online multiplayer video games are also useful for increasing engagement in learning, as they help improve students' willingness to communicate in English, creating a bridge between the formal educational context and the informal one in which they spend much of their free time. Moreover, many students are reluctant to use the second language (L2) due to anxiety about receiving negative evaluations or being ridiculed. Studies<sup>438</sup> have theorised that using virtual avatars within video games offers students a kind of virtual mask that might reduce their anxiety levels and help them to feel protected from threats of negative evaluations and embarrassment. Finally, the trial-and-error nature of video games gives the player the opportunity to see the consequences of making a mistake, without suffering emotional effects and leaving the possibility to go back and try again. This allows students to learn in a protected environment, using the knowledge gained from previous failures and seeing how things change as a result.

At the same time, game-based learning practices go far beyond the potential of using games to learn a second language. Research suggests the potential of gendered-balanced video games usage in bridging the gender gap in STEM careers, by stating that open-ended, 3D games that encourage spatial-skill training will give girls the edge and confidence they will need later in life to pursue a STEM career.<sup>439</sup> Video games are widely recognised as helping students stay in STEM subjects, with universities developing purposefully designed games, such as *Variant: Limits* by Texas A&M University or *Mission Prime* by the University of Oklahoma. There are several reasons why games are considered powerful educational tools<sup>440</sup>: 1) games provide experiential learning, such as in the *ARTé: Mecenas* game where players are members of the Medici family and become patron of the arts and bankers; 2) games allow players to learn from failure and to have a higher degree of engagement in educational activities. Consultations undertaken across the course of this research indicated that there is much expectation about the potential for video gaming to support education, training and development – in some cases directly being used as a tool to combat skills and recruitment gaps (for example, a representative for *Giants Software* consulted at *Gamescom* outlined how the French Government is using the *Farming Simulator* title to encourage young people to pursue farming as a career option).

#### 5.2.4 Video games as a skills test

One of the main strengths of video games is the ability to create engagement through the new challenges that entice the player to test their skills and to compete or cooperate with other members of their community. Implementing game success includes setting specific goals to be achieved and measuring the results in a quantitative and qualitative way. For example, in games involving increasing levels of difficulty, success indicators are often adapted to measure player's achievements so that they are aware of the progress of their skills and are compelled to keep playing.

The operational skills that are gained from playing video games, such as computer literacy, manual dexterity and the ability to read multiple screens, have also positive implications in the real world where

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<sup>438</sup> K. S. Horowitz (2019), *Video Games and English as a Second Language. The Effect of Massive Multiplayer Online Video Games on the Willingness to Communicate and Communicative Anxiety of College Students in Puerto Rico*, in *American Journal of Play*, volume 11, number 3, 2019.

<sup>439</sup> Available at: <https://ideas.time.com/2013/07/24/viewpoint-girls-should-play-more-video-games/>

<sup>440</sup> Available at: <https://today.tamu.edu/2021/09/06/5-reasons-video-games-should-be-more-widely-used-in-school/>

players can strengthen that part of their skill set. The same applies to problem-solving skills, memory, improving decision making and developing strategies, particularly in the case of players of action or strategy games<sup>441</sup>. Some skills acquired by playing video games even have a direct professional application, since these traits are desirable for employers in different fields.<sup>442</sup> E-sports are the most extreme example of professional video game dimension, with global competitions for video games such as StarCraft (strategy game), League of Legends (team defence game) or Counter-Strike Global Offensive (first-person shooter) attracting millions of spectators every year. Like professional poker players and professional athletes, professional gaming (pro-gaming) is increasingly becoming a viable career choice for many people, supported by dedicated teams and a multi-million-dollar industry of casting, merchandising, and organising e-sports tournaments.

### 5.2.5 Video games' role for well-being

Video games have been criticised when it comes to health and well-being, with concerns over their negative influence on physical well-being, particularly obesity, or mental well-being, such as the impact of stereotypes and harmful narratives of video games on adolescents and young adults, or the issue of problematic gaming and addiction. While in the past, researchers had mainly addressed these negative effects, today an increasing amount of research shows that video games can also have a positive impact on different dimensions of well-being, such as cognitive, motivational, emotional, and social aspects.

Precisely because of their controversial nature, 'violent video games' are the most studied, especially when it comes to people's behaviour. Any specific aspects of play that have been identified as potentially having beneficial or negative effects on players' well-being must consider the broader environment around individuals. Recently, new research found that games in which it is possible to break the rules allow players to engage in activities contrary to social norms and to experience the consequences of these actions in a safe space. When a player engages in these activities in a fictional game world, he is less likely to reproduce these scenarios in real life because he is more aware of the consequences.<sup>443</sup>

The popularity of video games also raised discussions around gaming addiction and aggressive game designs. Discussions around problematic digital gaming were fuelled when the American Psychiatric Association (APA) included internet gaming disorder in its Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as a potential diagnosis that requires further study.<sup>444</sup> This type of recognition in the DSM-5 means that further research is needed to define the criteria for the diagnosis and to understand how problematic gaming develops and how permanent its harmful effects are. In June 2018, the World Health Organisation (WHO) included gaming disorder in its International Classification of Diseases (ICD-11) for the first time, giving it the status of an official disease. The prevalence of gaming disorder is not known at EU level, though some national level studies were carried out. For instance, research carried

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<sup>441</sup> Action video games are video games defined by fast-paced gameplay with a focus on, usually, movement, combat, hand-eye coordination, and reaction time. Strategy video games are games in which the players' decision-making skills have a high significance in determining the outcome of the game.

<sup>442</sup> Yuchun Zhong, Kai Guo, Jiahong Su, Samuel Kai Wah Chu (2022) The impact of esports participation on the development of 21st century skills in youth: A systematic review. *Computers & Education*, Volume 191, 2022. <https://doi.org/10.1016/j.compedu.2022.104640>.

<sup>443</sup> Männikkö, N., Ruotsalainen, H., Demetrovics, Z., Lopez-Fernandez, O., Myllymäki, L., Miettunen, J. & Käriäinen, M. (2017) Problematic Gaming Behavior Among Finnish Junior High School Students: Relation to Socio-Demographics and Gaming Behavior Characteristics. *Behavioral Medicine*. 2017, 1–11.

<sup>444</sup> American Psychiatric Association (2013) *Diagnostic and statistical manual of mental disorders*, 5th edition. Washington, USA. 2013.

out in Finland found that problematic digital gaming amongst young players affected around 1 percent of gamers.<sup>445</sup>

Video games may also raise concerns in terms of aggressive game marketing and game design such as the reward loop, as discussed in Chapter 3 (section 3.2). Commercial messages and techniques seeking to direct behaviour or manipulate emotions can occur, especially in freemium games where the limit between free and paid content as well as the mix of in-game and real-world currencies can blur the boundaries between free and paid content. Marketing game design may make use of behavioural biases or manipulative elements relating to, e.g., the timing of offers within the gameplay (e.g. offering micro-transactions during critical moments in the game), pervasive nagging or the use of visual and acoustic effects to put undue pressure on the player. This is acknowledged by the video game industry and the guidance on the implementation of the unfair commercial practices directive directly addresses this aspect.<sup>446</sup>

Social game, which consists of playing a video game with others, are a useful instrument to increase personal well-being. This type of game includes two categories, which can be classified as cooperative or competitive: in cooperative games, two or more players engage in the same team with the same or similar goals, while in competitive games, two or more players play against each other competitively. Video games that include these social components have been shown to have positive effects on psychological aspects: they encourage a higher level of positive interaction leading to higher levels of enjoyment. They can also positively influence prosocial behaviour - defined as a proxy for social well-being.

In recent years, mindfulness has received increasing attention as a method to improve well-being. Video games have been proved being very useful for inducing flow, the state of mind that is achieved when one is completely absorbed in an activity.<sup>447</sup> This can lead to relaxation, increased concentration, improved mood, reduced stress and greater empathy. Although these aspects can be achieved through a variety of games, there are some video games, such as Playne, developed with the specific goal of leading towards meditation and of enhancing mindfulness.

There is also a growing branch of research demonstrating the positive impact of video games that require the player to physically interact with the game: exergames. Most of them are played on consoles equipped with a physical sensor that detects movement, such as the Wii or the Xbox Kinect. Since exergames encourage the user to be physically active, it is not surprising that research in this area often focuses on their impact on physical health outcomes, such as balance levels and cardiovascular health. The use of exergames exploded during the pandemic as a means of exercising despite restrictions. Platforms and gaming apps for home exercise have seen the number of downloads and players multiply. An example is Zwift, a multiplayer online cycling, running and physical training program that enables users to interact, work out and compete in a virtual world. Zwift recorded a record number of people using the platform in April 2020, with the number of users cycling simultaneously exceeding 30.000, and by the end of November 2020, Zwift's subscribers had grown by 270%.

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<sup>445</sup> Männikkö, N., Ruotsalainen, H., Demetrovics, Z., Lopez-Fernandez, O., Myllymäki, L., Miettunen, J. & Kääriäinen, M. (2017) Problematic Gaming Behavior Among Finnish Junior High School Students: Relation to Socio-Demographics and Gaming Behavior Characteristics. *Behavioral Medicine*. 2017, 1–11.

<sup>446</sup> European Commission (2021) Commission Notice – Guidance on the interpretation and application of Directive 2005/29/EC of the European Parliament and of the Council concerning unfair business-to-consumer commercial practices in the internal market. [EUR-Lex - CELEX:52021XC1229\(05\) - EN - EUR-Lex \(europa.eu\)](#)

<sup>447</sup> D. Cruea (2019), Gaming the Mind and Minding the Game: Mindfulness and Flow in Video Games, PASCY, Dec 2019

### 5.2.6 The role of video games for health

Following on from the above is the role of video games in improving and promoting health-related well-being. This is an ever-moving field of research that is beginning to produce some interesting results on the role that video games can play in enhancing health recovery, improving brain function and motor coordination, and promoting stress reduction and relaxation. Gamescom 2022 featured many speakers whose research and experiences pointed to the value of video game applications for physical recovery and physiotherapy. Indeed, video games could be an effective supplement to traditional care for their potential to increase patient involvement and engagement with therapy. For example, among the effects of functional loss, patients may suffer from depression and decrease motivation to support rehabilitation. The integration of video games into therapy after hemiparesis may provide a viable solution to the lack of involvement and accessibility of current therapies. The Kinect system (Microsoft) has been used as a sensor to monitor the kinematics of participants' upper limb movements in virtual reality-based rehabilitation exercise studies. This approach was implemented in a baseball-like game: by moving their shoulders and elbows, study participants controlled the arm movements of an avatar to receive balls thrown in Virtual Reality. Performing this task in VR led to improved patient performance and affection. Increasing patient engagement through gaming has the potential to dosing the therapy-relevant movements by integrating these movements into an interactive environment. Brain e-Novation, a research centre specialised in e-health is a joint venture between a serious games company (Genious), and the Paris Brain Institute (ICM) working with games for the treatment of various health issues, including notably the Parkinson disease.<sup>448</sup>

The most important in-game factors for rehabilitation combine personal motivation factors (such as perceived control, curiosity, exploration and imagination), social motivation factors (such as cooperation, competition and recognition) and game design factors. The research<sup>449</sup> emphasises among the key factors: the presence of rewards, in fact the game is more motivating if it contains rewarding experiences; challenges, adaptive and multilevel games offer the best solution to maintain an appropriate level of challenge; the presence of feedback on what to do to improve motor learning, which also has a motivational function; interactivity; the description of clear objectives, which offer satisfaction based on results; and socialisation at a distance, through being a member of an online community.

### 5.2.7 The environmental aspects of video games

As in other creative sectors, video games are concerned with environmental challenges in two ways: 1) as a sector/industry that needs to make the best efforts to curb its environmental footprint, both for the physical devices required to play video games, and for the digital services used 2) as a medium that connects a broad community of users and that can be a powerful force to raise awareness about environmental issues, and encourage gamers to take action.<sup>450</sup>

In terms of addressing the environmental footprint of the sector, a major initiative was taken by the three console manufacturers (Sony, Nintendo and Microsoft) as from 2015, when they signed a voluntary agreement under the Ecodesign Directive.

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<sup>448</sup> <https://brainenovation.com/en/home/>

<sup>449</sup> N. Hodges (2013), Video games and rehabilitation: Using design principles to enhance engagement in physical therapy, in JNPT, vol 37, December 2013

<sup>450</sup> Patterson, Trista & Barratt, Sam (2019) Playing for the Planet – How video games can deliver for people and the environment. UN Environment/GRID-Arendal. Arendal, Norway

The Games Consoles Voluntary Agreement (also referred to as the Self-Regulatory Initiative, SRI) aims to reduce the environmental impact of games consoles over their life cycle and to achieve energy savings and material efficiency through better design, thus benefiting the environment while seeking to preserve performance and gaming experience. The agreement also aligns with the European Commission's action plan on the Circular Economy.<sup>451</sup> The agreement is monitored yearly by independent auditors and reviewed every two years. This yielded considerable results, with the estimated annual typical energy consumption (TEC) being stable between the latest versions of the game consoles (e.g., between Sony PS4 pro and PS5), whereas the power output of the device increased significantly (around 10 times).

Calculating the exact environmental footprint of video games is challenging and vastly varies depending on devices used, types of games, settings (HD, raytracing, etc), or even on game circumstances themselves (e.g., when lots of elements/characters need to be displayed at the same time). Additionally, interviews and studies indicate that a large part of the environmental footprint is generated at device manufacturing stage<sup>452</sup>, which further strengthens the relevance of the Games Consoles Voluntary Agreement.

In terms of awareness-raising and encouraging the gaming community to take action, the main initiative is arguably the "playing for the planet" initiative (coordinated by UNEP with the support of all the main video game trade associations), launched on 23 September 2019 at UN Headquarters in New York during the UN Secretary-General's Climate Action Summit.<sup>453</sup>

The initiative includes pledges from video game companies to become net-zero by 2030, but also most importantly green game jams, where game companies and gamer communities develop and release content within games to raise awareness/prompt to take action against environmental issues. According to the 2021 report, more than 130 million people engaged with the content created. This also led to several impacts: over 266,000 trees were planted, and the campaign generated around USD800,000 (EUR 723,225) in donations to different charities working with environmental causes.<sup>454</sup> Other notable initiatives presented include GamesForest.Club, a non-profit organisation that connects video games with the ambition to increase the public's interest in climate change and encourage action for its mitigation. Specifically, it provides the video game industry with a gaming tool that visualises all restoration activities undertaken by studios in real life.

To summarise key trends, in terms of spillovers, the Video Game Industry is increasingly offering opportunities for other CCS. It is most notably the case of films and TV, where productions using video games IPs are increasing both in number and perceived quality (2023 saw the release of the much-anticipated Super Mario Bros movie and of a TV series based on The Last of Us).

The music industry benefits from crossovers with the video game industry as well, both indirectly as most players are avid music listeners while consuming video games, and directly, with game developers investing in original music productions for their games.

In this context (as discussed in Chapter 2), the virtual worlds developed by video games are opening the door for closer collaborations between video games developers and other CCS. Cultural institutions are increasingly adopting video games and gamification practices in their audience engagement strategies

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<sup>451</sup> <https://efficientgaming.info/eu-voluntary-agreement/eu-voluntary-agreement>

<sup>452</sup> European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, (2019) Review study of the ecodesign voluntary agreement for the product group "videogames consoles": final report. Publications Office. <https://data.europa.eu/doi/10.2873/598747>

<sup>453</sup> <https://playing4theplanet.org/about>

<sup>454</sup> United Nations Environment Programme (2022). Playing for the Planet Annual Impact Report. Nairobi.

and several research has shown the positive impacts of video games on tourism, such as in the case of the Assassin's Creed saga.

Video games also have a role in representing minorities, with studios rapidly adapting to evolving sensibilities and societal demands in this domain, as well as growing applications in the educational and in the healthcare sectors. Nonetheless, concerns remain regarding its negative effects as well (e.g. potential gaming disorder). In 2018, the World Health Organisation (WHO) included gaming disorder in the list of official diseases, urging for further research on its extent among gamers. video games are acknowledged as a form of cultural heritage, but safeguarding the complex software, content and hardware combination of video games raise several issues Preserving video games not only implies preserving all its components, from the game code to the storylines to the technical tools necessary for its operation, but also its playability. Furthermore, video games are in most cases protected by IP and software regulations. This requires clear licensing guidelines to facilitate game preservation and foster cooperation between heritage institutions and game companies.



# 06

## Conclusions and Recommendations

## 6.0 Conclusions and Policy Framing

This section presents the overall findings and recommendations to the study.

Increased competitiveness for the EU sector is the ultimate vision or impact to underpin a future EU strategy across this sector and policy area. The study highlights a number of challenges which stand in the way of EU sector competitiveness being maximised, and this section presents how specific types of intervention and action by a range of actors (industry, government, education institutions and organisations working in connected sectors), might bring about the necessary outcomes to underpin this increased competitiveness.

### 6.1 Overarching conclusions

Below we highlight a set of overarching summary findings which stand out across the market assessment areas, and which inform the subsequent policy framing and suggested recommendations.

#### Market conditions and financing

With regard to **market conditions and financing**, the video game sector across the globe has enjoyed **rapid revenue growth over recent years**, and the European video market has also seen marked growth, generating EUR 23.48 billion of revenue in 2022, growing by 15% compared to 2021. Whilst the modalities of commercialisation and patterns of consumption change over time (for example reflecting the COVID-19 pandemic and the economic downturn), there is confidence across industry and connected stakeholders (academic experts, sector bodies) that the sector will achieve high levels of continued future growth.

The video games market in the EU is predicted to see a 45% increase in current revenue figures (rising to EUR 34.28 billion by 2027). The EU market share within the global market has been **fairly stable over recent years. A slight decline in its share from 8.7% to 7.3% is predicted** over the 2017-2027. This shift is due to **growth in competing markets such as** North America, Asia and Africa. Strategy now needs to position the European sector to compete in a global marketplace.

The EU's video games sector generates higher revenues than other aligned or sub-sectors, and therefore has a prominent place within the overall cultural and creative industries (CCI). Revenues for the EU video games sector for 2020 in the EU were 5.5 times higher than for the e-Publishing sub-sector, 4.3 times higher than digital music and 1.8 times higher than video-on-demand.

The main driver for growth within the European video games sector is the digital and mobile gaming element. Specifically, **mobile games**<sup>455</sup> account for 73% of the overall revenues in the video game sector in the EU27 (as of 2022). Contrastingly, only 17% of European video game revenues now come from physically sold games, highlighting a marked shift in consumption patterns in the market.<sup>456</sup> With the digital transformation and the emergence of mobile games has come huge and fast-paced changes for the EU industry, with the emergence of mobile games and online platforms (including 5G).

A key feature of the sector is the prominence of small companies and indie developers. The diversification **of distribution platforms** for video games beyond consoles and PCs (as highlighted above) has allowed for growth in the indie games segment. Around 70% of video games companies in the EU employ less than 10 people. The prominence of smaller firms in the sector is again highlighted by the fact that only two of

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<sup>455</sup> Mobile games are games designed for mobile devices, such as smartphones, pocket PCs or personal digital devices such as a tablet.

<sup>456</sup> Physically sold video games are sales of physical console and PC games associated with in-person purchases of video games in either retail stores or in online-shops as CDs, DVDs, or other solid storage media.

the 19 largest games developers in the world are found in the EU27. Small companies are an important feature of the indie scene, and they bring much creativity and innovation to the sector. However, the predominance of small companies within this EU sector also brings challenges, since companies do not often have the resource or capacity to recruit to specialist roles nor train their staff effectively. This (as explored later in the conclusion) has implications for the support needs of the sector, and the type of interventions which are needed to facilitate future growth.

The European video games market competes less well globally on the investment-intensive parts of the market, specifically hardware manufacture since there is no major console or hardware manufacturer located in the EU.

In terms of the areas for future growth, **Gaming Live Streaming**<sup>457</sup> is anticipated to display growth rates of 220% from 2017 to 2027 and become the most popular segment in the video games industry by 2025. Meanwhile **Cloud gaming**<sup>458</sup> is expected to have growth rates of 600% expected between 2020-2024. The sector is also heavily affected by recent technological advancements including AR/VR and the metaverse. Large investments in this area are predominantly driven by large tech companies (often based in North America), with European companies not yet established in the application of these novel technologies.

A key challenge for the sector overall is **how best to support growth and scaling up for the small businesses** which represent the majority of the sector. Specifically, a private financing gap in the European market brings challenges in access to finance for small companies. Access to finance is a prerequisite for scaling up and for innovation, in order that investments can be made to underpin future growth.

The number of people playing video game in Europe increased significantly over the pandemic and although player numbers are now steady, over 50% of the Europe's population aged between 6-64 years old regularly play video games. There are no significant gender differences among players in Europe but there is some variance by age (80% of 11-14-year-olds are video games players while 35% of 45-64 regularly play video games).

## Regulation

Looking to **regulation**, it is clear that the **regulatory framework underpinning the video game sector is complex**. This reflects the nature of video game creation, relationships with connected sectors and supply chains. The regulatory framework relates to content (copyright and other forms of IP protection), hardware and software (product safety, AI regulation, data protection rules), or games as a product or service (consumer protection rules, minors' protection). The **legal framework** underpinning anticompetitive behaviours and consumer protection across the EU sector offers a **high level of protection** – and this is a positive feature of the EU sector compared to some others across the globe. However, there is a challenge for small companies where they need to interpret and comply with a range of regulations, whilst at the same time remaining competitively placed within the marketplace.

## **Anticompetitive behaviours in the video games sector are scrutinised as part of EU antitrust law.**

While the video game market is competitive and comprised of a diverse range of market players, competition risks can come about in the area of emerging market trends and new technologies and innovation.

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<sup>457</sup> The live streaming of video games is an activity where people broadcast themselves playing games to a live (usually online) audience.

<sup>458</sup> Cloud gaming is a method of playing video games using remote servers in data centres which means the user does not have to download and install games on their device.

The video game sector does not benefit from a particular State aid exemption in the same way as other sectors in the cultural and creative industries, but European countries are acknowledging the value of supporting video games, especially through tax shelter schemes.

As mentioned above, the consumer protection legal framework in Europe offers a **high level of protection for users and consumers**, especially for minors. Self-regulation has an important place in the industry namely in terms of minor protection, parental control tools, moderation of online exchanges. However, several challenges linked to harmful online behaviours affect the video games sectors in the EU, such as gaming addiction, unwanted online behaviours (including the sharing of inappropriate content), and online grooming. Here the regulatory framework for the protection of consumers, especially for minors and vulnerable adults, needs to continue to evolve to keep pace with technological developments and specific threats in relation to addiction and unwanted online behaviours.

**Cultural content and original creations:** the regulatory framework applicable to **IP protection** in Europe is robust provides adequate protection for cultural content, original creations and the creative elements which make up video games. The ways of enforcing these rules are evolving in some cases where the speed of (mobile) games replication may outpace legal proceedings.

### **Education, Employment and Skills**

The video games sector in the EU employs more than 74,000 people across 5,000 different games companies and publishing studios. The **number in employment has been steadily increasing over recent years**, even considering cycles of layoffs which in itself is a feature of the industry. In most cases, workers enter the sector by combining knowledge acquired through **formal 'traditional' education alongside experience and knowledge developed more informally and independently** (such as through self-learning via online training). There is not a formally agreed categorisation of job roles within the sector, and employees within small companies often work flexibly across jobs roles, combining tasks and responsibilities of different sorts. Many small companies lack the resource and capacity to both recruit new staff and also to train existing staff in new areas. Temporary or freelance staff are widely used in the sector, which limits the opportunities for ongoing training and development, and the degree of contractual security within the sectors workforce.

The video game sector workforce in the EU **suffers from labour supply shortages**. Around 40% of firms reporting difficulties in recruitment and finding the skills that they need. There are challenges reported by industry across a wide range of roles, and the EU sector experiences drain of skilled labour to other parts of the global market. Retention is also a challenge where workers leave the sector for roles in other connected professions (such as IT). Overall, the competitiveness of the EU sector could be boosted where the supply of workforce skills can be increased, and where those skills can then be retained within the workforce.

The evidence points to a challenge around how the **EU sector is positioned in relation to other parts of the global video game market**. As mentioned above, a threat to competitiveness is that skilled labour is leaving the EU video gaming industry for roles in other parts of the globe. In turn, markets such as in Asia and the US are enjoying fast growth. Here there is a need to think strategically about **how the EU sector can boost its perceived attractiveness for employees**; both in terms of how people might be first attracted to pursue a career in the sector, and ultimately that they would then find that the sector is one that they want to remain in. The role of perception and image plays a role here – the sector is still not always regarded as an attractive career choice for a range of reasons and the opportunities and possibilities of being part of the EU video game industry are not well appreciated and understood. Secondly, there are several 'push' factors at play which affect staff retention (e.g., salary levels relative to related sectors, worker protection relative to other sectors, employment stability and security).

Whilst there have been developments and improvements over recent years, **diversity and inclusion** within the sector could benefit from continued development. Whilst widened in its appeal compared to the past, the sector is still not regarded as an attractive career prospect for many segments of the population including those with protected characteristics (e.g., age, race, disability, sex, sexual orientation). There should be efforts by industry (facilitated by the public sector) to diversify the workforce to better represent the sector's community of users. This will also ensure that a widened range of skills, insights and experiences within the workforce can contribute to enhanced competitiveness, creativity and innovation within the sector.

The study has found that there is a range of provision available across the EU to educate the future workforce of the sector. There are a number of areas where the **quality of education and training provision to support a future workforce could be improved**. There is not necessarily a shortage of provision in the EU aimed at educating those wanting to move into or upwards in the sector, but the **quality and relevance of this provision** could be further developed to ensure that education develops the skills required by the workforce. Current education provision finds it hard to respond to the ever-changing needs of the sector and doesn't always offer relevant content. This challenge is fuelled by a lack of dialogue between the educationalists designing and delivering video games courses and the sector itself. Low levels of collaboration between educationalists and the video game industry and the fast-changing set of needs of the sector which make it hard for educationalists to design provision which is relevant.

### Cultural and Social Dimensions

Video games make a valuable contribution to the **cultural dimension of European society**, not only due to the specific features and mechanisms of games, but also because they bring together large player communities. They can therefore represent and reproduce cultural heritage but also play a crucial role in communication and learning across society. Video gaming can also bring intrinsic value as a form of culture that players can consume and engage with. The industry features much innovation and creativity and can bring about the same benefits for consumers as other cultural forms such as theatre or art. Policy needs to reflect that video games are more than technological products as have a distinct creative and artistic dimension of their own, and also which need to be preserved and safeguarded as creative heritage.

Video games are increasingly **interconnected with other Cultural and Creative Sectors**, also offering new ways to reach audiences and to cross-monetise Intellectual Property through collaborative innovation and content creation spanning different sectors. There is a need to capitalise on opportunities for cross-sectoral collaboration which will facilitate technological spillovers from video games to other sectors. This a specific area in which the public sector can encourage facilitation in order to boost productivity and innovation across industrial and cultural ecosystems. Collaboration between sub-sectors can be facilitated to stimulate development and innovation that will bring about benefits for individuals and societies, and revenue generation. We already see examples of innovative practice where different sectors are working together to collaborate in content creation (such as the music and video gaming industry) but there will be increased opportunities for innovation where sectors are enabled to collaborate so they can identify, and work together on opportunities for co-creation.

#### 6.1.1 Strengths, Weaknesses, Opportunities and Threats (SWOT) of the European video game sector drawing on the study findings

The below table summarises the core strengths, weaknesses, opportunities and threats highlighted across the course of the research, and also reflecting the overarching findings presented above. Structuring thinking in this way also serves as a basis for considering how policy interventions might be designed into the future to enable the sector, building on its unique strengths but responding to its existing limitations, gaps and weaknesses. The aspects highlighted are not exhaustive, and may form a basis for further research

and investigation. However, the table does distil some of the core messaging from the research in a way that can inform policy dialogue and development into the future. The SWOT approach has been in part, an analytical lens adopted by the research team and experts in the development of the policy recommendations.

**Strengths**

- ▶ Very high growth levels in the European video games sector across all domains (employment levels, revenues, profits, consumer spending and players).
- ▶ A strong and buoyant outlook for the EU video games sector despite challenges in the wider tech sector.
- ▶ A strong indie sector full of innovation and growth potential.
- ▶ A strong video game sector across the EU where each Member State has great potential.
- ▶ Constant innovation in terms of developing new business models and monetisation schemes.
- ▶ Increasing permeation and interaction with other industrial sectors, with added value for tourism, health and well-being, and education.
- ▶ A strong and active video games community of developers and industry professionals, keen to exchange their work and experience with peers – which leads to a strong offer of material and experience easily accessible (self-led education opportunities).

**Opportunities**

- ▶ A chance for the EU's video games sector to promote video gaming for social good to differentiate itself with other geographical markets.
- ▶ A sector that wants to actively influence and engage with policy makers at the EU level.
- ▶ Opportunities for increased collaboration between the European video games sector and other sectors (e.g., education, health) to further diversify the use of gaming.
- ▶ A sector with the potential to attract workers thanks to European attention to working conditions, well-being, and labour rights.
- ▶ A sector providing opportunities to workers across the EU with a wide range of technical (e.g., game programmers, audio engineers) and creative skills (e.g. visual artists, game designer, music composer).
- ▶ Existence of best practices from some Member States in terms of targeted policies design and funding schemes.
- ▶ Opportunity to better link and harmonise education provision in the EU, by sharing best practices and curricula across institutions.

**Weaknesses**

- ▶ A lack of a unified and cohesive 'EU video games sector' with its collective identity.
- ▶ Limited vision for video games from policy makers, which see them as a form of entertainment only and do not recognise their potential to address wider policy goals.
- ▶ A real lack of data on the sector to help understand key issues and to benchmark against other geographies and sectors. The current classification of video games in official statistics (NACE codes, at EU level) are not representative of the sector.
- ▶ A lack of ongoing and structured dialogue between the sector and policy makers to share understanding and inform action.
- ▶ Lack of recognition of video games as cultural products, leading to exclusion from important cultural policy priorities (e.g., on State aid).
- ▶ General low level of funding earmarked to video games at EU level and in many Member States.
- ▶ Education provision for aspiring professionals in the video games industry of varying quality across EU Member States, with limited linkages between industry and academia.
- ▶ Barriers for aspiring professionals caused by high costs of training opportunities. Struggle from public education institutions to keep their programs in line with industry needs.

**Threats**

- ▶ Competition from other markets elsewhere in the world in terms of labour, investment, and innovation.
- ▶ Lack of knowledge from policy makers on the potential that the video games sector has on tackling social issues (e.g., education, cultural)
- ▶ Difficulties to attract staff, particularly those underrepresented in the workforce.
- ▶ A sector limited in its evolution by the perception of it as a niche part of Europe's creative sector rather than a sector in itself.
- ▶ The weak evidence base and the incomplete classification in official statistics hamper efforts towards good policymaking and analysis tailored on the EU market.
- ▶ Difficulties in safeguarding video games as digital heritage, in terms of lack of funding and need for a complex mix of licensing (legal aspects), technical tools and know-how.
- ▶ The fast-paced evolution of the sector makes it difficult for education institutions to keep their offer updated and relevant.
- ▶ Difficulties in forecasting skills needs in the medium and long term, due to the ever-changing needs of companies who need to keep up with tech and industry innovations.

## 6.2 Policy framing

This sub-section provides a broad framework to help develop a strategy for enabling the EU's video games sector to grow and flourish in the future. The section starts by proposing a number of high-level themes that any future strategy should be built upon, drawing on the overarching findings of our study. These themes reflect the challenges that currently limit the effective operation and growth of the sector. The section goes on to highlight a set of recommendations that provide more detail on the actions that are needed to stimulate a stronger, and more competitive video games sector in the EU.

This policy framing is not intended to inform plans for public sector intervention, as the responsibility for enabling and driving growth in the sector should be a shared responsibility, between companies found in the sector, government across a range of levels, education providers and policy makers across a range of related sectors. The recommendations that are contained in this sub-section should therefore stimulate action from a range of different stakeholders across the public and private sectors.

Any future strategy should consider having an overall goal of **increasing the competitiveness of the video games sector in order to enable future growth that brings about a broad set of benefits for EU society**. This overall goal recognises that the sector is likely to experience growth in the future but that its competitiveness at a global scale can be strengthened and maximised based on targeted interventions. Each intervention is based around the evidence about the existing challenges to the operation and growth of the sector. The overall goal for any future strategy should also reflect the capacity of video gaming to contribute bring about social and cultural impacts, whilst also underpinning economic growth.

This overarching goal should be underpinned by a set of key strategic themes, structured around the key barriers to the operation and growth of the sector as identified by study. These themes will help define the main thrust of any future strategy and help frame a set of recommendations (found in the next sub-section).

**Theme 1: Supporting growth and innovation amongst small and independent businesses.** The vast majority of video game companies in the EU are small indie companies which have significant amounts of opportunity for growth but face barriers including those linked to finance and regulatory issues. The first theme is focussed on enabling their growth and unlocking the potential of these small businesses within a global marketplace which is thriving and predicted to grow. Growth should also be encouraged by more cross sector working between the EU video games sector and other sectors that would benefit from the genre of video games in their activities (**see recommendations 1, 2, 3, 7, 8 below**).

**Theme 2: Supporting workforce and skills development in the sector.** This second theme involves a set of recommendations that help fuel the growth of the sector by providing video games companies with a workforce that has relevant skills and knowledge, fit for a fast-changing sector. With sufficient specialist and relevant skillsets, the sector will be better enabled to innovate, grow and compete. This theme also concerns the need to ensure that the workforce in the video games sector is diverse and inclusive so that it represents the diverse community of consumers, but also so sector growth can draw on a wide range of skills, perspectives and experiences within the workforce (**see recommendations 1, 5, 6**).

**Theme 3: Developing a deeper and more accurate insight of the nature or, and conditions within EU's video games sector.** The sector is evolving and growing rapidly meaning that its issues, needs and opportunities are ever changing. It is also under researched compared to other sectors, including those

that have smaller levels of revenues and employees, with challenges existing in terms of the quality of data. The basis of this thematic area is that sector development and interventions to support it need to be based on accurate and reliable intelligence. Firstly, there is a need for better quality research and data to be generated in relation to the video game sector and secondly there is recognition that continuous dialogue between sector representatives can also play a role in increasing understanding and insights to inform effective policy making (see recommendations 1, 4).

### 6.2.1 Recommendations

On the basis of the study's key findings and suggested strategic themes of focus (summarised above) a set of recommended actions are put forward. We draw on the study evidence to suggest a range of support actions that should be led and delivered by a range of actors in order to achieve the outcomes of increased employment and increased efficiency, innovation and performance across the sector. The solution here is not to foster grant dependency – rather the public sector, industry, and sector bodies should work together to facilitate and enable enhanced growth and performance across the sector. The recommendations reflect the principle of subsidiarity, conscious that many initiatives and actions can be taken at regional and national level to support the video game industry's competitiveness. There are also some initiatives recommended for European level institutions reflecting the potential for the European video games sector to increasingly contribute to EU competitiveness.

#### Recommendation 1: Strengthen mechanisms to support structured policy dialogue within the sector

- ▶ **Issue:** The potential for innovation and growth within the video game sector justifies an increased level of policy involvement and attention. There is currently a lack of structured dialogue between the video games industry and policy makers. This is confirmed by secondary evidence (document review) and industry stakeholders (interviews and workshops with industry representatives). In particular, industry stakeholders identified a lack of mechanisms to support dialogue between the industry and the education sector, and between industry and EU and national level policy makers. There is a particular gap in the area of education, where the supply of skills does not reflect the needs of the video game sector. There is therefore a need to strengthen policy dialogue within the sector so provision and policy can reflect the needs and challenges experienced by the industry. There is a particular need for a united forum for the sector since the video game sector is multifaceted and falls under the scope of a range of policies and regulatory frameworks. In particular, structured dialogue can bring opportunities for video game companies and policy makers to discuss and design appropriate solutions to challenges in the sector. A more structured and deliberative policy dialogue between sector stakeholders could help to 1) give space for debate about sector needs and possible approaches to address challenges; 2) encourage collaboration and information sharing between industry and policy stakeholders.

#### Recommendation:

- ▶ Overall, the video games sector would benefit from a more structured policy or stakeholder dialogue at both the national and the European level. National level government should create a forum to facilitate discussion between video games industry representatives and policy makers. This should focus on understanding country level sector needs and priorities, in order to inform national level video games policy. This forum could take the form of an online network which

organises a number of physical or virtual conference style meetings across the year. Bringing various stakeholders (both those representing the video games sector but also connected sectors such as education) together at the European level would also help promote collaboration, development and learning within the European video game sector. It is recommended that the European Commission creates a forum for discussion, information exchange and mutual learning between industry representatives, and policy stakeholders across the national and European levels. This forum should take the form of an online community (such as the Community of Practice set up by the European Commission for vocational education practitioners) which can build a membership, and host virtual and physical conference style events several times a year. The European Commission is well placed to enable and facilitate a forum of this kind, given its organisational and networking capacity. This forum could work with existing models (such as the news media forum or the structured dialogue for music) to facilitate dialogues between the sector and the main policy stakeholders.

**Recommendation 2: Channel targeted financing solutions to strengthen the competitiveness of video games, with a focus on scaling up emerging and small game developers.**

**Issue:** Access to finance was identified as the main barrier to growth for the small games companies, according to our survey results. These small to mid-sized companies make up the majority of the EU market: 70% of companies in the sector employ less than 10 people. There is a need for more targeted financial support to be channelled towards scaling up small businesses to increase sector competitiveness. This was evidenced by two workshops run with industry which focussed specifically on this issue. Channelling more targeted financial support towards scaling up small businesses is needed to ensure the sector remains competitive and thrives at a global level. Access to finance is important for small firms to invest in infrastructure for growth. IPs developed as part of video games are increasingly popular but monetising these unique creative IPs through adaptations across formats requires large financial resources that can be challenging for small companies to source.

**Recommendation:**

- ▶ Private investment towards video games to encourage the scaling up of emerging companies should be increased specifically in terms of loans (for bridge financing to support the completion of a game) and equity (to build the human and technical resources to produce new games more quickly and respond to consumer demands). Firstly, this can entail more networking and pitching events to strengthen connections between private investors and video games companies, for instance as part of existing video game industry events. This can be actioned by video game trade associations and involve relevant investment instruments, such as MedialInvest (<https://digital-strategy.ec.europa.eu/en/library/mediainvest-factsheet>). Existing EU instruments should also be leveraged to scale up small video games companies (e.g. SME and start-up instruments such as the European Innovation Council accelerator programme, or upcoming support to be launched by the Knowledge and Innovation Community on culture and creativity). Access to existing funding opportunities could be bolstered by making an explicit reference to video games across instruments; and awareness raising on existing opportunities, for instance through the active participation at video games trade fairs by Creative Europe desks and/or the European Enterprise Network (through its sub-group on culture and creative industries).

**Recommendation 3: Encourage cross-sector collaboration between the EU video-games sector and other EU industries and sectors to maximise innovation and social benefit.**

- ▶ **Issue:** The research highlighted the potential contribution of the video game sector to innovation, and explored where cross-collaboration already is resulting in new products and development (for example with the education and health sector). There is scope to support more cross-sectoral collaboration between the EU's video games sector and other economic sectors to promote innovation at the crossroads of where different sectors overlap. There is much scope for video game technologies to support the more effective design and delivery of services and products across a range of areas. Although there is some existing collaboration between sectors (e.g. between the music and video gaming industry) increased opportunities for joint innovation should be fostered in order to maximise further mutual growth and promote more technological spillovers (where technological advancement in the video games sector can benefit firms in other sectors).

#### Recommendation:

- ▶ The video games sector should be encouraged to actively seek out more cross sector collaboration with other sectors. It is recommended that a specific online space on existing sector representative websites is developed to showcase how cross sectorial collaboration has worked. It is also recommended that diversifying existing EU video games events to include content that promotes opportunities video gaming provides to other sectors. Encouraging existing video games sector conferences (e.g. Gamescom, Digital Dragons) to have speakers and some content which specifically promotes the potential of cross collaboration with other sectors is therefore encouraged (past conference agendas tend to focus 'inwards' to the sector). In addition, video games sector representatives should actively promote large relevant events run by other relevant sectors to their members in order to encourage video games sector representation at these key industry forums- examples of such events include The MedTech Forum 2023 (the largest annual health technology sector event in the EU) and the annual EdTechEurope event (bringing together education and technology representatives, generally attended by 2,500 people annually). Through attending these events video games companies can understand opportunities that these markets present to them, actively promote their services and products to key decision makers and also establish contacts within these sectors for future collaboration.

#### **Recommendation 4: Improve the level of data and insight specifically on the European video games sector so that issues can be better understood and that interventions to develop the sector can be more evidence-based.**

- ▶ **Issue:** There is limited data on the video games sector to help understand issues across a range of topics including economic and workforce development trends. The NACE industrial code classification currently covers Games Publishing only, and most European video games companies are registered as software companies rather than as publishers. Many dimensions of the sector are therefore not reflected in available statistics, and are therefore under-researched – with data sources either inconsistent or not collected at the EU level. The level of insight and knowledge on the profile and make-up of the sector therefore means that policy-making is less able to be properly evidence-based nor designed on the basis of specific challenges and needs according to quantitative data.

#### Recommendation:

- ▶ It is recommended that the existing NACE industrial codes be reviewed to better reflect the different activities carried out in the video games sector. This action should be progressed by the

European Statistical System which is responsible for the development, production, and dissemination of European statistics. The European Statistical System represents a partnership between Eurostat - EU statistical authority, the 'National Statistical Institutes' (NSIs), and 'Other National Authorities' (ONAs) in each EU country). The existing NACE codes should be broadened to cover the full range of industrial activity connected to the video game sector. This would streamline the way data on the video game sector is collected, and as well as help promote and coordinate similar efforts at the Member States level. It is recognised that changing the codes in relation to video gaming is likely to be a medium-term ambition to achieve over the next 3-5 years. Member State governments should also actively support and promote the development of accurate sector data and intelligence through commissioning research and profiling of workforce circumstances. The role that sector representative bodies and organisations such as the European Audiovisual Observatory could play in data collection on the video game sector should also be analysed. There is a need for information on national level data collection approaches to be shared, and consideration given to how gaps in European level evidence can be plugged through new research.

#### **Recommendation 5: Strengthen the education and training offer to support the sector's future workforce.**

- ▶ **Issue:** A lack of a skilled workforce is a key barrier to future growth in the EU's video games sector with 40% of EU firms unable to recruit the talent they need and 76% reporting there are shortages in technical skills. Work is especially needed to enhance the quality and relevance of provision. Current education provision finds it hard to respond to the fast-changing needs of the sector. This challenge is fuelled by a lack of dialogue between those designing and delivering video games education provision and the sector itself.

#### **Recommendation**

- ▶ Companies across the video game sector should invest more in developing education and training provision to help address the talent shortages that they are currently experiencing. Video games companies should develop stronger collaboration with the education and training sector and become more active in strengthening the quality and relevance of the provision currently on offer.

Representative sector bodies and larger video games firms can play an important part in bringing the education and video game sector together by: i) establishing a regular and continuous forum to understand the ongoing key needs of the sector with representatives from the supply and demand side including indie and large employers and key education and training providers; ii) carrying out annual surveys with a representative sample of EU video-game companies to specifically establish their current and future recruitment and skills needs; iii) commissioning bespoke pieces of research on topics to help improve the relevance of provision (e.g. identifying the future skills needs of gaming and AI); iv) identifying good practice and replicable models where video games firms have formed strategic alliances/ links with local providers (e.g. local universities).

The video games sector should become more engaged in existing education and skills initiatives taking place at the local, national and EU level. For example, at the EU level this includes the [Digital Skills and Jobs Coalition](#) (aimed at bridging the digital skills gap in the EU by bringing together various stakeholders, including industry, governments, and educational organisations) and the European Alliance for Apprenticeships (which brings together key stakeholders with the aim of

strengthening the quality, supply and overall image of apprenticeships across Europe). In particular, the video games sector is encouraged to be more strongly involved, contribute to, and benefit from the activities of the Large-scale skills partnership for the Cultural and Creative Industries ecosystem under the EU Pact for Skills (aimed at developing concrete upskilling and reskilling initiatives in the cultural and creative industries). The EU and public sector can play a facilitating role to enable this industry led approach to take place, providing funds to support initiatives from sources including ESF+ and Erasmus+ which are used by other sectors to help establish and implement various actions.

### **Recommendation 6: Promote inclusion and diversity in the video games workforce**

- ▶ **Issue:** Available evidence suggests that the diversity of the workforce, could be broadened further to more fully reflect the diversity and breadth of the video game consumer community. It is important that the sector is proactive in welcoming, supporting and retaining employees with a diverse range of characteristics and profiles, and that it continues to improve in this area. It will also ensure that the sector is better placed to recognise and meet the need of a wide range of consumers. There is also benefit in widening the range of skill sets, abilities and experiences within the workforce, as this can support future innovation and competitiveness. Increasing workforce diversity can draw fresh skills and ideas to the industry, and can bring new perspectives on consumer demand and product and service innovation. Whilst there are an increasing number of initiatives to promote inclusion and diversity across the sector, there is a need still for the sector to attract and retain a broad range of people.

### **Recommendations**

- ▶ Companies across the sector need to continue to design, develop and implement diversity and inclusion initiatives. Recommended actions include the following. 1) Industry should provide more focused training to the existing workforce to raise awareness of inclusion issues. Training initiatives should focus on ensuring that practices and behaviours are fully inclusive of staff with a range of characteristics and needs. 2) Industry should more proactively share information on positive role models within the industry – those sector representatives who will inspire and attract new workers to the sector, especially those that have protected characteristics (for example – role models with disabilities, who are female, or who are older). It is also recommended that Member States and European Agencies including the European Commission work to facilitate the exchange of good practice in relation to inclusion and diversity initiatives. Here they might work to identify and raise awareness of effective initiatives delivered by video games companies across the EU video games sector. This may include partnering with industry to identify and promote good practice, or providing forums and opportunities through which industry representatives might come together to exchange information and learning on their initiatives in this area.

### **Recommendation 7: Develop a policy and regulatory 'lighthouse' for small business to navigate regulatory requirements.**

- ▶ **Issue:** Video games are complex products which mix creative content and new technologies which make them subject to a wide range of regulatory provisions and requirements concerning copyright, intellectual property, consumer protection and technological development (AI, data regulation). The complexity of this regulatory framework is inevitable and an important and valuable means of consumer protection and legal certainty. However, this complexity is

sometimes confusing for the sector, particularly small and independent companies which lack the staff and resource to understand the diversity of requirements. This is particularly important in the video games sector as even smaller companies are “born global” and need to navigate national specificities at an early stage of their development.

#### Recommendation

- ▶ It is recommended that video game trade associations (with cooperation from national and European government) provide clear guidelines to help small businesses identify and understand the regulations that apply to them. This should take the form of an online resource which can be updated over time, and which is hosted on a shared platform. This platform should be endorsed and signposted to video game companies by trade associations and government across a range of levels. Guidance should include 1) Consumer protection rules and the potential evolution of requirements 2) E-privacy provisions 3) The Digital Services Act. Advice and support targeted at businesses in an early stage of their growth will help to reduce the resource needed to navigate requirements, and to ensure that they have processes in place to ensure compliance as they grow.

#### Recommendation 8: Review State Aid Provision for the sector

- ▶ **Issue:** While the EU video game sector is generally growing, international competition is fierce, and the global market share of EU game companies is expected to slightly decrease (from 7.5% in 2022 to 7.3% in 2027). State aid is one of the key financial resources to nurture the sector’s competitiveness, and industry stakeholders (across a range of company sizes and specialisms) engaged in this research report that this would help to remove barriers to their growth. Many Member States are already setting up State aid measures for video games (such as tax incentive schemes), since other non-EU countries offer more favourable conditions for game companies at the international level. State aid measures are however particularly challenging to establish, as video games are not covered by the General Block Exemption Regulation for State aid and State aid support to the video games sector requires a lengthy formal notification procedure.

#### Recommendation:

- ▶ It is recommended that the European Commission facilitates the following 1) review of the General Block Exemption Regulation to cover Video Games and therefore facilitate the approval of State aid schemes for the sector; or 2) extending the scope of the Communication on State Aid for films and other audiovisual works to video games. In order to test the feasibility and relevance of these options, the European Commission, supported by Sector representative bodies (e.g., Video Games Europe) should establish a structured dialogue with industry to understand the main needs, issues and to then to explore whether existing State aid provisions could be adapted in how they apply to the sector. This dialogue should help to define the criteria for the cultural test of video games, the type of eligible expenses, and maximum ceilings for State Aid.

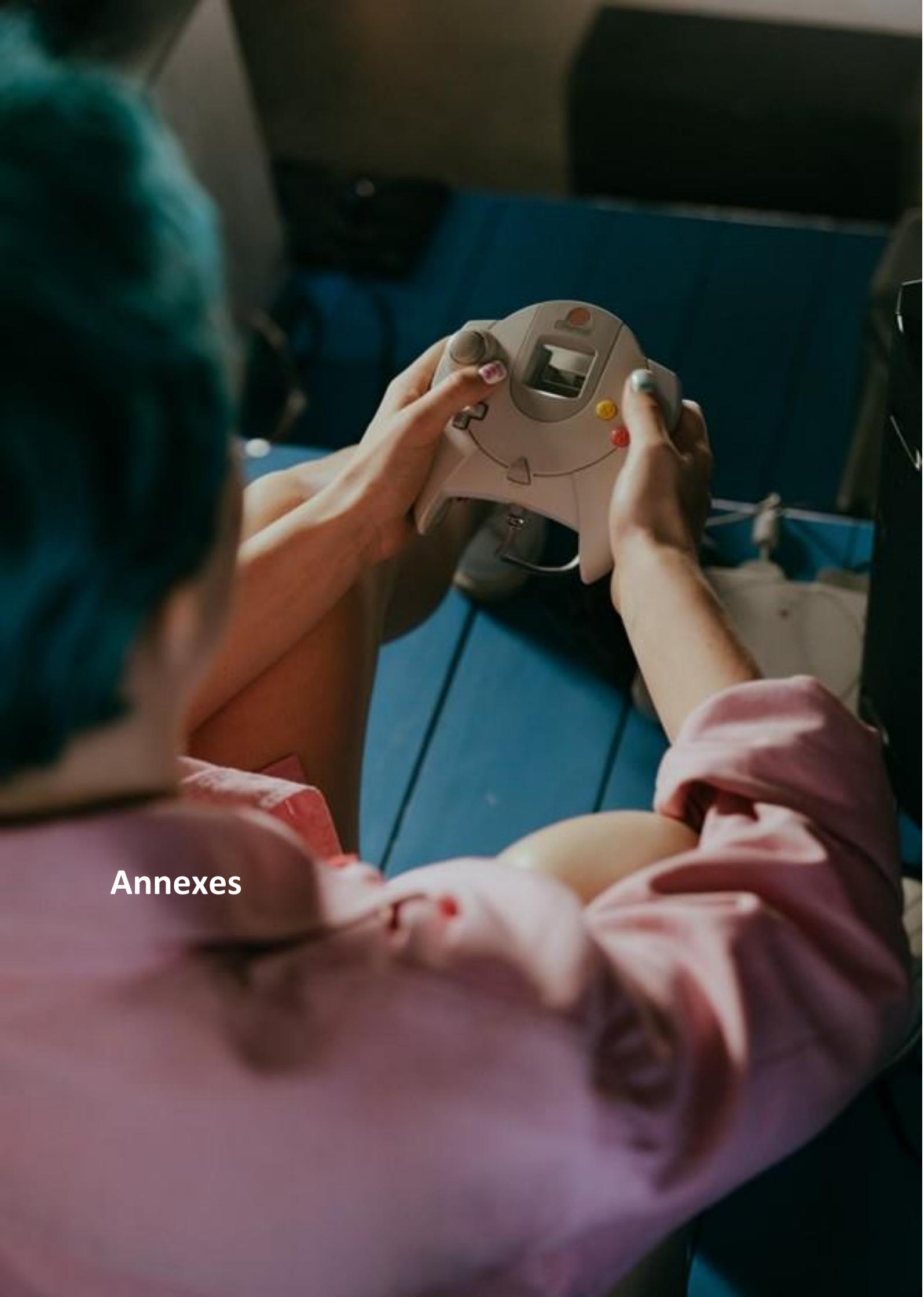
#### Recommendation 9: Facilitate the safeguarding of video games as cultural heritage

- ▶ **Issue:** Video games are recognised as intangible cultural heritage, and have become one of the most popular cultural product of our times. However, a lot of older games are not safeguarded, and 87% of games have become unavailable as the hardware required to run them becomes obsolete. The safeguarding and preservation of video games raises a number of challenges from

a legal and technical point of view. To properly preserve and safeguard video games, it is necessary to consider its different components: from the game code to the storylines to the technical tools necessary for its operation, requiring migration and emulation techniques. While the regulatory framework clearly allows for the digitisation and dissemination of out-of-commerce works for cultural institutions, safeguarding video games is hindered by the difficulty to: 1) identify the multiple right holders and the source code for older games; and 2) ensure no liability or unlawful practice will be caused by the preservation of games (especially the emulation of the operating system required to run the game).

#### Recommendation:

- ▶ Directive 2019/790 (the CDSM Directive) introduced new rules on the conservation of cultural heritage which, it is hoped, will allow cultural heritage institutions to make copies of any works (including video game components) for preservation purposes. The European Commission should monitor the implementation of the CDSM Directive and case law to appraise the extent to which this new legal framework facilitates video game preservation in practice (for instance as part of an evaluation of the Directive). Meanwhile, the video game sector, gaming community, and cultural heritage institutions should work in partnership to preserve video games (e.g., identifying and preserving the source codes of older games). This should be facilitated through existing networks like the European Federation of Video Game Archives, Museums and Preservation projects.



Annexes

# Annex 1: Workshops

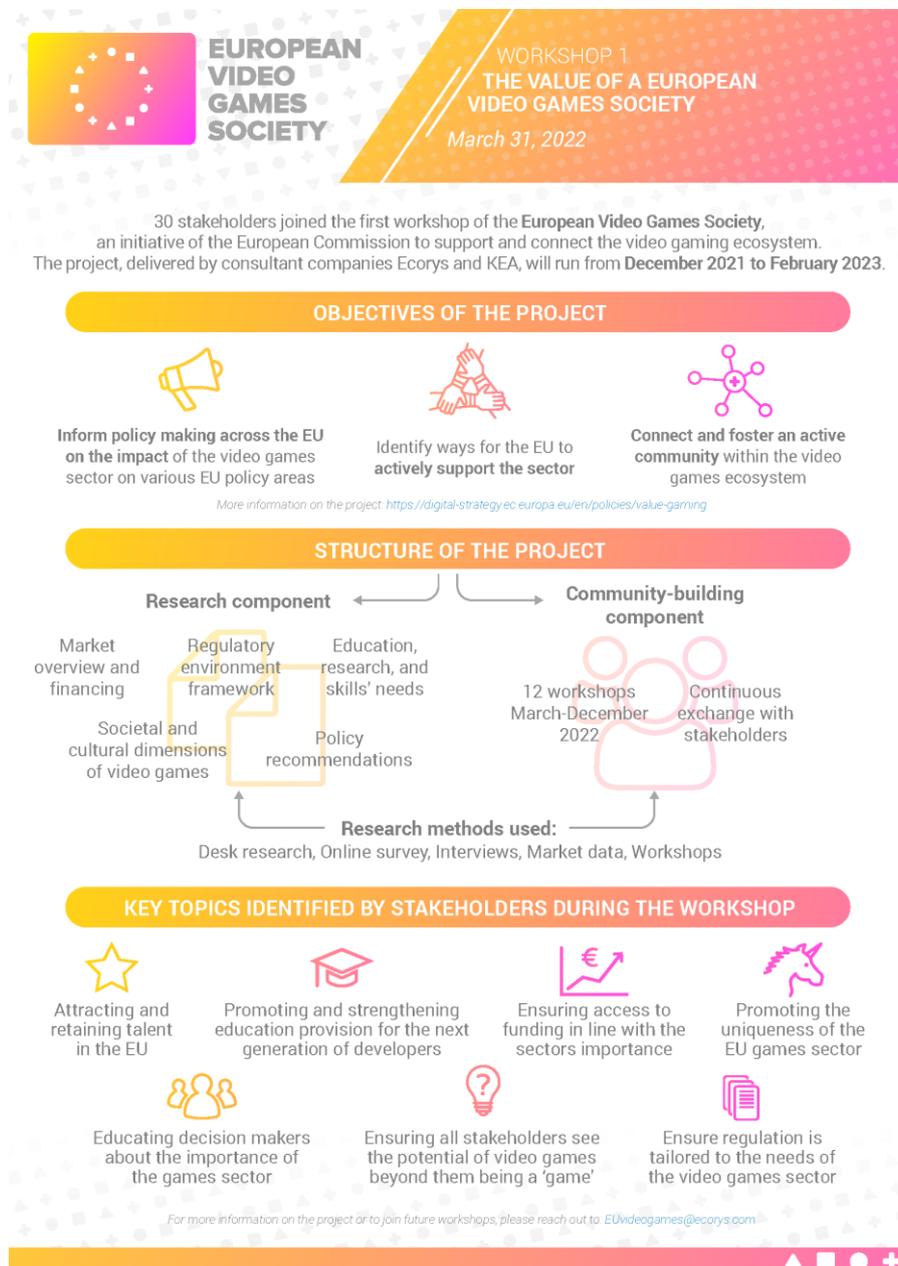
## Workshop 1: The value of a European Video Games Society

The first workshop aimed to introduce the objectives and framework of the project. During the workshop, key issues raised by stakeholders were discussed, including Improving education for aspiring developers;

Attracting and retaining skilled professionals; Securing financial support; Highlighting the distinctive features of the EU game industry; Educating policy makers; Implementing customized regulations.

<b>Date:</b>	31/03/2022	<b>Attendees:</b>	30	<b>Format:</b>	Online
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Figure 39: Workshop 1 Visual Summary



## Workshop 2: Challenges and opportunities in the video games industry

The second workshop brought together various stakeholders to address the challenges and opportunities in the video game industry. The event was divided into three breakout rooms, each focusing on topics determined by market research studies. The participants were encouraged to participate in the discussions to identify the key challenges and opportunities in each area. The breakout rooms discussion highlighted the need for better access to financing, harmonized IP protection, improved education and skills in the video game industry, and recognition of video games as cultural and digital heritage. The discussions covered topics such as bridging the gap between development and distribution phases, differences in public support in Europe, IP challenges, skills shortage, and cultural and educational value of video games. The results emphasized the need for cooperation, regulation, and recognition to improve the video game industry.

<b>Date:</b>	26/04/2022	<b>Attendees:</b>	35	<b>Format:</b>	Online
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Figure 40: Workshop 2 Visual Summary



### Workshop 3: Education, research, and skills' needs in the gaming industry

The third workshop at Digital Dragons in Krakow, Poland explored the topics of education, research, and skills in the video game industry. The discussion was divided into two main areas: education and skill development and working conditions and talent attraction/retention. The attendees agreed on the importance of dedicated video game education programs, a multidisciplinary approach to education, and self-taught skills. However, they also noted that the industry faces challenges in terms of working conditions, such as a focus on short-term contracts and high employee turnover. Factors affecting talent attraction and retention include company culture and remote work, as well as a lack of gender diversity. To succeed in the industry, attendees emphasized the need for a mix of soft skills, business and marketing skills, expertise in new technologies, and multidisciplinary profiles.

<b>Date:</b>	17/05/2022	<b>Attendees:</b>	16	<b>Format:</b>	Face to face
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Figure 41: Workshop 3 Visual Summary



**Workshop 4: Games as cultural and artistic expression**

The fourth workshop examined the role of video games as a form of cultural and artistic expression. It featured a presentation showcasing different video games published by Raw Fury with strong visual and artistic components. After the presentation, a panel discussion took place, with the panellists emphasising the importance of video games in cultural and artistic expression. Topics such as the unique attributes, cultural impact, commercial success, and preservation of video games were discussed. The panel stressed the need to preserve interactivity, playability, and the socio-cultural context of video games. They also explored the balance between artistic freedom and economic viability for indie studios and the potential of virtualizing older games as a means of preservation.

<b>Speakers:</b>	<ul style="list-style-type: none"> <li>- Katharine Neil, Narrative and Game Designer.</li> <li>- Garry Crawford, Lead Professor for the Social Sciences, University of Salford.</li> <li>- Andreas Lange, COO, European Federation of Game Archivers, Museums and Preservation Projects.</li> <li>- Gordon Van Dyke, Raw Fury's Co-Founder</li> </ul>		
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<b>Date:</b>	16/06/2022	<b>Attendees:</b>	31	<b>Format:</b>	Online
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Figure 42: Workshop 4 Visual Summary

**EUROPEAN VIDEO GAMES SOCIETY**  
**WORKSHOP 4**  
**VIDEO GAMES AS CULTURAL AND ARTISTIC EXPRESSION**  
 June 16, 2022  
 Online

32 stakeholders joined the fourth workshop of the **European Video Games Society**, an initiative of the European Commission to support the video games ecosystem. The project, run by consultant companies Ecorys and KEA, aims to inform policy making on the impact of video games in various areas, identify ways for the EU to actively support the sector, and foster an active community in the ecosystem. The fourth workshop addressed the importance of video games in relation to art and culture.

**VIDEO GAMES AND CONTEMPORARY CULTURE**

- Interactivity makes video games a **unique medium for portraying arts and culture**
- Video games' virtual nature resonates with **contemporary digital culture**
- Old-fashioned artistic limitations** (narrative, maturity of the content) should not be imposed on the industry

**VIDEO GAMES AND THEIR CULTURAL EXPORT POWER**

Video games can represent artistic and cultural aspects in two ways:

- Directly, through the content developed
- Indirectly, as the dynamics, world-building and artistic style of games can convey the cultural background of developers

**THE COMMERCIAL SUCCESS OF ARTISTIC VIDEO GAMES**

- The audience for video games with **higher artistic standards** is growing
- The **risk-aversion of triple-A studios** can lead to content that is less artistic and more commercially safe
- Indie studios have **more artistic freedom** but need to consider economic viability

**THE SAFEGUARDING AND PRESERVATION OF VIDEO GAMES**

- Video games preservation involves interactivity, playability, and socio-cultural context
- Virtualisation of older games through emulation and streaming services can facilitate preservation and mitigate copyright-related issues

More workshops and interviews will be soon organised by the **European Video Games Society**. You can contribute to our survey via the following link: <https://ec.europa.eu/eusurvey/runner/EUGamingSociety>  
 For more information on the project or for future participation, please reach out to [EUvideogames@ecorys.com](mailto:EUvideogames@ecorys.com) and check out <http://digital-strategy.ec.europa.eu/en/policies/value-gaming>



**Workshop 5: Regulatory Framework for Video Games**

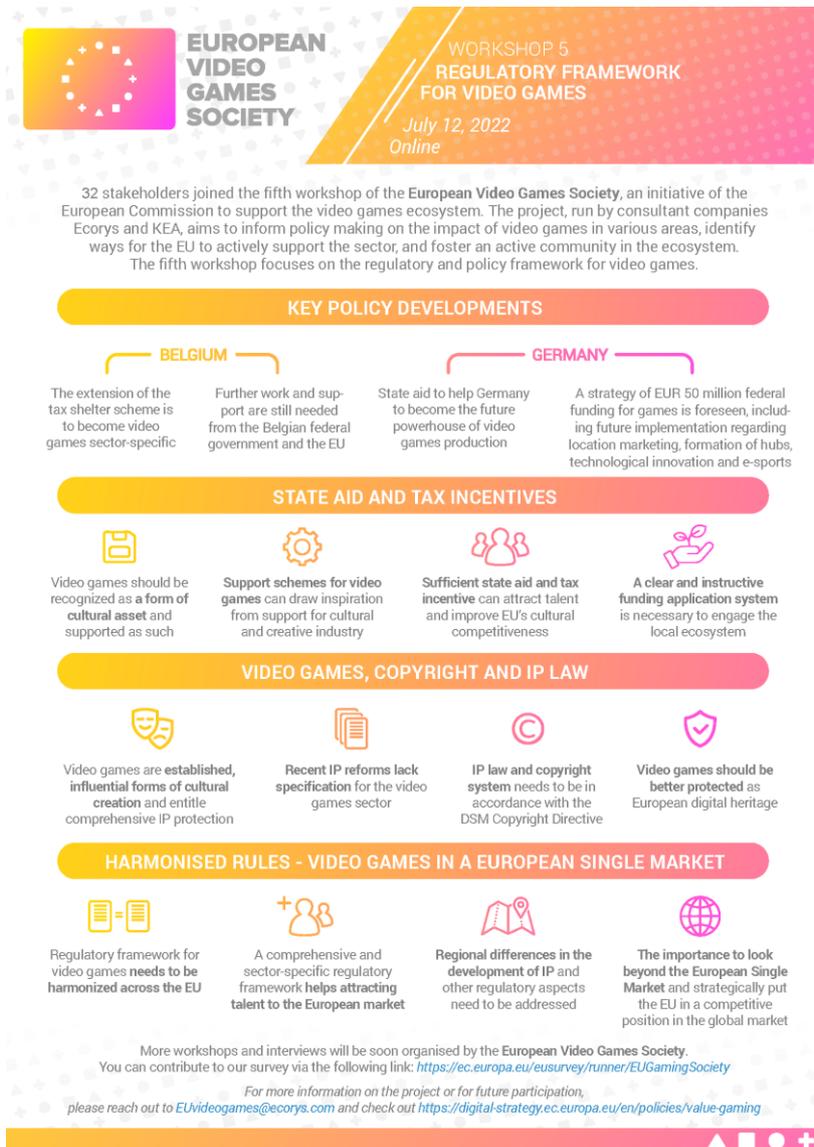
The workshop centred on the regulation of the video game industry, delving into various areas including recent policy advancements, relevant regulatory documents, laws surrounding copyrights and intellectual property, state aid and tax benefits, as well as the unified regulations within the European Single Market. The agenda comprised of two presentations on key policy developments, a panel discussion, and a Q&A session.

**Speakers:**

- ▶ David Verbruggen, CEO of Belgian Games.
- ▶ Felic Falk, Managing Director of Game.de
- ▶ Ann Becker, Head of Policy and Public Affairs at IFSE
- ▶ Gaetano Dimita, Senior Lecturer in International Property Law, Queen Mary University of London

<b>Date:</b>	12/07/2022	<b>Attendees:</b>	31	<b>Format:</b>	Online
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Figure 43: Workshop 5 Visual Summary



**Workshop 6: Health, Wellbeing and Games**

The sixth workshop focused on the connection between video games and player health and wellbeing. It took place in DEVCOM, Cologne, Germany and explored topics such as physical and mental health benefits of gaming, the potential of VR/XR, the impact of games on empathy and personal connections, and the need for more research and collaboration between industry and researchers. The main findings emphasized the importance of balancing virtual play, protecting players from negative experiences, and empowering them with the tools to report harassment.

**Speakers:**

- ▶ Ashley Blake, CEO of Andromeda Entertainment.
- ▶ Johanna Pirker, Researcher at Institute of Interactive Systems and Data Science at Graz University of Technology.
- ▶ Ann Becker, Head of Policy and Public Affairs at IFSE
- ▶ Hank Howie, Modulate.ai

<b>Date:</b>	23/08/2022	<b>Attendees:</b>	23	<b>Format:</b>	Face to face
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Figure 44: Workshop 6 Visual Summary

**EUROPEAN VIDEO GAMES SOCIETY**  
 WORKSHOP 6  
 HEALTH, WELLBEING AND GAMES  
 August 23, 2022  
 @ DEVCOM Conference, Cologne, Germany

23 stakeholders joined the sixth workshop of the **European Video Games Society**, an initiative of the European Commission to support the video games ecosystem. The project, run by consultant companies Ecorys and KEA, aims to inform policy making on the impact of video games in various areas, identify ways for the EU to actively support the sector, and foster an active community in the ecosystem. The sixth workshop addressed the importance of video games in relation to players' health and wellbeing.

**GAMES ENCOURAGING MOVEMENT**

- Playing games can promote **movement and physical wellbeing** and be a source of relaxation providing **emotional support and stress relief**
- Immersive and extended reality applications (XR) **look particularly promising** in this area

**GAMES AS A SPACE FOR MENTAL HEALTH AND SOCIAL CONNECTIONS**

- Games support **players and their mental wellbeing**. They offer escapism, self-discovery and expression. Games can also help forming strong personal connections and friendships
- Games are powerful **'empathy machines'** that can put players in somebody else's shoes demystifying conditions and generating understanding
- Companies should be more open to sharing data with researchers to conduct studies on long-term effects of games on mental health, as **more research and hard data are needed**

**FINDING THE RIGHT BALANCE FOR VIRTUAL PLAY**

- Players often face **online hate speech and toxic behaviour**: although 70% of gamers experience toxic behaviours online, only 10% report them
- Although companies are starting to act and protect their players from negative experiences, **holistic approaches** with regulators, industry actors and online communities are needed
- Players should be **informed on how to report harassment** during their online experience

More workshops and interviews will be soon organised by the **European Video Games Society**. You can contribute to our survey via the following link: <https://ec.europa.eu/eusurvey/runner/EUGamingSociety>  
 For more information on the project or for future participation, please reach out to [EUvideogames@ecorys.com](mailto:EUvideogames@ecorys.com) and check out <https://digital-strategy.ec.europa.eu/en/policies/value-gaming>

**Workshop 7: Greening the Video Games Industry: Winning Solutions for the Environment**

The workshop on greening the video game industry aimed to highlight specific steps that industry professionals can take to promote sustainability and tackle climate change. Held at DEVCOM in Cologne, Germany, the event featured three presentations by renowned European industry actors who are making significant efforts to make the sector more environmentally friendly.

**Speakers:**

- ▶ Maria Wagner, Co-founder of GamesForest.Club
- ▶ Jens Isensee, Co-founder of Serious Bros
- ▶ Johanna Pirker, Researcher at Institute of Interactive Systems and Data Science at Graz University of Technology.

<b>Date:</b>	23/08/2022	<b>Attendees:</b>	21	<b>Format:</b>	Face to face
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Figure 45: Workshop 7 Visual Summary

**EUROPEAN VIDEO GAMES SOCIETY**

**WORKSHOP 7  
GREENING THE VIDEO GAMES INDUSTRY : WINNING SOLUTIONS FOR THE ENVIRONMENT**  
August 22, 2022  
@ DEVCOM Conference, Cologne, Germany

The aim of this seventh workshop of the **European Video Games Society** was to explore some of the video games sector's leading initiatives to promote sustainability across the industry and present real examples of practice in the industry. The event focused on a range of tangible actions within the value chain of game development that industry players can take to accelerate the implementation of practice to support the green transition and to help combat climate change.

**GAMESFOREST.CLUB**  
*Non-for-profit organisation inspiring video game industry to actively invest in carbon absorption*

- Video games have an enormous power to **inspire environmental actions**.
- Video game companies can **raise climate change awareness** and collect funds for environmental actions.
- Video game studios can **reduce their carbon footprint** by carrying out reforestation and forest protection actions.
- GameForest.Club provides a virtual forest to **visualise the environmental impact** of studios actions.

Since the beginning of the project in November 2021, 16 project have joined, 41.000 trees have been planted, and 1.2 million square metres have been protected.

**SERIOUS BROS**  
*Insights from a studio that is taking several environmental actions*

- The studio **donates the funds** raised from the soundtrack sales and the benefits obtained from the sale of a green planet bundle.
- The video game links a game achievement with **planting trees in real life** via a collaboration with Green Game Jam.
- The studio runs **charity sales on Steam** together with various projects supporting forests.

The studio has developed Imagine Earth, a game designed to raise environmental awareness. Imagine Earth puts the player in a position of a global economic actor who needs to find a balance between growth and sustainability to succeed.

**GAME LAB GRAZ GROUP**  
*Gamification capabilities in other industries to foster sustainability*

- The research group develops video games and simulations for **training applications** in simulated environments.
- Game Lab Graz uses Virtual Reality (VR) technology to **visualise and simulate energy-related relevant processes and elements**.
- The research group has created digital twin rooms where properties can be changed to **explore the changing temperature of the material** or see the effect of the atmosphere in the room.

More workshops and interviews will be soon organised by the **European Video Games Society**. You can contribute to our survey via the following link: <https://ec.europa.eu/eusurvey/runner/EUGamingSociety>

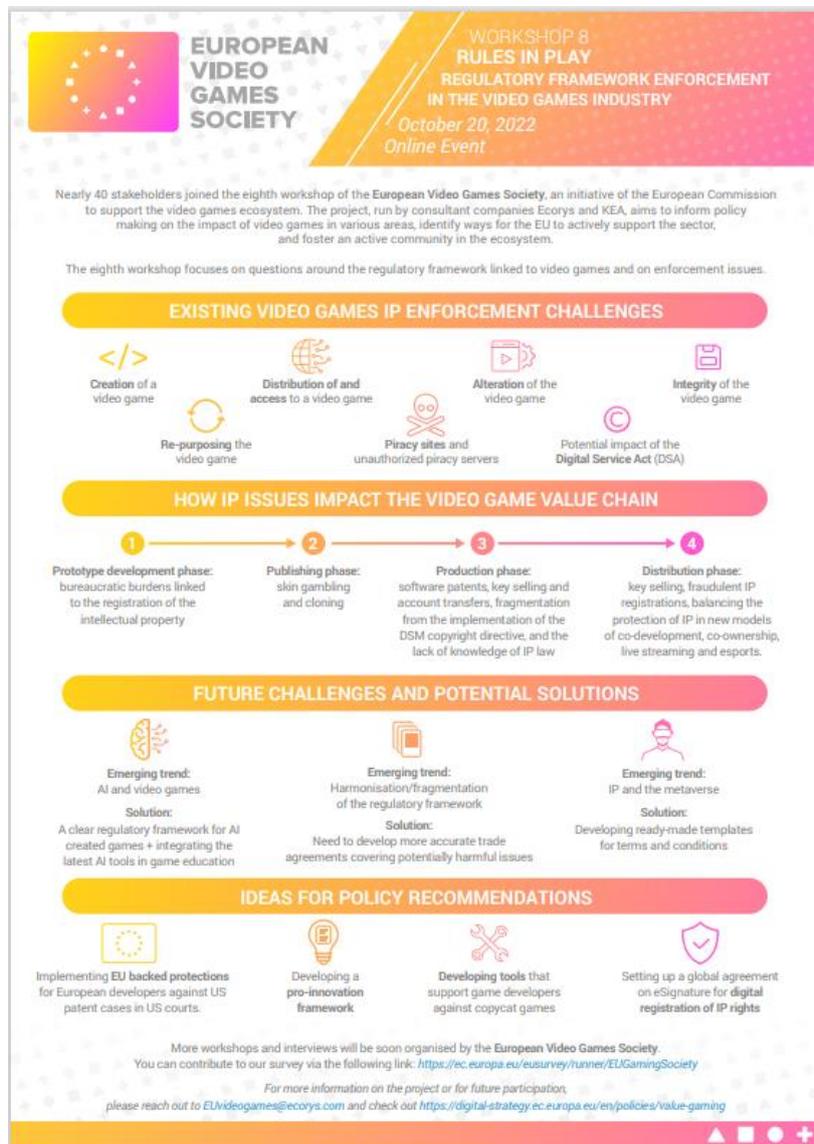
For more information on the project or for future participation, please reach out to [EUvideogames@ecorys.com](mailto:EUvideogames@ecorys.com) and check out <https://digital-strategy.ec.europa.eu/en/policies/value-gaming>

**Workshop 8: Rules in Play – Regulatory framework enforcement in the video games industry**

The workshop addressed regulatory and enforcement issues in the video game industry. Presentations focus on challenges in enforcing IP rights and their impact on the value chain. Discussions and break-out sessions aimed to address future challenges and potential solutions, resulting in policy recommendations such as EU-backed protections for European developers, promoting innovation, providing tools against copycat games, global e-signature agreement for digital IP registration, and addressing distribution, alteration, and integrity of video games.

<b>Speakers:</b>	<ul style="list-style-type: none"> <li>▶ Gaetano Dimita, Senior Lecturer in International Intellectual Property Law, Queen Mary University of London</li> <li>▶ Dara Mc Greevy, General Counsel at ISFE</li> </ul>				
<b>Date:</b>	20/10/2022	<b>Attendees:</b>	40	<b>Format:</b>	Online

Figure 46: Workshop 8 Visual Summary



The ninth workshop covered the topic of finance and investment in the video game industry. It delved into the obstacles and solutions for both public and private investment opportunities in the sector. The event featured two presentations, one about Spielfabrique, a catalyst for the video game ecosystem and its initiatives, and the other about the European Investment Fund and its support for the industry through its various financial tools. Participants discussed the difficulties faced in securing funding and offered a set of recommendations aimed at the public sector.

<b>Speakers:</b>	<ul style="list-style-type: none"> <li>▶ Odile Limpach, Cofounder at Spielfabrique</li> <li>▶ Jorge Sanz Gonzalez, Mandate Manager at the European Investment Fund</li> </ul>				
<b>Date:</b>	15/11/2022	<b>Attendees:</b>	30	<b>Format:</b>	Online

Figure 47: Workshop 8 Visual Summary



The workshop focused on current and future trends in the video game industry. Participants shared observations on trends in technology, business models and markets, and audiences. Under Technology, attendees emphasized the underinvestment in digital infrastructure and connectivity as a barrier to innovation in many EU Member States, and the need for more support from policymakers for environmentally sustainable game development. In Business Models and Markets, growth is polarizing in the hands of few large players, and there is an extreme talent shortage in the EU video game industry. E-sports, streaming, and cloud-based games are transforming the sector's business models globally. In Audiences, gamers are becoming more diverse, and the average age of players is growing, with a demand for games that reflect their interests and life experiences.

<b>Date:</b>	17/11/2022	<b>Attendees:</b>	25	<b>Format:</b>	Online
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Figure 48: Workshop 10 Visual Summary

**EUROPEAN VIDEO GAMES SOCIETY**

**WORKSHOP 10  
MARKET TRENDS  
IN THE VIDEO GAMES SECTOR:  
TODAY AND TOMORROW**  
November 17, 2022  
Online Event

Nearly 25 stakeholders joined the tenth workshop of the **European Video Games Society**, an initiative of the European Commission to support the video games ecosystem. The project, delivered by consultant companies Ecorys and KEA, aims to inform policy making through reviewing evidence on the impact of video games, identifying ways for the EU to actively support the sector, and through fostering an active community in the ecosystem.

The tenth workshop focused on current and future trends in the video game sector. The session included an interactive session where participants reported the trends they are seeing across the industry and across the areas of technology, business models and markets, and audiences. A key number of key messages and themes emerged as prominent in the discussion with participants, and are summarised below:

**TECHNOLOGY**

- Underinvestment in digital infrastructure and connectivity is a barrier to innovation in many EU Member States.**
- While the industry is striving to innovate in environmentally sustainable games development process, more can be done. Policy makers at all levels should support the industry by providing funding for innovation and access to sustainable energy.**
- New game controls, smart devices, and immersive experiences will create new revenue streams and influence audience behaviours.**

**BUSINESS MODELS AND MARKETS**

- As growth is increasingly polarising in the hands of fewer large players, smaller studios will need more tailored R&D funding to experiment and innovate with their processes, products and revenue streams.**
- EU video game companies will keep experiencing extreme shortage of talent**
- E-sports, streaming, and cloud-based games are and will continue to change business models for the sector globally.**

**AUDIENCES**

- Gamers are more diverse, and the average age of players will keep on growing. People will be interested in games which reflect their own interests and life experiences.**
- Companies will keep on creating products tailored to their various audience segments.**

More workshops and interviews will be soon organised by the **European Video Games Society**. You can contribute to our survey via the following link: <https://ec.europa.eu/eusurvey/runner/EUGamingSociety>

For more information on the project or for future participation, please reach out to [EUvideogames@ecorys.com](mailto:EUvideogames@ecorys.com) and check out <https://digital-strategy.ec.europa.eu/en/policies/value-gaming>

**Workshop 11: Policy actions for boosting the EU video games sector**

The last workshop aimed to identify policy recommendations and actions to be undertaken, especially at EU level, to boost the video games sector in Europe. The stakeholders were divided into small thematic groups to foster the discussion and make everyone able to contribute.

<b>Date:</b>	08/12/2022	<b>Attendees:</b>	20	<b>Format:</b>	Online
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Figure 49: Workshop 11 Visual Summary

**EUROPEAN VIDEO GAMES SOCIETY**

**WORKSHOP 11**  
**POLICY ACTIONS FOR BOOSTING THE EU VIDEO GAMES SECTOR**  
 December 8, 2022  
 Online Event

Nearly 20 stakeholders joined the eleventh workshop of the **European Video Games Society**, an initiative of the European Commission to support the video games ecosystem. The project, run by consultant companies Ecorys and KEA, aims to inform policy making on the impact of video games in various areas, identify ways for the EU to actively support the sector, and foster an active community in the ecosystem. The eleventh workshop focused policy recommendations and actions to be undertaken, especially at EU level, to boost the video games sector in Europe.

**FINANCIAL SUPPORT AND REGULATION IN THE VIDEO GAMES SECTOR**

**Financial support:**

- Public support to be less focused on tax and grants, more tailored to VGs as a specific media, and more abundant in budget
- Revision of the general block exemption regulation, NACE codes, EC communication on State aid for films and other audiovisual works

**Competition and IP protection:**

- Effective implementation of the current regulatory framework and Digital Markets Act
- Fostering of data openness and transparency

**Consumer and user protection:**

- Inclusion of regulatory compliance and legal skills into VG-related educational paths
- Inclusion of rules on gambling, lootboxes, harassment and hate speech in the context of a wider regulatory framework

**Development and coordination of strategies and policies:**

- More local level support for SMEs and start-ups
- Implementation of a strategic approach at EU level to coordinate initiatives and opportunities (e.g. co-production)

**EMPLOYMENT, EDUCATION, AND THE CULTURAL VALUE OF VIDEO GAMES**

**Support to employment, skills, training development and formal education:**

- Fostering talent attraction through awareness-raising, women representation, and cooperation between tech and art educational paths
- Support of equality and diversity, contractual rights and guidance for talent
- Enhancement of tech and connectivity

**Video game preservation and video games as cultural and artistic expression:**

- Ensure recognition of VGs are cultural creations
- Enhance support to indie and start-ups through EU project, initiatives and pilot projects

**Working conditions:**

- Strengthen contractual rights for employees in the sector
- Support the establishment of positive employment practices

More workshops and interviews will be soon organised by the **European Video Games Society**.  
 You can contribute to our survey via the following link: <https://ec.europa.eu/eusurvey/runner/EUGamingSociety>

For more information on the project or for future participation, please reach out to [EUvideogames@ecorys.com](mailto:EUvideogames@ecorys.com) and check out <https://digital-strategy.ec.europa.eu/en/policies/value-gaming>

## Annex 2: Sector Experts

- ▶ Katharine Neil, Freelance game developer
- ▶ Odile Limpach, Professor in economics and entrepreneurship at the Cologne Game Lab, TH Köln and co-founder of the Acceleration Program SpielFabrique 360°
- ▶ Thorkild Hanghøj, Professor of Games and Learning at Aalborg University

## Annex 3: Stakeholders interviews

Alexandru Cojocar	MFG Baden Württemberg	Project Manager Games-Förderung	Germany
Claudio Giacopazzi	Nacon Studio Milan	Business Development Director	Italy
Emmanuel Martin	Ubisoft	VP Corporate Affairs	France
Francois Xavier	Ubisoft	VP Global Esports and Competitive Gaming	France
David Neichel	ESL Faceit	SVP Public and International Affairs	Germany
Graham Ashton	Riot Games	Esports international Relations Manager	Germany
Johanna Nylander	Swedish Games Industry	Head of Policy and Analytics	Sweden
Sergi Mesonero	ISFE	Head of Esports	Belgium
Jordi Soler Cantalosella	Mediapro	Chief Digital Officer	Spain
Luisa Bixio	Milestone	General Director	Italy
Stephan Euthine	LDLC Event	Director	France
Thalita Malago	IIDEA	General Director	Italy
Thierry Baujard	SpielFabrique	Co-Founder	Germany
Alicia Morote Oliver	Team Queso	Co-Founder and COO	Spain
Pier Luigi Parnofiello	PG Esports	CEO and Founder	Italy
Yin Harn Lee	University of Bristol	Professor	UK
Dara Mc Greevy	ISFE	Senior Legal Counsel	Ireland
Benjamin Seignovert	ISFE	Public policy Manager	Belgium
Jürgen Bänsch	ISFE	Director, Public Policy and Government Affairs	Belgium
Håkan Hildingsson	Diwin Consulting AB	CEO	Sweden
Dirk Bosmans	PEGI	Operations Director	Belgium

Gaetano Dimita	Queen Mary University of London	Senior Lecturer	UK
Jennifer Wacrenier	PEGI	Senior Operations & Communications Manager	Belgium
Lars ANDren	Swedish Musicians' Union	Senior Legal Counsel	Sweden
Max Friberg	Yrgo, gameEduc	Game developer	Sweden
Michał Mochocki	Kazimierz Wielki University	Professor	Poland
Malin Espersson	Luns University	Senior Lecturer	Sweden
Mata Haggis-Burridge	Breda University	Professor	Netherlands
Roldán Garcia	Researcher	Post-doc researcher	Spain
Attila Szantner	MMOS	CEO and Founder	Hungary
Sylvain Gardel	Swiss Arts Council Pro Helvetia	Head of Design & Interactive Media	Switzerland
Jarri Pekka Kaleva –	EGDF	CEO	Finland/EU
Odile Limpach	Professor and founder	SpielFabrique, TH Köln	Germany
Katharine Neil	Game developer	Freelance	France

## Annex 4: Secondary Data Sources

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Amidi, A.	The oligopolization of the video game industrytaylor	<a href="https://www.cartoonbrew.com/artist-rights/a-historic-first-for-gaming-industry-workers-at-activision-studio-vote-to-unionize-216725.html">https://www.cartoonbrew.com/artist-rights/a-historic-first-for-gaming-industry-workers-at-activision-studio-vote-to-unionize-216725.html</a>
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## Annex 5: Survey Questions

1. Name and Surname
2. Gender
3. Email
4. Where are you based?
5. What is the name of your company? (if self-employed, please write s.e.)
6. What is your personal domain of expertise?
7. Do you consider yourself or your company to be part of the Indie scene?
8. Which area of the sector is your company most active
9. Which of the following platforms are your products and services present in?
10. How many people do you/ your employer currently employ?
11. What is the annual turnover of your company/ your current employer?
12. Is your company able to recruit the skills and talent you need?
13. In terms of labour and skills issues, how important are the following issues for (positively or negatively affect) your company? (1 = negatively, 5 = positively):
  - a. Skills level among the current workforce
  - b. Costs linked to recruitment/training of new staff
  - c. Staff retention
  - d. Ensuring a diverse workforce
  - e. Specialist education and training supporting skills development in the video games sector
  - f. Investments in staff development
14. Are there specific areas of expertise from the list below that are particularly hard to recruit
15. In your view, what skills are currently most needed by the video games industry?
16. In your view, what skills will be most needed by the video games industry in the future?
17. Has your company implemented any of the following schemes to address skills and labour gaps
18. What is the most common educational pathway taken by employees in your company to develop relevant skills for the video games sector?
19. Have you ever accessed any EU / national funding schemes to support education and training opportunities for individuals interested in joining the industry? Which ones?
20. In terms of working conditions in the video gaming sector, how much of an issue are the following areas (on a scale of 1 to 5 where 1 is no issue and 5 is a very large issue)?:
  - a. Pay levels too low compared to the role played
  - b. High Levels of stress in the workplace
  - c. Too many hours of work
  - d. Work-life balance issues

- e. Weak strategy for equal opportunities
  - f. Weak approach to diversity in the workplace
  - g. Few opportunities for career progression in the sector
  - h. Few training and development on offer
  - i. Lack of approach and initiatives for the staff wellbeing
21. Is crunch (i.e., the practice of working overtime in occasion of approaching milestones and deadlines) a regulated practice in your company?
22. If yes, what kind of regulation is in place ?
23. Can you indicate an estimate on the types of contracts used in your company? (percentage, total has to be 100%)
- a. Temporary, full-time:%
  - b. Temporary, part-time:%
  - c. Permanent, full-time:%
  - d. Permanent, part-time:%
24. Are there employee representatives in the company?
25. To your knowledge, are there trade unions that employees can join?
26. What is your main audience in terms of age groups? Please rank from least important audience to most important audience
27. What is your organisation's main audience in terms of gender?
28. Do you consider that Video Games are mainly cultural/educational products/services or purely entertainment products/services (on a scale from 1 to 5, where 1 = mainly cultural/educational products, and 5 = mainly entertainment)?
29. Are video games used by other economic sectors? What are the main uses?
30. In what ways are video games well used in Europe in relation to other societal aspects beyond entertainment (select up to three)?
31. In your opinion, what are the largest negative issues associated with the video games sector in Europe?
32. What are the main barriers to growth and challenges facing your company? (rate on a scale from 1 to 5, where 1 = low and 5 = high)?
- a. Lack of finance
  - b. Lack of skilled labour
  - c. Weak sales/ poor market conditions
  - d. Strong competition
  - e. Weak supply chain/difficulty to find partners in the industry
  - f. Inadequate IP protection
  - g. No barriers
33. To what extent is being based in the EU an advantage or disadvantage for your company compared to being located elsewhere in the world? (rate on a scale from 1 to 5, where 1= large disadvantage, 3 = neither an advantage nor a disadvantage, 5 large advantage):

- a. Access to public support schemes (e.g. grants/ loans)
  - b. Access to private finance
  - c. Access to staff with the right skills
  - d. Access to an adequate consumer market
  - e. Access to a strong supply chain and industry partners
34. Which are the main vulnerabilities you face in terms of revenue streams (i.e. factors that might hinder your financial stability)?
35. On a scale from 1 to 5, how useful are the following public support schemes to your company? (1 = not very useful, 5 = very useful):
- a. Loans
  - b. Grants
  - c. Tax Incentives
  - d. Start up funding
  - e. Incubators/Accelerators
  - f. Facilitated access to private financing
36. Have you attracted private investment in your company?
37. Which are the most important types of private investment in the European video games?
38. Which are the main reasons for you to seek private investment (select up to two)?
39. On a scale from 1 to 5, how much use does your company make of the following monetisation models? (1 = no use, 5 = main model used):
- a. In-app/game advertising
  - b. In-app/game purchases
  - c. Paid apps/games
  - d. Subscriptions
  - e. Transactions on downloadable content (DLC)
  - f. Other, please specify
40. Would the video games sector benefit from a clearer and specific Intellectual Property recognition?
41. In the context of piracy and illegal content sharing, who should be granted more legal protection?
42. What areas are most in need of regulatory intervention?
43. Which are the main consumer rights that need further protection?
44. Which institutions should be responsible for the introduction and enforcement of such regulations?  
Is there anything else you would like to share with us?
45. Please feel free to add any comment, thoughts, insights, link to reports that you consider relevant for the purpose of this project.

## Annex 6: Interview topic guide

### Introduction

The project “Understanding the value of a European Video Games Society” aims at delivering insights into the many economic, cultural, financial, and social impacts that video games have on our society, and how this industry impacts a range of policy areas.

Initiated by the European Parliament as a pilot project, the European Video Games Society project was launched in January 2022 and will be carried out throughout 2022 by a consortium composed of ECORYS Europe and KEA European Affairs. This project will assist the European Commission in developing a better understanding of the video game sector, its impact on various policy areas, and how the EU could play a targeted and active role in supporting the sector’s development. The project seeks to identify several policy options to pursue at the EU level in order to support the growth of the sector in the future through research and deep dialogue with the main actors in the sector.

### Background info

- ▶ **Please briefly present your organisation/company.** Can you provide us with short information on your background? (Size, geographical collocation, your role, educational background )

### Market assessment report 1 on market overview and financing

#### **Mapping of sustainable business model and emerging value chain in the video games ecosystem**

- ▶ Describe your business model. Has it changed in recent years/decades, are you planning to change it? Why?
- ▶ What are the main vulnerabilities you face in terms of revenue streams (factors that might hinder your financial stability)?
- ▶ What is the impact of digital transformation at different stages of the value chain?
- ▶ What technological innovations are driving the surge of mobile and novel gaming models?
- ▶ What are the differences in relation to other/different games segments (such as AR/VR and esports)?
- ▶ Which other actors/stakeholders do you rely on for the stability of your business model?
- ▶ What actions do you have in place to monitor market or user preferences changes?
- ▶ Which are the most relevant sources (e.g. public financing, crowdfunding, VC and private financing, Bank debt) for your business models and why?

#### **Financing gap analysis and barriers to investment and growth in the short, medium, and long-term**

- ▶ What are the main barriers to entering the video games industry and to growth in the short, medium and long-term?
- ▶ What are the main factors that determine the capacity to attract the necessary financial, human and technological capital? (geographical position, background, etc.)
- ▶ Which are the main competitors in the sector for a newcomer? Can you identify power dynamics among the actors?

- ▶ Do you perceive there is a need for public intervention to rebalance the industry? In which direction?

### **Mapping of public support mechanisms available: developing a typology of existing support schemes and providing good practice examples**

- ▶ In your opinion, what are the main reasons/needs for support schemes for the video games industry?
- ▶ Which should be the geographical governance level (e.g. regional, national, supra-national) responsible for supporting the video games industry?
- ▶ What kind of public interventions are needed to support the sector?
- ▶ Can you elaborate on the main advantages and disadvantages of the following types of public interventions? Loans, Grants, Tax Incentives, startup funding

### **Financiers and investors approach to the video games industry**

- ▶ Which are the most common types of private investments in the video games industry (e.g. providing seed and/or scaling-up capital, market expertise, distribution, marketing, etc.)? And where they are from?
- ▶ Is there a difference in, terms of size, between public and private funds in your sector? Does it vary from country to country? And outside Europe?
- ▶ In which development phases are private investments more needed?

### **Market assessment report 2 on the regulatory environment framework**

Based on the background of the interviewee, questions regarding the gaps, impacts and challenges in terms of the video games regulatory framework:

- ▶ What are the main regulatory challenges in terms of (list of regulatory topics below to use as prompts) for the video games sector? How do these change depending on the size of the company considered?
  - ▷ Copyright and IP protection for video games
  - ▷ Competition law regarding video games
  - ▷ Protection of consumer rights
  - ▷ Protection of minors
  - ▷ Prevention of gambling: loot boxes in online games
  - ▷ Prevention of compulsory overtime gaming
  - ▷ Privacy and data protection
  - ▷ Digital Service Act, Digital Markets Act, EU Toolbox Against Counterfeiting: how will they affect the video games industry?
  - ▷ Video games and AI regulations
  - ▷ Opportunities with the VR/AR Industrial Coalition: how can the EU proceed to establish laws and regulations regarding VR gaming?
- ▶ What is the current/expected impact on the sector?
- ▶ Is there any important case law about these topics?
- ▶ Are there any differences across EU Member States? On international markets?
- ▶ What is the role of cross-industry partnerships?

### **Market assessment report 3 on Employment, Education and Skills Needs in the EU video games sector**

### Employment and the labour market

- ▶ How has the video games industry labour market size changed over the last years? Which main trends did you observe?
- ▶ What are the main activities carried out by companies within the sector?
- ▶ Which are the most important roles to be found within the sector (*e.g. programmers, artists, designers, producers, marketing*) and how has their importance changed over time?

### Attractiveness of the EU video games sector

- ▶ How attractive is the European EU video games sector in comparison to non-EU realities? Which aspects are the most important in defining that (*e.g. salary, prestige, benefits*)?
- ▶ Are issues of the EU video games sector properly represented? Is there unbalance (e.g., more voice to American actors)?
- ▶ How can the EU video games market become more attractive?
- ▶ How attractive is the European video games sector in comparison to adjacent sectors (such as tech, other cultural and creative industries)? Which are key similarities and differences?

### Working conditions

- ▶ How would you describe the working conditions in the EU video games sector? Which main trends did you observe over the years?
  - ▷ E.g.: “trash contracts”, freelance, casual work, permanent contracts
  - ▷ How realistic are figures e.g. from EGDF/ISFE, claiming that permanent contracts in the sector are 70/80% of the total?
- ▶ How different are working conditions in indie/small businesses, vis-à-vis large companies? How big is the difference in terms of salary, benefits, working hours, etc? How important are power dynamics between employers and employees?
- ▶ How frequent is the “crunching” phenomenon? How has it evolved over the years? How does it differ depending on the size of the company?

### Diversity

- ▶ How has the situation evolved and what are the main trends with regards to the following?
  - ▷ Gender
  - ▷ Ageism
  - ▷ Ethnicity and religion
  - ▷ Neurodiversity
  - ▷ Level of education and financial well-being
- ▶ Which interventions and actions to promote diversity are in place? To what extent are they effective?

### Legal considerations and industrial relations

- ▶ Which are the most important legal issues in relation to working conditions?
  - ▷ For instance: legal status of video games workers, authorship-related issues, negative effects of industry consolidation trends, NDAs, non-compete agreements, etc

- ▷ To what extent is the EU/ are MSs of your knowledge tackling these issues?
- ▶ What is the role of social actors (trade unions) in the video games sector? What could be done more to improve representation? Which reasons are behind the lack of representation?

### Skills needs, education and training provision

- ▶ What are the key gaps in skills and competencies within the sector and across the value chain (i.e. artists, designers, community managers, game programmers, producers, quality assurance etc.)?
  - ▷ How extensive are these gaps?
  - ▷ What are the trends and changes expected across the industry in the next 5 years?
- ▶ How would you describe the existing training and educational provision equipping workers and future workers of the sector (In terms of: quality, enough/not enough, relevance, effectiveness, differences within the EU and compared to extra-EU provision)?
  - ▷ What are the key needs and challenges of graduate students (e.g., access to education, content not relevant or outdated, availability of entry-level jobs, geographical location of companies, lack of / bad practices in internship and placement provision, ...)? How can these challenges be addressed?
  - ▷ What are the key needs and challenges of education providers (e.g., competition, limited linkages with industry, issues in developing curricula, challenges in hiring educators, industry skills demand changing too quickly etc.)? How can these challenges be addressed?
- ▶ How do in-company training and continuous professional development look like and how does it work (e.g. are companies providing it? Do they pay for it? What are the areas they mostly cover)? Are you aware of any studies or research on this topic?

### **Market assessment report 4 on societal and cultural dimensions of video games**

#### video games and cultural heritage

- ▶ Which are the most important uses of video games for cultural heritage?
- ▶ To what extent do video games represent cultural heritage? How can cultural heritage benefit from the application of video games for their protection, valorisation and promotion? What are the main barriers to achieving that?
- ▶ What are the main risks that cultural heritage organizations might face due to the integration into the video games industry?
- ▶ How can video games play a role in sustainable tourism destination promotion?
- ▶ Can video games be used to enhance a visitor's experience in a destination? How?

#### Education and Video games

- ▶ Are video games currently used in formal and informal education in Europe? Do you have any examples/ best practices you could share?
- ▶ What are the main threats that video games pose to formal and informal education?
- ▶ Which are the public and private institutions that should play a role in fostering the educational role of video games? Which role should they play?
- ▶ How should such threats be addressed? At which level (local to European)?

#### Video games' role in health, well-being and inclusiveness

- ▶ How are video games currently affecting, positively or negatively, health and well-being in the EU? (i.e. positive: fostering social inclusion, spreading knowledge on specific topics, creating community bonds. Negative: encouraging violence, allowing cyber-bullying)
- ▶ Can the video games address issues of cyberbullying across the gaming community?
- ▶ Is policy intervention required to address the issues discussed? Do you have examples of such policies / best practices?
- ▶ Can video games have positive or negative impacts in terms of social inclusion in the broader society? How?
- ▶ Can the video games industry improve its inclusiveness e.g. in terms of casting and modelling of video game characters?
- ▶ How can video games foster the civil engagement and political activism of its users?
- ▶ How can video games be used in international relations and the promotion of a country's soft power? What is the role of public authorities in this context?

### **Spillovers with other cultural and creative sectors and the broader ecosystem**

Spillovers: We understand spillover(s) to be the process by which activity in one area has a subsequent broader impact on places, society or the economy through the overflow of concepts, ideas, skills, knowledge and different types of capital.

- ▶ In which forms do the spillovers of the video games industry in other cultural and creative sectors manifest themselves? (spreading knowledge on new processes and ideas, boosting the uptake of new technologies, stimulating new markets, fostering social and community cohesion, etc.)
- ▶ Which are the main cultural and creative sectors that benefit from video games industry spillovers? And which ones do not?
- ▶ What are the main factors fostering creative spillovers? Proximity and agglomeration/clusters? Financial incentives?
- ▶ What kind of policies can support such spillovers?

### **Policy framework**

- ▶ How are current policies enhancing and fostering the cultural role of video games?
- ▶ Would the video games industry benefit from a clearer classification as cultural products? Why?
- ▶ Are there any barriers to the development of policies on video games?
- ▶ Are there any barriers to the development of (cross-border) video games projects? How can policies address this?
- ▶ Should the video games industry be a matter of regional, national or European policymaking? Why?
- ▶ In your opinion, which are the most urgent and needed policy interventions to foster the cultural role of the video games industry?

## Annex 7: Overview of Regional and national public support schemes

Country	Name	Level	Type
Belgium	Screen.Brussels Fund	Regional	Project funding
Belgium	PMV	Regional	Studio funding
Belgium	Wallimage Enterprises: Games	Regional	Project funding
Belgium	St'art investment fund	Regional	Studio funding
Belgium	Flanders Audiovisual Fund (VAF)	Regional	Project funding
Denmark	Danish Film institute: Games Scheme	National	Project funding
Finland	AVEK: DigiDemo	National	Project funding
Finland	Business Finland	National	Studio funding
France	BPI France	National	Studio funding
France	CNC: Video Games Funding	National	Project funding
France	CNC: Video Games Tax Credit	National	Tax Rebate
France	CNC + BPI: RIAM	National	Project funding
France	IFCIC: FPJV - Participatory Loans for Video Games	National	Project funding
France	IFCIC: Financial Guarantee	National	Tax Rebate
France	Pictanovo: Hauts-de-France Region	Regional	Project funding
France	Auvergne-Rhône-Alpes Region	Regional	Project funding
France	Île-de-France Region	Regional	Project funding
France	Occitanie Region	Regional	Project funding

France	Nouvelle-Aquitaine Region	Regional	Project funding
Germany	BMVI: COMPUTERSPIELEFÖRDERUNG DES BUNDES	National	Project funding
Germany	FFF - FILMFERNSEHFONDS BAYERN	Regional	Project funding
Germany	Film- und Medienstiftung NRW	Regional	Project funding
Germany	Gamecity Hamburg	Regional	Project funding
Germany	Games Lift Incubator Hamburg	Regional	Studio funding
Germany	Medienboard Berlin-Brandenburg	Regional	Project funding
Germany	Mitteldeutsche Medienförderung	Regional	Project funding
Germany	MFG: Games BW	Regional	Project funding
Germany	Nordmedia	Regional	Project funding
Greece	Ekome	National	Cash rebate and Tax relief
Ireland	Wrap Fund	Regional	Project funding
Italy	First Playable Fund	National	Project funding
Italy	Tax Credit	National	Tax Credit
Italy	Lazio Innova	Regional	Studio Funding
Norway	Norwegian Film Institute	National	Project funding
Spain	Ministry of Culture and Sports	National	Project and Studio Funding
Spain	ICEC	Regional	Project funding
Spain	Department de Cultura	Regional	Studio funding
The Netherlands	Creative Industries fund: Digital Culture Grant Scheme	National	Project Funding

