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Is the software to blame for video gaming disorder?

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Abstract: With over 3 billion active players, the video gaming industry is one of the most lucrative in the world, outperforming the film and music industries combined. Even though playing video games has many favourable effects on players, excessive and careless game playing outweighs these benefits, with numerous negative repercussions on players' physical and mental health, social and professional activities, as well as their financial status. The purpose of this paper is to examine, from a legal standpoint, the ways in which video games can impact players' health, particularly their mental health, as well as the legislative "reactions" at the European Union level that may offer a solution regarding liability for harms inflicted on video game players, particularly those who suffer from video gaming disorder. In the International Classification of Diseases 11th Revision ICD-11, gaming disorder is defined as "a pattern of gaming behaviour ('digital-gaming' or 'video-gaming') characterized by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation or escalation of gaming despite the occurrence of negative consequences". Video games, as software and software-as-a-service/game-as-a-service, fall under the new European Directive on Product Liability (Directive (EU) 2024/2853) and the Artificial Intelligence Act.

Keywords: gaming addiction, legal responsibility, gaming disorder, gaming liability, gamification

Introduction

Video games have become an essential component of modern culture, with a profound impact on society. From simple forms of entertainment, they have evolved and transformed into a global industry that generates billions of dollars annually and can influence areas such as education, health or social relations. The video game industry includes console games, computer (PC) games and mobile games (de Prato et al., 2014). It has approximately 3 billion active users worldwide and generates impressive revenues (Exploding Topics, 2025). In 2023 and 2024 the global video game market revenues exceeded the threshold of 180 billion dollars/year (Allcorrect Games, 2025; Council of the European Union, 2023; WN Hub, 2025).

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The popularity of video games has created complex communities in the online environment, where millions of users interact daily and participate in e-sports championships. E-sports or electronic sports are "competitions in which individuals or teams play video games – usually in front of spectators – either in person or online, for entertainment, prizes, or money." The definition encompasses a human element (the players), a digital element (the games themselves), and a competitive element (Scholz & Nothelfer, 2022).

The video game industry has grown so popular that, both globally and regionally (European Parliament, 2023), there is debate about whether or not e-sports belong in the sports category, despite the fact that they have been shown to be detrimental to both physical and mental health, which contrasts with the advantages of traditional physical sport (Yin et al., 2020).

Aside from the cultural and economic aspects, video games also bring up a number of legal concerns around consumer protection, commercial competition, and personal data protection, to mention a few. Furthermore, the psychological mechanisms that facilitate addiction and are linked to the phenomena of micro-transactions (Gibson et al., 2022; Schwiddessen & Karius, 2018;) and loot boxes (Federal Trade Commission, 2020; UK Parliament, 2019) raise concerns regarding the possibility of manipulative techniques that can ultimately determine game addiction and video gaming disorder.

The goals of this paper are to examine, from a legal standpoint, the ways in which video games can impact players' health, particularly their mental health, becoming a disease. Including the gaming disorder among the mental, behavioural or neurodevelopmental disorders (International Classification of Diseases 11th Revision ICD-11) the World Health Organisation has acknowledged the seriousness of the situation and its stance could have a potential effect on triggering the liability of those involved in facilitating the gaming disorder.

In the first part of the article, we will clarify what video games are, their types and effects on gamers. We will touch upon the concept of gamification and its connection with gaming addiction and gaming disorder. As playing video games, especially online, has no borders, we will attempt to identify any lawsuits for gaming disorder filed against video games developers. In the second part of the paper, we will try find the responsible person for gaming disorder, by looking at the European Union's legislative "reactions" to new damages related to product liability, including software. The new rules - Directive (EU) 2024/2853 and the Artificial Intelligence Act - may offer a solution regarding liability for harms inflicted on video game players, particularly those who suffer from video gaming disorder.

The methodology we will employ to achieve our objectives will consist of a brief literature review and a basic legislative evaluation.

1. Video games - what are they and how do they affect users/gamers?

According to a statement from the Council of the European Union, video games are part of the ecosystem of cultural and creative industries, with a ‘‘great potential to transmit cultural content and highlight the value of the richness of European creation, heritage and history” (Council of the European Union, 2023 November). Video games attract users through captivating stories, the adrenaline of action, interactive design and the possibility of simulating various experiences, such as fighting, war, construction, flying or car racing. Also, the social interaction in multiplayer games and the satisfaction of evolution in the game contribute to this attraction, while also offering a way to escape from the daily routine.

1.1. Types of video games

A variety of criteria can be used to categorize video games, all of which are intended to make it easier for players to comprehend or identify the games that best fit their needs. The following is the most popular classification, which is based on the type of gameplay: action games (games that focus on quick reflexes), adventure games (games that emphasize exploration, solving puzzles, and telling a story), role-playing games (RPGs), simulators (games that mimic real life or other activities), strategy games (games that emphasize planning and making tactical or strategic decisions), sports (games that mimic different sports), and fighting games (games that center on character battles). There are many situations in which a video game is part of several categories, combining descriptors such as adventure, strategy and action (Doherty et al., 2018; Gameopedia, 2025; Qaffas, 2020).

1.2. Effects on users/gamers

Playing video games can affect players in both positive and negative ways. As for the benefits, we point out that playing video games can help with hand-eye coordination, strategic thinking, problem-solving, concentration, creativity, social skills in multiplayer games, stress reduction, and relaxation (Gentile, 2011; Halbrook et al., 2019; Prot et al., 2014). To everyone who has dealt with this industry, these positive benefits are evident.

Yet, excessive and careless use overshadows the advantages of video games, with several detrimental impacts on the player’s financial status, social and professional life, and physical and mental health.

Regarding the effects of video game addiction on health, the expert literature notes that excessive sedentarism can result in obesity, cardiovascular issues, and joint or muscle pain, particularly in the wrists and back. Overuse of the hand joints can lead to the development of certain ailments including “tennis elbow” (lateral epicondylitis) and “gamer’s thumb” (De Quervain’s tenosynovitis) (Ayenigbara,

2018; Gillespie, 2002; Rubin, 2010), and extended screen time can result in a number of visual issues. As a result, gamers' addiction to improving their abilities and leveling up in order to evolve and develop their virtual persona (level up) shows up in real life as a decline in their physical and mental well-being.

Also, video game consumption can harm mental health, with users experiencing effects such as increased levels of stress, anxiety or depression, decreased concentration, the emergence of an emotional addiction to games, including the development of compulsive behaviour (the constant need to play, regardless of the consequences). An edifying example is episode 3, season 2, "The Barbarian Sublimation", from the series Big Bang Theory (IMDb, 2025). For an extreme hypothetical situation, the 2018 film Ready Player One directed by Steven Spielberg, based on the novel of the same name by Ernest Cline, can provide an idea of the harmful effects of video games on humanity.

In addition to the negative effects already mentioned, video games can contribute to neglecting personal relationships, reducing social interactions, communication difficulties and adapting to real-life situations. For example, Fortnite, a video game with over 40 million active users, is believed to have caused over 4,600 divorces in the United Kingdom in 2018 (Sassoon Coby, 2018; Tremblay, 2018). They can also lead to financial problems caused by repetitive spending, micro-transactions, within the games. According to Schwiddessen and Karius (2018), micro-transactions are defined "as in-game payments for items or unlockable content made directly from real-world money or indirectly through the buying of virtual currency".

The incidence of the negative effects listed above varies, depending on the type of game and gamer. For instance, excessive consumption of shooter games can cause increased aggression or violent behaviour (Gentile, 2011). User addiction can be determined by a combination of psychological, social, biological and other circumstances that favour repetitive use of games, which act simultaneously and vary depending on each individual.

The first psychological component we discuss is gamification, or reward systems, which we shall examine in more detail later. A lack of time management skills, the desire to win, and the difficulties of game missions can all lead to prolonged and repetitive gaming sessions.

Particularly, social aspects affect those who struggle to relate in the real world, for whom playing multiplayer video games offers a relaxed setting for interaction while also fostering a sense of community (Christians, 2018).

The gamers' age is one of the most relevant biological factors, as children and adolescents are the most vulnerable to gaming mechanisms (Chaarani et al., 2022; Gentile, 2011). For them, the action in video games and immediate rewards activate the pleasure centers of the brain and can contribute to the development of behavioural addictions.

The way in which games and in-game features are designed, such as micro-transactions and paid benefits, encourage in-game purchases and, indirectly, increase user engagement and time spent in the application (Gibson et al., 2022).

1.3. The concept of gamification and its connection with gaming addiction

Gamification has been defined as a process of improving services through motivational facilities to generate playful experiences and influence subsequent behaviours (Hamari et al., 2014; Huotari & Hamari, 2012). Basically, the concept of gamification sums up all playful mechanisms such as points, rankings, prizes, rewards, challenges, level evolutions and progress or recognition of victories, with the aim of integrating them into different contexts, products or services to increase user involvement, motivation and performance. The purpose of implementing playful mechanisms (gamification) is to transform ordinary activities into attractive and captivating experiences, with the risk or opportunity of creating a hidden addiction in users.

Games, whether electronic or not, online or offline, act effectively on individuals with the ability to influence their behaviour through gamification mechanisms. If gaming addiction is the result, the elements used in gamification constitute the means by which users are motivated and engaged, which can contribute to the development of a diagnosable addiction.

Both video games and gamification systems stimulate the brain's reward system by offering points, trophies or reward loops, generating the release of dopamine and inducing a state of pleasure that encourages repetition of the behaviour (Pacewicz, 2015; Zichermann & Cunningham, 2011). Progress or evolution within the games, through levels and small goals, keeps users engaged in the long term. Obsessive behaviour is driven by extrinsic motivation generated by the rewards, but also by the specific elements of competition, such as rankings, which amplify social pressure and the desire to excel.

A range of psychological manipulation techniques can be designed by video game developers to cause users to engage in obsessive behaviour, disregard obligations, or make rash purchases (such as premium subscriptions, gear, items, in-game money, and in-game assets). In order to encourage gambling-like behaviours, micro-transactions might also target loot box mechanisms or the purchase of objects that are thought to be rare or unique (Gibson et al., 2022, p. 1-3). The UK Parliament (2019) mentions that loot boxes or reward boxes are reward mechanisms used in video games, which offer players the opportunity to obtain as a bonus, in exchange for in-game items or money or, purchased directly with real money, a package with random content that can later be used during the game. Typically, loot boxes contain special characters, weapons, equipment or elements for customization (skins). Loot boxes present risks similar to gambling, especially for minor consumers, because their content is unknown to the players, being automatically determined randomly.

They most often involve micro-transactions with real money and stimulate curiosity, enthusiasm, and implicitly the consumer's desire to purchase and open more "surprise boxes".

Some games exploit the desire for social belonging and the fear of missing out (FOMO) by organizing limited-time events or by offering rare or unique rewards (Li et al., 2020; Yin & Xiao, 2022).

Online gaming communities can negatively influence the physical and mental health of users through aggressive behaviour of other players (harassment, bullying), damage to self-esteem as a result of defeats or loss of competitions, acts of revenge in real life for actions performed in the game, in online activity (Falkenthal & Byrne, 2020; Zajechowski, 2024).

1.4. From gaming addiction to gaming disorder

Due to the mass effect of video games and the serious forms of gaming addiction that some people develop, in 2013, the American Psychiatric Association classified Internet Gaming Disorder (IGD) as a non-substance addiction and included it in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). The DSM-5 provided nine criteria for diagnosing Internet Gaming Disorder (IGD):

> (1) high pre-occupation with gaming, (2) withdrawal symptoms, (3) increased tolerance to gaming, (4) unsuccessful attempts to stop or reduce gaming, (5) loss of interest in other hobbies or activities, (6) excessive gaming despite negative consequences, (7) deception about gaming activities towards others, (8) use of gaming as escape or relief from a negative mood, and (9) jeopardized or lost relationships, jobs, or educational or career opportunities (Borges et al., 2021; Carbonell, 2020; Darvesh et al., 2020; Kuss et al., 2017).

In 2019, gaming addiction become a disorder. In its 11th Revision of the International Classification of Diseases (ICD-11) the World Health Organization has included gaming disorder among the mental, behavioural or neurodevelopmental disorders, with the main code 6C51.0 (International Classification of Diseases 11th Revision ICD-11).

> Gaming disorder is defined as "a pattern of gaming behaviour ('digital-gaming' or 'video-gaming') characterized by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation or escalation of gaming despite the occurrence of negative consequences" (World Health Organization, 2025).

A person must exhibit a pattern of conduct that seriously impairs their ability to perform in their personal, familial, social, academic, professional, or other crucial spheres in order for gaming disorder to be diagnosed. There are two types of gaming behaviour: episodic and recurring and ongoing. For a diagnosis to be made, these symptoms must persist for a minimum of 12 months, citing the WHO and specialized research. However, if all diagnostic requirements are satisfied and the symptoms are severe, this time frame can be shortened (ICD-11, 6C51.0; Darvesh et al., 2020).

Although the diagnosis of the disease would seem to have been a trigger for class action lawsuits against game developers, that has not been the case. We have only found one lawsuit filed in 2009 (Smallwood v. NCSoft Corporation, 2025), before the condition was included among addictive diseases, by a gamer from Hawaii against the game's South Korean developer, who said he was unable to bathe, dress himself or wake up in the day because he was addicted to the video game "Lineage II" (NBC News, 2010).

A search for class action lawsuits reveals "movements" by law firms looking for interested clients, i.e. victims of video games, especially in the USA, such as TorHoerman Law (Tor Hoerman Law, 2025), Miller & Zois (Lawsuit Information Center, 2025) and others. Video game addiction lawsuits are gaining traction in USA, as well, focusing on holding video game companies liable for abusing vulnerable gamers, particularly adolescents and young adults, through purposely addictive game designs. Gaming addiction has resulted in severe harms, including mental health issues, social isolation, and financial pressure. Companies like Fortnite, Roblox, Minecraft, Call of Duty are at the center of those pending lawsuits (Lawsuit Information Center, 2025).

Nothing to be seen yet in EU in this field. It seems that recognizing the existence of the disease by the WHO does not necessarily conduct to lawsuits for holding liable of those who created addictive games. It is possible that European video game players are waiting for the US decisions, until they take action. Maybe there is a lack of confidence in the outcome of such kind of lawsuits, as in the case of smoking or drug addiction, the responsibility does not necessarily lie with the producers, but with those who fall prey to temptation. However, the new European directive on product liability could be a *game changer*.

2. Who is liable for gaming disorder?

To answer the question, we should first define the concept of a video game from a legal perspective: is it a product, is it a service, is it a platform?

2.1. Video games as products

The video game is the software and other electronically stored content and information; a video game is played on a device (console, computer, mobile device)

which is hardware (Politowski et al., 2021). In offline video games, this characterization suffices. In online games, though, video game publishers use another business model as a way to monetize video games after the initial sale, "games as a service" (GaaS) (Horowitz, 2021). The games were adapted as a service model to the traditional free-to-play model, which allows anyone connected to the internet to access the game for free, but afterwards, the gamer has to pay for updates, expansion packs, and other new content. Basically, the developers use multiple ways to create *"living games" and keep their player base alive and growing* through game subscriptions, game subscriptions services, microtransactions, season passes, battle passes, and so on (Horowitz, 2021).

These characteristics of GaaS have led to the idea of video games as a platform. From the point of view of EU law, it would be difficult to classify video games as platforms, with the application of the corresponding legislation, since in the Digital Services Act (Regulation (EU) 2022/2065, 2022), the platform is defined in art. 3 letter i) as:

> a 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 or a minor functionality of the principal service and, for objective and technical reasons, cannot be used without that other service, and the integration of the feature or functionality into the other service is not a means to circumvent the applicability of this Regulation.

For the purpose of the article (to identify the person responsible for covering the damages caused by gaming disorder) we will not make the difficult task of proving that video games represent a platform. We will be content to remain with the qualification of video games as software and software as a service (game as a service). This way, the application of the Directive (EU) 2024/2853 - New Product Liability Directive -NPLD is triggered (Directive (EU) 2024/2853, 2024).

We will demonstrate, as well, that AI legislation is also becoming applicable. Generative AI is increasingly being used in video games at various stages of games design (Sweetser, 2024): developers are using generative AI to accelerate the game development process, for instance, by complementing it with animation blending and creating in-game trees or non-playable characters (NPCs) and in-game dialogue, which is expected to not only increase immersion, but also radically change video games (Ho, 2024). AI startups like Inworld AI (2025), and researchers are experimenting with AI-generated characters with the aim of establishing immersive in-game experiences (Firth, 2024).

In NPLD *'product' means all movables, even if integrated into, or inter-connected with, another movable or an immovable; it includes electricity, digital manufacturing files, raw materials and software*; [art. 4(1)].

The NPLD therefore extends the scope of products to software. In addition, even certain services are considered products, although services *per se* are excluded from its scope. In the recitals (Directive (EU) 2024/2853, 2025, recital 13) these concepts are explained. Thus, software means, for instance, operating systems, firmware, computer programs, applications or AI systems. The software is a product, *irrespective of the mode of its supply or usage, and therefore irrespective of whether the software is stored on a device, accessed through a communication network or cloud technologies, or supplied through a software-as-a-service model*. Digital services integrated into or interconnected with a product, including software updates and enhancements, are also considered products, in such a way that the absence of the service would prevent the product from performing one of its functions. These related services are considered components of the product in which they are integrated or interconnected (Directive 2024/2853, 2024, recitals 17 and 18).

As video games are software and software as a service (game as a service) and the concept of software embeds AI (software being an umbrella term), then video games are products.

The product liability is triggered by the product's defectiveness (Directive (EU) 2024/2853, 2025, art. 7.1).

2.2. The defective product

The NPLD applies to products, including video games, which are defective, namely products which *do not provide the safety that a person is entitled to expect or that is required under Union or national law* (art. 7.1. NPLD).

AI-containing products cannot be deemed safe if they fall under one of the banned categories. Art. 5.1. (a) AIA (Regulation (EU) 2024/1689, 2024) states that AI systems

> that deploys subliminal techniques beyond a person's consciousness or purposefully manipulative or deceptive techniques, with the objective, or the effect of materially distorting the behaviour of a person or a group of persons by appreciably impairing their ability to make an informed decision, thereby causing them to take a decision that they would not have otherwise taken in a manner that causes or is reasonably likely to cause that person, another person or group of persons significant harm are prohibited.

According to the recital 29 AIA significant harms mean physical, *psychological* or financial ones. Manipulative or deceptive techniques are those that

> subvert or impair a person's autonomy, decision-making or free choice in ways that people are not consciously aware of those techniques or, where they are aware of them, can still be deceived or are not able to control or resist

> them. This could be facilitated, for example, by machine-brain interfaces or virtual reality as they allow for a higher degree of control of what stimuli are presented to persons, insofar as they may materially distort their behaviour in a significantly harmful manner.

To determine the defectiveness of a product all the circumstances should be taken into account, among which:

> the presentation and the characteristics of the product, including its labelling, design, technical features, composition and packaging and the instructions for its assembly, installation, use and maintenance [art. 7.2.(a)]; the effect on the product of any ability to continue to learn or acquire new features after it is placed on the market or put into service [art. 7.2 (c)]; the reasonably foreseeable effect on the product of other products that can be expected to be used together with the product, including by means of inter-connection [art. 7.2. (d)]; the moment in time when the product was placed on the market or put into service or, where the manufacturer retains control over the product after that moment, the moment in time when the product left the control of the manufacturer [art.7.2. (e)]; relevant product safety requirements, including safety-relevant cybersecurity requirements [art. 7.2. (f)].

Video games hide a myriad of manipulative techniques, which are embedded primarily in the *product design*: Skinner Box Mechanics, Fear of Missing Out (FOMO), Social Pressure, Sunk Cost Fallacy, Artificial Scarcity, Dynamic Difficulty Adjustment (DDA), Pay to Win, Teasing Future Content, Locus of Control, Grinding, Loot Boxes, Gacha Systems, and the Zeigarnik Effect (Komad, 2023). These techniques play an important role in guiding the user experience, driving engagement, and encouraging specific user actions. We are not going to delve into these techniques (the author cited did it very well and we have already mentioned a few in the beginning). We just observe that manipulative techniques should be considered in the process of assessing the defectiveness of the product.

The manipulative techniques are defectiveness related to the products *design* and *technical features* [as mentioned in art. 7.2.(a) NPLD]. We could say that video games are manipulative by design. In the same time, another defectiveness should be looked for in the *presentation and the characteristics of the product* [also in art. 7.2.(a) NPLD], the economic operator (who placed/made available the product on the market or put it into service) having the obligation to inform the potential users about the risks the video game implies, including the risk of addiction and of triggering gaming disorders. According to NPLD (recital 31) *liability cannot be avoided simply by listing all conceivable side effects of a product*. Therefore, the caution for players ought to be as obvious as the warnings on cigarette packaging. Payers should be informed that video games can lead to addiction, just like narcotics,

before they buy or create accounts on a particular gaming platform. Liability for incomplete information could be avoided in this way.

2.3. The harm

The gaming disorder is a psychological /mental one. It is the harm that a defective video game does to the gamer.

The concept of harm/damage to psychological health is not defined in the European regulations that use it. The meaning of the term is not clear, neither in law nor in medicine (Pałka, 2024). In the NPLD according to art. 6(1), (a) constitutes damage, along with death and personal injury, the

> medically recognised and medically certified damage to psychological health that affects the victim's general state of health and could require therapy or medical treatment, taking into account, inter alia, the International Classification of Diseases of the World Health Organization (Directive 2024/2853, recital 21).

We have already discussed the gaming disorder as seen by the WHO. In AIA the terms *harm on psychological health* are used in recital 29, without any explanation.

Psychological harm could be an umbrella concept, encompassing all harms to mental health. Psychological harm could mean emotional distress, addiction, eating disorders or a generalized anxiety disorder (Pałka, 2024).

Not only gamers can suffer harm, but also passive players, in a way similar to passive smoking. Passive video game consumers are people who participate indirectly, as spectators, in gaming sessions broadcast live on streaming platforms, such as Twitch (a platform with an average of over 2.5 million simultaneous viewers) (Startup Bonsai, 2025; StatsUp – Analyzify, 2025; Twitch, 2025). Compared to gaming sessions, the user of streaming platforms is not directly involved in the game action but can participate through direct interactions with the gamers on chat or can purchase and use options such as Streamloots cards – options that allow changing the game scenario (Steamloot Cards is a card-based system that allows the video game audience to receive random cards, creating epic reactions during the stream). Passive users can also suffer from gaming disorders, if they present the symptoms described (Streamloots, 2025).

2.4. The proof

In order to hold any economic operator who placed/made available the product on the market or put it into service liable, the victim has to prove: the defectiveness

of the product, the damage suffered and the causal link between that defectiveness and that damage (art. 10.1 NPLD).

To prove the defectiveness of the video game and the damage suffered by the victim could be a difficult but doable task. We have already shown what a defective video games consist in and what damage the user could suffer. The causal link would be more difficult to establish, but the victim could rely on relative presumptions (the defendant being able to prove the contrary), in which case the defectiveness of the product (video game) is presumed, if the mentioned conditions are met. In art. 10.2.(b) a presumption operates in favour of the user (*the claimant demonstrates that the product does not comply with mandatory product safety requirements laid down in Union or national law that are intended to protect against the risk of the damage suffered by the injured person*) which can be applied in the case of the economic operator using manipulative or deceptive AI techniques, prohibited on the European market according to art. 5.1. AIA. Also, in art. 10.3 the presumption of causality is put in place, operating when *it has been established that the product is defective and that the damage caused is of a kind typically consistent with the defect in question.* The competent court (art. 10.4) could apply the presumption of the causal link or of the defectiveness of the product, or both, if the victim

> (a) faces excessive difficulties, in particular due to technical or scientific complexity, in proving the defectiveness of the product or the causal link between its defectiveness and the damage, or both; and (b) the claimant demonstrates that it is likely that the product is defective or that there is a causal link between the defectiveness of the product and the damage, or both.

However, even if the victim manages to prove the three conditions, the economic operator may be exonerated from liability if it proves that, among other things,

> it is probable that the defectiveness that caused the damage did not exist at the time the product was placed on the market, put into service or, in the case of a distributor, made available on the market, or that defectiveness came into being after that moment; (art. 11.1.c).

Nevertheless, an economic operator will not be exempted from liability

> where the defectiveness of a product is due to any of the following, provided that it is within the manufacturer's control: (a) a related service; (b) software, including software updates or upgrades; (c) a lack of software updates or upgrades necessary to maintain safety; (d) a substantial modification of the product. (art. 11.2).

3. What now?

What are the chances of victims obtaining compensation? Since the defectiveness is mainly the product design or the lack of information on the product, common to all video games of a certain type, class actions would have the best chance of success. As already mentioned, no class actions have yet been identified against video game developers or other economic operators who could be held liable. A provision in the NPLD states that the lawsuit for compensation might be brought by the injured person, the person that succeeded, or was subrogated, to the right of the injured person by virtue of Union or national law or contract or by a person acting on behalf of one or more injured persons by virtue of Union or national law (art. 5 NPLD). This means that actions can be brought both by qualified entities under the Representative Actions Directive (Directive (EU) 2020/1828, 2020), and by professionals, assignees of victims' rights, from the category of those who deal with actions for compensation of air passengers for damages caused by flight cancellation or delay (Ungureanu, 2025).

In the meantime, consumer information and awareness systems regarding video games, which already exist, could be used as preventive measures.

To ensure that users are correctly informed about the content of video games, but also to raise awareness of the risks they are exposed to when using the products, classification and marking systems for video game software products have been developed and implemented. For example, in the European Union, the PEGI (Pan-European Game Information) system was implemented, founded in 2003 by Video Games Europe, as a self-regulatory age rating system for video games. The PEGI system is part of the industry's commitment to protecting minors and providing consumers with relevant information about the content of video games. PEGI classifications aim to ensure the consumer's age is appropriate in relation to the type of game and its content, and not to the level of difficulty. The classification system includes five age categories and eight content descriptions (PEGI, 2025). At international level, there are several non-profit organizations similar to PEGI, such as *International Age Rating Coalition* (IARC) (Global Ratings, 2025) or *Entertainment Software Rating Board* (ESRB, 2025).

In addition to labelling software products with suggestive information regarding the recommended age and risks associated with use, potential users and consumers can be informed about the risks of repetitive/excessive use of games through software marketing and advertising platforms (Fungies, 2025) (e.g.: Steam, Battle.net, Microsoft/Xbox Store, PlayStation Store, Nintendo eShop) and last but not least, through the contract concluded by the user when installing the game or purchasing the license/subscription.

As to the last preventive measure we have proposed, we are aware that very few people read the adhesion contract (Terms & Conditions). However, we are considering including a *Nagging Clause* in the contract. Nagging is a dark pattern.

"Dark patterns are deceptive techniques used by online platforms to manipulate users' behaviour, often without their knowledge or consent" (European Parliament, 2025). Nagging occurs when "the user is pursuing a goal and the task is interrupted by an action not related to the original goal" (Maier and Harr, 2020). By using pop-ups that block the interface with audio or video warnings of gaming disorders every time players enter the game, during the game, and after a specific amount of time (for instance, after one hour of playing) in a repetitive manner when not expected or desired, nagging could become a positive pattern for the gamers' benefit. Video game creators should be required by law to use this kind of dark pattern (nagging), which would turn a currently harmful tool into a useful one.

Conclusions

Excesses are harmful physically, mentally and relationally, a principle that applies equally to video games, regardless of their typology, the presence of gamification mechanisms or the level of transparency in the relationship with the user. The recognition of gaming disorder as a condition by the World Health Organization paves the way for legal action, but it remains unclear whether their purpose is to identify those responsible for the user's uncontrolled behaviours, or whether it establishes the foundations of a mandatory mechanism through which ethics, responsibility and accountability become fundamental principles in video game design.

The major difficulty in proving video game defects, the harm caused to the user and the causal link between them leads us to consider that holding video game manufacturers liable under the new Directive on defective products is a difficult task (to be optimistic). A possible explanation for this legal problem lies in the way the WHO classifies gaming disorders, in particular by setting a 12-month period during which symptoms must persist, which significantly complicates the burden of proof for defect, harm and causal link.

Until the diagnostic criteria for gaming disorder are re-evaluated, we believe that a preventative stance could help. The legislator may impose obligations for video game developers and distributors, measures designed to counteract the potential negative impact on users. Among the measures we consider appropriate are: the development of international standards regarding ethical and responsible design; ensuring transparency regarding manipulative or addictive design; establishing thresholds for the use of addictive mechanisms based on the age of the user; integrating wellbeing concepts into games through mandatory breaks, information and periodic reminders about the time spent in the game, including AI chatbots to support players' mental health.

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