

Preservation of video games and their role as cultural heritage

István Harkai *

1. Introduction

Preserving the common heritage of humanity is both a public interest and a duty. The values to be preserved are numerous and often include treasures that are regarded as works of authorship. Over time, literary works, paintings, sculptures, cartographic or architectural works, photographs, sound recordings and films have become part of the public domain, but the collections of heritage institutions responsible for the preservation and dissemination of culture also contain many works that are still protected by copyright. According to Tim Padfield, the role of middlemen in the GLAM sector (Galleries, Libraries, Archives and Museums) does not coincide with that of copyright and related rights holders and secondary users. Because of their role as cultural guardians and mediators, it is therefore not necessary for them to ask for permission to carry out the acts that result from their activities.¹

The author

- István Harkai is a Senior Lecturer at the University of Szeged, Faculty of Law and Political Sciences, Szeged, Hungary.

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1 T Padfield 'Preserving and Accessing Our Cultural Heritage – Issues for Cultural Sector Institutions: Archives, Libraries, Museums, and Galleries' in E Derclaye (ed.) *Copyright and Cultural Heritage—Preservation and Access to Works in a Digital World* (Edward Elgar, Cheltenham, UK—Northampton, MA, USA, 2010) 195.

Abstract

- Video games are complex, intricate works of art that include computer program creations, ie software, graphical elements, musical compositions, sound recordings, other copyright-protected subject matter and sometimes performances by artists. As we are talking about one of the most important entertainment products of our time, it is perhaps not surprising that our first thought is not to preserve games and the elements linked to their development and the gaming experience. It is perhaps not too much of an exaggeration to say that we might not think of video games primarily as cultural heritage.
- Yet, if we consider the complex inner world of games and the social groups that play them, it is quite appropriate to examine whether they could be subject to the limitations and exceptions laid down in the copyright and related rights in the Digital Single Market (CDSM) Directive (Directive 2019/790), whether they are worthy of preservation and whether there are institutions whose activities are aimed at collecting, organizing, archiving and making them available for cultural purposes. Not only are video games worthy of preservation, but there are also institutions that systematically collect them. In fact, to turn the question around, video games themselves can play an important role in the preservation and conservation of cultural heritage.
- This article takes stock of the arguments for the preservation of video games as complex works forming part of the digital cultural heritage, in particular regarding the new exception in Article 6 of the CDSM Directive. It also examines the efforts already made to preserve video games.

In addition to the above-mentioned objects held in collections, digitization has led to a double paradigm shift. On the one hand, the GLAM sector is trying to protect physical copies of cultural heritage from possible loss by digitizing them; on the other hand, they are making them accessible to a wider public online via the internet. The ‘format shift’ of works that are part of collections involves two types of economic rights in the field of copyright law. Both the reproduction and communication to the public of protected subject matter held in archives and their online accessibility imply the exercise of the rights of reproduction and communication to the public.

Directive 2019/790 (the CDSM Directive)² introduces a wide range of new rules on the conservation of cultural heritage, introducing a new regime of limitations and exceptions for uses exercised by cultural heritage institutions. The new provisions of the Directive in themselves justify a review of the new rules, but this study seeks to explore these issues through the example of a protected subject matter that has perhaps been outside the scope of cultural heritage that is worthy of preservation. Video games are complex works incorporating computer programs, ie software, graphic elements, musical works, sound recordings and sometimes performances. As one of the most important entertainment products of our time, it is perhaps not surprising that our first thought is not to preserve video games and the gaming experience. It is also not an exaggeration to say that we do not think of video games primarily as cultural heritage on display in museums or as ancient documents gathering dust on the shelves of archives.

Yet, if we look at the complex inner world and message of games and the social groups that play them, it is very appropriate to examine whether they could be subject to the ambitions, as well as the limitations and exceptions set out by the CDSM Directive, whether they could be worth preserving and also whether there are institutions whose activities are aimed at collecting, organizing, archiving and making them available for cultural purposes. As it will become clear from this article, not only are video games to be preserved, but there are also institutions that systematically collect them. In fact, reversing the focus of the study, video games themselves can play an important role in the protection and preservation of cultural heritage.

2. Video game software as cultural heritage and its accessibility to the general public

The video game industry looks back at a decades-old history.³ Whether it is the defining works of early gaming history or today’s popular multi-platform entertainment software, rapid technological advances and the passage of time are making media (magnetic and optical) obsolete and, in some cases, unreadable.⁴ This is so because there is no longer a means to read them or because the sensitive media is damaged or eroded. The business models of the video game industry are rapidly issuing new samples of a franchise, quickly rendering obsolete and obscuring the software that masses of gamers used to play with just a few years ago. This phenomenon is what Alasdair Bachel and Matthew Barr call the ‘throwaway culture’, which hinders attempts to preserve certain games.⁵ The newer generations⁶ of hardware that are essential for entertainment are not necessarily compatible with the game software written for the previous generation.⁷

At the same time, there is nostalgia for older games, as well. Nevertheless, their availability is limited, and a

2 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.

- 3 The history of video games began shortly after the first computers were installed. One of the very first games was Tennis for Two, created in 1958. The second, more widespread game was Space Wars. The first game console, the Magnavox Odyssey, was launched in 1972, followed shortly after by Atari’s Pong in 1975. See W White ‘Would You Like to Save Your Game?: Establishing a Legal Framework for Long-Term Digital Game Preservation’ (2020) 81 Ohio State Law Journal 573–574.
- 4 D Monnens ‘Losing Digital Game History, Bit by Bit’ in H Lowood (ed.) *Before It’s Too Late—A Digital Game Preservation White Paper* (American Journal of Play, Fall, 2009) 141–142. Comp.: M Swalwell ‘Moving on from the Original Experience: Games history, preservation and presentation’ Proceedings of DiGRA 2013: DeFragging Game Studies, 2013, 1–4.
- 5 A Bachel and M Barr ‘Video Game Preservation in the UK: Independent Games Developers’ Records Management Practices’ (2014) 9 International Journal of Digital Curation 139. Comp.: YH Lee ‘Copyright and Gaming’ in T Aplin (ed.) *Research Handbook on Intellectual Property and Digital Technologies* (Edward Elgar Publishing, Cheltenham, UK—Northampton, MA, USA, 2020) 57.
- 6 Henrike Maier puts the average lifespan of each game at 5 years, which is closely linked to the lifespan of the console for which the game was originally developed. See H Maier ‘Games as Cultural Heritage – Copyright Challenges for Preserving (Orphan) Video Games in the EU’ (2015) 6 Journal of Intellectual Property, Information Technology and Electronic Commerce Law 120.
- 7 YH Lee ‘Making Videogame History: Videogame Preservation and Copyright Law’ (2018) 1 Interactive Entertainment Law Review 103. Comp.: White (n 4) 570., Comp.: Padfield (n 2) 196. Comp.: ‘Video Game History Timeline’. Available at https://www.museumofplay.org/video_games/ (accessed 7 March 2022); ‘The History of Gaming: An Evolving Community’. Available at https://techcrunch.com/2015/10/31/the-history-of-gaming-an-evolving-community/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmhh1Lw&guce_referrer_sig=AQAAAMy04hiii1hDaYOieOkbfkfpTvlucjorpCHwevLiB8fPZr5aBLzpFilufL9YpYCX3M5K8r1AwZbOAXd23s7swf4DcnKp3ZhKxkIZX-7L6GTui7e05QnCN_gcvKwe3HEzza8XeTaC4AaL3kznHAox1AK4GiHgYpnVM4tWZ_Ws3SS (accessed 7 March 2022).

game can easily become an abandonware⁸ game or an out-of-commerce work that is no longer commercially available. Digital video game marketplaces,⁹ which also act as archives of sorts, have a prominent role to play in this area, collecting thousands of games from the latest to older releases. It is true that these platforms make software available for profit. The disadvantage of digital video game stores is that the range of works available in their repertoire is highly dependent on the will of the publisher and the licence agreements between the video game publisher and the digital video game store.¹⁰

A particular challenge is the preservation of multiplayer games that require an internet connection for their intended use. The server that functions as the technical backend of the game is operated by the publisher or developer. If the developer decides to stop its activity, players will no longer be able to connect in the online space, and all the end-user content [user-generated content (UGC)] that players have created during the game and stored on the publisher's/developer's servers¹¹ may become inaccessible.¹² The in-game performance of players and their in-game creations are therefore also elements that are closely linked to video games as cultural heritage and should be preserved. Jerome P McDonough gives the example of the internet-based metaverse Second Life, in which players interact with each other to live an actual second life. The first version of the game was released in 2003 and since then tens of millions of people have joined the platform. In 2021, 64.7 million active users were reported.¹³ This figure may be beyond the manageable amount of data that can be taken seriously in terms of video game preservation, but it reflects the dilemma that in the case of online multiplayer software that attracts millions of users, it is not possible to think only about software preservation, because the virtual world that populates it would

be a 'ghost town' without user content, interaction and performance.¹⁴

While the market for physical copies of works has become less important following the rise of digital video game stores,¹⁵ it has not disappeared. However, it can be observed that the physical data carrier no longer contains the whole game, but only a specific part of it. The installation requires an internet connection and a user account linked to a digital store to download the rest of the game.¹⁶ The paradigm shift in the video games market is striking. Games have slowly turned from a good into a service.¹⁷ It is a rather hypothetical example, but this kind of access to the work is reminiscent of the reader only having access to certain chapters of the book and having to go to the library for the rest. The second-hand trade can continue to be a significant source of rare games that are no longer available from primary sources because the publisher has ceased production. The playability of such copies from a secondary source, and the accessibility of the works on the data carrier, depends to a large extent on the end user having the means to open and run them.¹⁸

In sum, the availability of video games to the general public, the specific business model of developers and publishers, the rapid advances in technology and the obsolescence of data carrier and hardware, and the rise of the internet have pushed the dissemination of video games strongly towards digital marketplaces. These platforms operate as businesses for profit, yet their growing repertoire can be seen as a kind of archive. But there are other ways of making older games accessible and playable. The use of the so-called emulators,¹⁹ which artificially create an environment for the game as if it were running

8 The identification of abandonware games as orphan works may be correct if, after a diligent search and recording of the rights holder, all the rightsholders of the software are unknown, or if several rights holders are known but all of them are in an unknown location. See Directive 2012/28/EU on certain permitted uses of orphan works, Art. 2(1), Henrike Maier identifies as abandonware software that is no longer commercially available and for which product support and patches are no longer provided, ie the developer itself is abandoning it. Comp.: Maier (n 7) 127.

9 See, eg, Steam, Electronic Arts Origin, Ubisoft Club. Comp.: I Harkai 'Copyright Questions in Computer Games and the New Models of Distribution' (2017) *Jogelméleti Szemle* 65–72.

10 Lee (n 8) 103.

11 Ibid 105. Comp.: Bachell—Barr (n 6) 140.

12 For example, Star Wars Galaxies and The Matrix Online Massively Multiplayer Online Role-playing Games have become inaccessible and are no longer playable for the general public. See Bachell—Barr (n 6) 140. Comp.: Monnens (n 5) 146.

13 R Greener 'Second Life Storefront User Traffic Jumps 35 per cent in 2021'. Available at <https://www.xrtoday.com/virtual-reality/second-life-user-traffic-jumps-35-percent-in-2021/> (accessed 7 March 2022).

14 JP McDonough 'Packaging Videogames for Long-Term Preservation: Integrating FRBR and the OAI Reference Model' (2011) 62 *Journal of the American Society for Information Science and Technology* 174.

15 The first examples of digital distribution of video games date back very early, to the 1980s. Atari first tried a download service in 1983 called GameLine, which allowed end users of the Atari 2600 console to download games over the phone line using a special modem. The attempt died in the ashes, but a decade later, in 1994, Sega tried again in what seemed impossible at the time and connected its Genesis console to the local cable network. The major console manufacturers (Nintendo, Sony and Microsoft) now consider the internet connectivity of their game platforms as standard, allowing players to download games from the platform's digital video game archive. See White (n 4) p. 576–577.

16 White (n 4) 578.

17 Ibid 577.

18 Lee (n 8) 103.

19 Although the purpose of the use was not to preserve the video game, the making of intermediate copies for non-infringing emulator software purposes in *Sony Computer v Connectix Corp.* (*Sony Computer Entertainment, Inc. v Connectix Corp.*, 203F.3d 596, 602 (9th Cir. 2000)) falls within the fair use doctrine. Connectix's emulator software allowed gamers to play video games written for the PlayStation on a desktop computer. See B Casillas 'Attack of the Clones: Copyright Protection for Video Game Developers' (2013) 33 *Loyola of Los Angeles Entertainment Law Review* 149.

on a previous generation of hardware or even on a different console, is well known. Another possible solution is the so-called migration, where games are converted to a media-neutral format. This said, such solutions inevitably entail the exercise of the right of reproduction, which constitutes a licensed use.²⁰ In almost all cases, game software is protected by effective technological protection measures, so the two options mentioned earlier necessarily involve circumvention, which may also be infringing.²¹ The question of the use of effective technological protection measures in games software and consoles capable of playing them has also been addressed by the Court of Justice of the European Union (CJEU). In the *Nintendo* case,²² it was held that an effective technological measure within the meaning of Article 6 of Directive 2001/29 (the InfoSoc Directive)²³ may be considered a technological protection measure that is incorporated not only into the media containing the video game but also into the device or console that provides access to the games.²⁴

In *Nintendo*, the CJEU also expressed a valuable opinion on the issue of game software as a copyright work, stating that computer software is protected by copyright if 'they are original, that is that they are their author's own intellectual creations'.²⁵ The graphic and musical works that form part of the work are also protected if 'they share the originality of the whole work'.²⁶ The CJEU thus classified video games as '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, and 'they are part of its originality' and also 'they are protected, together with the entire work'.²⁷

It is beyond dispute that game software is interactive, digital multimedia works²⁸ protected by copyright. They

consist of two distinct components, of which both the software that runs the game and the graphic and sound elements that create the world, the story, the characters and the graphical user interface (GUI) (audiovisual elements) are protected by copyright and related rights.²⁹ Game software is a typical example of joint authorship, where the copyright in the software is acquired as the successor in title of the authors by the natural or legal person who created the work, or at whose initiative and direction the work was created, and who published it in his own name.³⁰ This is also clear from the wording of Article 2(2) of Directive 2009/24 (the Software Directive).³¹ The legal definition of video games is not uniform. Some countries (eg Canada, China, Israel, Italy and Spain) consider the software as the primary core³² around which the game is built, and developers either develop 'in-house' the graphics, sound, story and other elements or obtain the necessary licences from other rights holders; still, the result, the game on the shelves of stores or virtual marketplaces, is considered to be software, typically a joint work of authorship.³³ In contrast, other countries (eg Belgium, Brazil, Denmark, France, Germany, India, Japan, Sweden and the USA) emphasize the complexity of video games, providing protection for each component as a distinct work of authorship (computer software and audiovisual work).³⁴

In a 1986 article, Alan R Glasser wrote about video games as subject matter in which the audiovisual and software elements are protected separately. This fact, combined with the relatively short lifespan of video games, gives rightsholders a fairly long term of protection.³⁵

20 J Barwick and others 'Playing Games with Cultural Heritage: A Comparative Case Study Analysis of the Current Status of Digital Game Preservation' (2011) 6 *Games and Culture* 373.

21 *Ibid* 104. Comp.: White (n 4) 581; Meier (n 7) 124–125; Swalwell (n 5) 2013, 7; M Guttenbrunner and others 'Keeping the Game Alive: Evaluating Strategies for the Preservation of Console Video Games' (2010) 5 *The International Journal of Digital Curation* 76–77. R Polčák 'Digitisation, Cultural Institutions and Intellectual Property' (2015) 9 *Masaryk University Journal of Law and Technology* 137–138. Lee (n 8) 57.

22 C-355/12. *Nintendo Co. Ltd, Nintendo of America Inc., Nintendo of Europe GmbH v PC Box Srl, 9Net Srl*. ECLI:EU:C:2014:25.

23 Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society.

24 *Nintendo Co. Ltd and Others v PC Box Srl and 9Net Srl*, C-355/12, EU:C:2014:25, para 39.

25 *Ibid*, para 21.

26 *Ibid*, para 22.

27 *Ibid*, para 23.

28 IA Stamatoudi 'Are Sophisticated Multimedia Works Comparable to Video Games?' (2001) 490 *Journal Copyright Society of the USA* 470.

29 A Ramos and others *The Legal Status of Video Games: Comparative Analysis in National Approaches* (World Intellectual Property Organization, 2013). Comp.: J Groffe-Charrier 'Diversity of Works in Video Games – Some Thoughts on the Difficulties Inherent in Placing Rights on a Secure Footing' RIDA—Revue Internationale du Droit D'Auteur, 267/01-2021, 47–48. Stamatoudi (n 29) 479.

30 Section 6 para (1) of the Hungarian Act LXXVI of 1999 on Copyright.

31 Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs (Codified version).

32 The graphics engine that runs the game can be the developers' own product, but they can also obtain a licence to use other developers' software. See Ramos and others (n 30) 11.

33 Ramos and others (n 30) 11. Comp.: DS Dean 'Hitting Reset: Devising a New Video Game Copyright Regime' (2016) 164 *University of Pennsylvania Law Review* 1251.

34 Ramos and others (n 30) 11. Ebersöhn describes the object code and source code as literal elements, meanwhile the structure, sequence, organization and GUI as non-literal elements. See G Ebersöhn 'Protecting Copyright in Computer Games and Computer Software' (2005) 2005 *Journal of South African Law* 109. Comp.: S Corbett 'Digital v analogue: Reconceptualising the Orphan Works Problem for Cultural Heritage Institutions' in J Lai and A Maget (eds) *Intellectual Property and Access to Im/material Goods* (Edward Elgar 2016) 308.

35 AR Glasser 'Video Voodoo: Copyright in Video Game Computer Programs' (1986) 38 *Federal Communications Law Journal* 103–104.

The early video game cases in the USA dealt with infringements relating to audiovisual elements.³⁶ In *Stern Electronics, Inc. v Kaufman*,³⁷ the 2nd Circuit held that a video recording of certain elements of gameplay contained a repetitive series of a substantial portion of the sights and sounds of the game, which was sufficiently fixed to be protected by copyright.³⁸ A counterexample is *Atari v North American Phillips Consumer Electronics Corp.*,³⁹ in which the 7th Circuit held that video games could not be protected by copyright because they are essential 'systems' or 'processes' that Congress had expressly excluded from protection.⁴⁰ Thus, potential infringers of early video games were initially tackled on the basis of the audiovisual elements of the game. Congress broadened the scope of rightsholders' defences in 1980 when it amended the Copyright Act to take account of the National Commission on New Technological Uses (CONTU) Report.⁴¹

Grosheide, Roerdink and Thomas describe video games as electronic or computer games that present players with a series of manipulative images on a computer screen or television.⁴² They also provide a strong argument for why video games should not be considered audiovisual works like film. Audiovisual storytelling in films is linear, the audience cannot influence the plot. In video games, however, the player can control the events, even shaping the story. This control function is therefore the decisive factor that distinguishes films from video games.⁴³ Trapova and Fava consider that, although video games contain several non-software elements, these components are powered by the software, allowing players to interact with the non-software elements. In other words, the interactivity and functioning of the game is dependent on and subordinate to the software.⁴⁴

The storytelling and audiovisual effects of the games are of an artistic standard. It can therefore be seen as a new stage in the creative fulfilment of the human mind,

brought to life by modern means, with the help of digital technology.⁴⁵ However, as we are talking about a very contemporary genre, it may be worth considering whether they should also be considered part of the cultural heritage, and a very specific part of it. Schorlemer classifies video games as part of the so-called born-digital heritage, as they are digitally manifested at every stage of their existence.⁴⁶ Groffe-Charrier points out that games are interactive works that actively involve the end user in the enjoyment of the work, as opposed to literary and artistic works whose enjoyment requires a more passive attitude. End users can become potential creators at the same time.⁴⁷

United Nations Educational, Scientific and Cultural Organization's (UNESCO's)⁴⁸ 32nd session adopted the Charter on the Preservation of the Digital Heritage in 2003.⁴⁹ Under Article 1, digital heritage encompasses unique resources of human knowledge and expression, including cultural, educational, scientific and administrative resources, technical, legal, medical and other information created digitally or converted into digital format. Digital content can be in particular text, databases, moving and still images, sound recordings (audio), graphics, software and web pages. Protected objects must have a lasting value and significance over time and be considered heritage to be preserved. Particularly interesting is the last turn of Article 1, which considers the digital heritage to be the universal heritage of all humanity, in any language, anywhere in the world and in any field of human knowledge. The wording of Article 1 therefore 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 in order to ensure that the public may have access to it at any time. In doing so, a balance must be struck between the legitimate interests of creators and

36 Ibid 105.

37 *Stern Electronics, Inc. v Kaufman*, 669F.2d 852 (2nd Cir. 1982).

38 Glasser (n 36) 105.

39 *Atari v North American Phillips Consumer Electronics Corp.* 672F.2d 607 (7th Cir. 1982).

40 Ibid 107.

41 CONTU Report (National Commission on New Technological Uses). See Glasser (n 33) 113–120.

42 FW Grosheide and others 'Intellectual Property Protection for Video Games. A View from the European Union' (2014) 9 *Journal of International Commercial Law and Technology* 1.

43 Ibid 11.

44 A Trapova and E Fava 'Aren't We All Exhausted Already? EU Copyright Exhaustion and Video Game Resales in the Games-as-a-Service era' (2020) 3 *Interactive Entertainment Law Review* 81.

45 Ibid 7. Comp.: D Monnens 'Why Are Games Worth Preserving?' in H Lowood (ed.) *Before It's Too Late—A Digital Game Preservation White Paper* (American Journal of Play, Fall, 2009) 149–150.

46 S von Schorlemer 'UNESCO and the Challenge of Preserving the Digital Cultural Heritage' (2020) 2 *Santander Art & Culture Law Review* 35. Comp.: M Ziku 'Digital Cultural Heritage and Linked Data: Semantically-Informed Conceptualisations and Open Practices with Focus on Intangible Cultural Heritage' (2020) 30 *LIBER Quarterly—The Journal of the Association of European Research Libraries* 4. S Corbett 'Immaterial Cultural Property and the Private Owner: How Copyright and Trade Law Might Address Access and Preservation' (2019) 9 *Queen Mary Journal of Intellectual Property* 269. Comp.: L Lixinski 'Digital Heritage Surrogates, Decolonization, and International Law: Restitution, Control, and the Creation of Value as Reparations and Emancipation' (2020) 2 *Santander Art and Culture Law Review* 68–70.

47 Groffe-Charrier (n 30) 49–50.

48 United Nations Educational, Scientific and Cultural Organization.

49 Von Schorlemer (n 47) 37.

the public's interest in access. Article 8 calls on Member States to establish the institutional framework necessary for the preservation of the digital heritage, and Article 10(a) urges hardware and software developers, creators, publishers, manufacturers and distributors to cooperate with libraries, archives, museums and other organizations to preserve digital heritage.

According to Article 2(a) and (b) of the Faro Framework Convention,⁵⁰ cultural heritage is to be understood as those groups of resources of value inherited from the past which people, regardless of their ownership, define as reflecting and expressing their own constantly evolving values, beliefs, knowledge and traditions. This includes, in particular, all aspects of the environment that have resulted from interactions between people and places over time [point (a)]. Article 3(a) identifies all forms of cultural heritage in Europe as part of Europe's common heritage, which 'together constitute a shared source of remembrance, understanding, identity, cohesion and creativity'. Under Article 12(a), Member States shall encourage everyone to 'participate in the process of identification, study, interpretation, protection, conservation and presentation of the cultural heritage'.

The protection of cultural diversity and cultural heritage is one of the most important principles of the European Union, as reflected in the Treaty on European Union (TEU) and the Treaty on the Functioning of the European Union (TFEU).⁵¹ Article 3 TEU states that the Union shall respect its cultural and linguistic diversity and shall ensure that Europe's cultural heritage is safeguarded and enhanced. Article 6(c) TFEU gives the Union competence to implement measures to support, coordinate or supplement the action of the Member States, including in the field of culture. Pursuant to Article 167 TFEU, the Union shall contribute to the flowering of the cultures of the Member States, while respecting their national and regional diversity and bringing the common cultural heritage to the fore. This includes, according to Article 167(2), artistic and literary creation, including the audiovisual sector.

Video games and digital goods in general could not yet be included in the traditional notion of cultural heritage, which is listed, for example, in the 1954 Hague

Convention (Article 1)⁵² or the 1970 Paris Convention (Article 1).⁵³ This said, the latter already mentions archives of sound recordings and films, which indicates that, over time, these have also been recognized as cultural goods. Since 1970, however, steps have been taken in both the international and EU legislative arenas to ensure that digital works are recognized as part of cultural heritage. Because video game software is protected by copyright, and that it has many similarities with other audiovisual works and films, and that it itself contains high artistic and creative elements, it is appropriate and timely to recognize it as cultural heritage.⁵⁴

3. Efforts to preserve video games

One of the primary key questions in entertainment software preservation is: what exactly should be preserved for posterity in a given game? Decker and others consider the 'significant properties' of video games to be preserved, which include factors affecting the quality, usability, renderability and behaviour of the product.⁵⁵ Above all, White sees the source code and associated documentation as the key object of long-term preservation, which he compares to the original negative of a film work. The source code contains the raw data that can be used to recreate the game without the need to reproduce the original hardware environment, which may be decades old.⁵⁶ Reproduction carried out by professional preservation

50 Council of Europe Framework Convention on the Value of Cultural Heritage for Society, Faro, 27.X.2005.

51 CS Quiñones Vilá 'Cultural Heritage in the European Union: An Outsider's Perspective' (2018) 2 Santander Art and Culture Law Review 253.

52 Convention for the Protection of Cultural Property in the Event of Armed Conflict with Regulations for the Execution of the Convention. The Hague, 14 May 1954.

53 Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, Paris, 14 November 1970.

54 Jack M Balkin uses the expression of 'Cultural Software' for those types of software that are, in some respects, are comparable to culture including the way of operation of culture. For further details, see JM Balkin *Cultural Software – A Theory of Ideology* (Yale University Press, New Haven & London, 1998) 4. Susan Corbett highlights the fact that many scientists, including ethnographers, psychologists and legal scientists are considering video games as 'significant contributors to modern culture'. See S Corbett 'Digital Heritage: The Legal Barriers to Conserving New Zealand's Early Digital Culture' (2007) 13 New Zealand Business Law Quarterly 48. Adrienne Shaw approaches game culture from three perspectives: (i) who plays them, (ii) how they are played, (iii) what gamers play. A Shaw 'What is Video Game Culture?' *Cultural Studies and Game Studies* (2010) 5 Games and Culture 404. Piotr Rykała considers video games as parts of the cultural heritage originating from the 'wider cultural industries' including heritage and print media; television and radio; sound recording and video and computer games, that are also parts of the so-called popular culture. See P Rykała 'The Growth of the Gaming Industry in the Context of Creative Industries' (2020) 20 Biblioteka Regionalisty—Regional Journal, Nr 126–128.

55 A Decker and others 'Technical Properties of Play – A technical analysis of significant properties for video game preservation' IEEE International Games Innovation Conference (2012), 1.

56 White (n 4) 580–581. Comp.: Bachell—Barr (n 6) 140.

institutions for preservation purposes is made more difficult by the fact that the key players in the games industry, developers and publishers, either jealously guard the source code, treating it as a trade secret where appropriate, or, on the contrary, focusing on newer and newer products in a given franchise, and do not consider it necessary to preserve it, especially if the game no longer generates any economic benefit for the developer or publisher.⁵⁷

An example of the preservation of the source code and other elements related to the video game by the rightsholder is the archiving method used by Nintendo, which James K Harris calls ‘corporate memory’.⁵⁸ It can also be seen as a kind of platform building, using previous major blockbuster titles made and released by Nintendo. Fans playing with these games remain loyal to the platform [(consumed) nostalgia], which sees it as in its interest to preserve its previously successful old games⁵⁹ and to control access to them for fans.⁶⁰ Independent, smaller developers, however, do not have the resources to preserve the source code of their previous games properly and in the long term.⁶¹ The transfer of videogames to a heritage institution for archiving purposes may be partly related to the problem that the institution may become the copyright owner of a copy of either the videogame or a related work of authorship (eg posters, other graphics and promotional items) made for preservation purposes. Although Article 14 of the CDSM Directive expressly excludes this in the case of works of fine art in the public domain—unless the copy itself can be considered an original work of authorship—which is clearly not the case even for an old video game, it is indicative of the legislator’s desire to ensure that the institution that preserves the

copies in its collection has control over the copies. Such an endeavour may clearly be contrary to the interests of the rightsholders of the original work.⁶²

Besides the source code, there are a number of related elements of playable virtual worlds without which the game experience itself would not be reproducible. The aim of preservation is therefore not only to preserve the game as cultural heritage but also to maintain playability, ie to allow the game to remain accessible on its original platform, in accordance with the original gaming experience.⁶³ The careful archiving of the source code and its various updates does not therefore in itself complete the preservation of a game. It is also necessary to preserve at least the original medium that allowed the system to run, ie the console or personal computer of the generation in question, and the associated hardware.⁶⁴ The games are also accompanied by marketing elements (media, packaging and accessories for various collector’s editions) that can also contribute to the completeness of the universe to be preserved.⁶⁵ James Newman also includes among the elements to be preserved audiovisual end-user videos that capture the gameplay itself (configurative performance or walkthrough), which can be seen as a kind of preservation of the virtual, graphical world of the video game.⁶⁶ These videos can be uploaded by end users to various video-sharing platforms.⁶⁷ This raises further questions about the use of the graphical and audiovisual elements of virtual worlds.

To preserve video games as part of our cultural heritage, professional museums have been set up around

57 Bachell and Barr (n 6) 141, 155. Comp.: Z Vowell ‘What Constitutes History?’ in H Lowood (ed.) *Before It’s Too Late—A Digital Game Preservation White Paper* (American Journal of Play, Fall, 2009) 152–153.

58 A typical example of corporate memory in the film industry is Disney’s practice, which James K Harris interprets as the ‘Disney Vault’. The idea is that Disney makes its most treasured works available to the market for a limited time and in limited numbers, then sends them back to the ‘vault’ where they are made available again to new generations of fans, recruiting a new potential fan base. See JK Harris ‘Pocket-Sized Archives: Classic Consoles, Consumed Nostalgia, and Corporate Rememory’ (2020) 53 *The Journal of Popular Culture* 1423. Comp.: L Gasaway ‘Archiving and Preservation in U.S. Copyright Law’ in E Derlaye (ed.) *Copyright and Cultural Heritage—Preservation and Access to Works in a Digital World* (Edward Elgar, Cheltenham, UK—Northampton, MA, USA, 2010) 145.

59 Harris (n 59) 1418.

60 Harris (n 59) 1429. The control of access to content in the digital platform economy is also reflected in the contractual practices followed by platform operators, which have a strong influence on the specific uses that subscribers using the platform can make of the content made available. For a detailed analysis of end-user licence agreements, see P Mezei and I Harkai ‘End-User Flexibilities in Digital Copyright Law—An Empirical Analysis of End-User License Agreements’ (2022) *Interactive Entertainment Law Review* 1–20.

61 White (n 4) 581–582.

62 A Wallace and E Euler ‘Revisiting Access to Cultural Heritage in the Public Domain: EU and International Developments’ (2020) 51 *IIC—International Review of Intellectual Property and Competition Law* 835. Comp.: LD Pittman ‘Combating Copyright Overreach: Keeping 3D Representations of Cultural Heritage in the Public Domain’ (2020) 95 *New York University Law Review* 1197–1198.

63 J Newman ‘The Music of Microswithces: Preserving Videogame Sound – A Proposal’ (2018) 7 *The Computer Games Journal* 264.

64 The hardware composition of PCs, like that of game consoles, offers a much wider variety of combinations, which greatly affects the presentation of the game, the gaming experience and, in some cases, the playability of the game itself. From a preservation perspective, it is important that the graphical performance of the game is exploited and preserved to the fullest extent possible. Another important aspect is to ensure proper software compatibility with the operating system running the game, which itself can only work smoothly in a specific hardware environment, while the driver used by the hardware (eg, a video card) is also important. See Monnens (n 5) 144.

65 K Leblan ‘The Quagmire of Video Game Preservation’ *Information Today*, 16 June 2021. Comp.: R Bettivia ‘Where Does Significance Lie: Locating the Significant Properties of Video Games in Preserving Virtual Worlds II Data’ (2016) 11 *International Journal of Digital Curation* 18. Newman (n 64) 262–263.

66 J Newman ‘(Not) Playing Games: Player-Produced Walkthroughs as Archival Documents of Digital Gameplay’ (2011) 6 *The International Journal of Digital Curation* 109.

67 The largest such audiovisual collections are Youtube and Twitch.

the world.⁶⁸ The following is a non-exhaustive list of museums that have video games in their collections or specialize in the preservation of video games. The New York-based Museum of Modern Art began adding video games to its collection in 2012.⁶⁹ The Video Game History Foundation, based in Oakland, California, works to organize written documents related to video games as part of a library service, preserve the source code, restore and recover lost and damaged data, archive related audiovisual and physical marketing materials and provide video game awareness and advice.⁷⁰ Video games can also be found in the collection of the Library of Congress.⁷¹ The Strong's International Center for the History of Electronic Games also collects, preserves and studies video games and related content and materials.⁷² The National Videogame Museum in Sheffield (UK) is an institution dedicated to collecting and exhibiting video games, not only as a traditional museum but also as a way to make exhibits playable.⁷³ The Computerspielemuseum in Berlin (Germany) collects games in a similar way and exhibits them in permanent and temporary exhibitions. Its collection includes both rare and classic games and allows visitors to express their creativity.⁷⁴ Similar activities are carried out by the Videogame Art Museum in Bologna (Italy).⁷⁵

4. Cultural heritage preservation in light of the CDSM Directive

The reason for the archiving and preservation exception, which is a particular phenomenon in the case of video games, is that some copies of works and other protected subject matter in collections can easily be damaged or destroyed, while their replacement is either very difficult or impossible to obtain.⁷⁶ In order to enable professional institutions to carry out their tasks of preserving cultural heritage and making it accessible to the public, it is necessary that the legislator create exceptions in the system of limitations and exceptions to copyright law, which allow institutions to freely copy works and other performances in their collections and archives and make them accessible to the public.⁷⁷ Prior to the provisions of the CDSM Directive, discussed in detail below, the InfoSoc Directive already contained a number of limitations and exceptions to the exclusive right of reproduction, which, while having a narrow scope, allowed public libraries, educational institutions, museums or archives to make digital copies, provided that they were not for profit. The exception provided for in Article 5(2)(c) should be limited to specific cases falling within the scope of the reproduction right, which should not apply to the use of works and other subject matter in the context of an online service.⁷⁸ Reproduction for archiving purposes under the InfoSoc Directive therefore covered video games in museum collections that were no longer commercially available but whose preservation justified making a copy.⁷⁹

Directive 2012/28 (the Orphan Works Directive) also provides for certain cases of free use, where the orphan work is used by publicly accessible libraries, educational institutions or museums or archives, institutions for the protection of cinematographic or audio heritage established in the EU Member State or public-service broadcasters, in order to achieve a purpose in the public interest.⁸⁰ Therefore, if a video game can be considered an orphan work, the institutions defined in Article 1 are free to reproduce and make available to the public orphan works in their collections if the purpose of the act

68 In addition to heritage institutions, Alasdair Bachell and Matthew Barr also see the video game industry and the gaming community as a group interested in preservation, and the latter is very active. The focus of this paper is on institutional-level preservation, with particular reference to the system of limitations and exceptions in the CDSM Directive, so the other two are only touched on in a tangential way at most. See Bachell and Barr (n 6) 141–143. Comp.: L Eklund and others 'Lost in Translation: Video Games Becoming Cultural Heritage?' (2019) 13 *Cultural Sociology* 445–447. Comp.: Swalwell (n 5) 2013, 6.

69 R Eveleth 'Video Games Are Officially Art, According to the MoMA' Available at <https://www.smithsonianmag.com/smart-news/video-games-are-officially-art-according-to-the-moma-150115811/> (accessed 30 March 2022).

70 Video Game History Foundation—Projects. Available at <https://gamehistory.org/what-were-doing/> (accessed 30 March 2022).

71 T Owens 'Yes, The Library of Congress Has Video Games: An Interview with David Gibson'. Available at <https://blogs.loc.gov/thesignal/2012/09/yes-the-library-of-congress-has-video-games-an-interview-with-david-gibson/> (accessed 30 March 2022).

72 The Strong's International Center for the History of Electronic Games—What We Do. Available at <https://www.museumofplay.org/collections/icheg/> (accessed 30 March 2022).

73 About the National Videogame Museum. Available at <https://thenvm.org/about/> (accessed 30 March 2022).

74 Computerspielemuseum Berlin. Available at https://www.computerspielemuseum.de/1210_Home.htm (accessed 30 March 2022).

75 Associazione Insert Coin—Videogame Art Museum Bologna. Available at <https://www.insertcoinbologna.it/video-game-art-museum/> (accessed 30 March 2022).

76 P Torremans 'Archiving Exceptions: Where Are We and Where Do We Need to Go?' in E Derlaye (ed.) *Copyright and Cultural Heritage—Preservation and Access to Works in a Digital World* (Edward Elgar, Cheltenham, UK—Northampton, MA, USA, 2010) 112.

77 Torremans (n 77) 115.

78 InfoSoc Directive, recital 40.

79 Lee (n 8) 107. Comp.: A Panezi 'Europe's New Renaissance: New Policies and Rules for Digital Preservation and Access to European Cultural Heritage' (2018) 24 *Columbia Journal of European Law* 604–605.

80 Directive 2012/28/EU of the European Parliament and of the Council of 25 October 2012 on certain permitted uses of orphan works.

is digitization, making available, indexing, cataloguing, preservation or restoration.⁸¹

Moreover, the identification of abandonware video games as orphan works, as mentioned earlier, seems controversial within the framework of the Orphan Works Directive. Although Article 2 refers to a work or phonogram, thus giving a wider scope for interpretation, Article 1(2)(a)–(c) also specifies the works to which the Directive applies. Such works include, in particular, works published in the form of books, journals, newspapers, magazines or other writings [point (a)], cinematographic or audiovisual works and phonograms [point (b)] that are held in the collections of publicly accessible libraries, educational institutions, museums, archives, film or audio heritage institutions, or cinematographic or audiovisual works and phonograms produced by public-service broadcasting organizations on or before 31 December 2002 and held in their archives [point (c)]. In other words, software is not listed, so it is questionable whether the Orphan Works Directive applies to video games. This dilemma raises a further problem, namely whether video games can be considered audiovisual works. According to Henrike Maier, the concept of audiovisual works is not harmonized in the EU.⁸² Article 1 of the Software Directive protects computer programs as literary works under the Berne Convention for the Protection of Literary and Artistic Works, which also applies to preparatory documentation and to any form of expression, provided that the program is the author's own intellectual creation. If one compares Article 1 of the Software Directive to Article 1 of the Orphan Works Directive, the work published as a literary work may be the most appropriate expression for the classification of computer programs as literary works. The finding on the nature of video games in the *Nintendo* case, cited earlier, should be reiterated here. Games contain audiovisual elements which, although encoded in the game's programming language, have a creative value that goes beyond the encoding and play a role in the originality of the work. This argument highlights two points that could make it possible to classify the abandonware games as orphan works. On the one hand, games are first and foremost computer programs; on the other hand, they are complex works involving interactive audiovisual works and other performances that operate in a virtual environment, where the individual components, the overlapping property rights, can form a complex web of rights which can make it difficult to identify rightsholders. The discourse, or rather the dilemma, of the abandonware orphan work illustrates

that the copyright treatment of video games as complex works can raise serious questions in European copyright law. Games abandoned by developers can be potential orphan works, but any institutional efforts to preserve them, at least at the intersection between the Orphan Works Directive and the InfoSoc Directive, could face serious limitations.

Prior to 2019, the range of limitations and exceptions available to cultural heritage institutions was narrowly defined. This is particularly true of the rules of the InfoSoc Directive, which have been eased somewhat by the Orphan Works Directive for orphan works. The CDSM Directive expands on the range of acts that can be lawfully performed without a licence, reflecting changes in the digital and online space.⁸³ The important legal policy rationale for the new rules is that new digital technologies have brought about a multitude of new uses, while the existing EU copyright provisions—in particular Directive 96/9 (the Database Directive),⁸⁴ the InfoSoc Directive and the Software Directive⁸⁵—harmonized limitations and exceptions only on an optional basis, with one exception.⁸⁶ To ensure the proper functioning of the internal market, mandatory exceptions and limitations should be introduced to protect and preserve scientific research, innovation, education and cultural heritage, while existing restrictions and exceptions should continue to apply, including to conservation activities.⁸⁷

The definition of cultural heritage institutions, which is in the focus of this study, is also dealt with in detail in the CDSM Directive. Article 2(3) defines as such a publicly available library or museum, an archive or a film or audio heritage institution. Such institutions are defined in recital 13 as publicly accessible libraries and museums regardless of the type of works or other subject matter that they hold in their permanent collections,⁸⁸ as well as archives, film or audio heritage institutions. This should be understood as including, in particular,

83 Panezi (n 80) 605.

84 Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases.

85 Directive 2009/24/EC on the legal protection of computer programs.

86 This exception is the temporary reproduction exception in Article 5(1) of the InfoSoc Directive. See I Harkai 'Az időleges többszörözési kivétel az Európai Unió Bíróságának joggyakorlatában. I-II. rész' *Iparjogvédelmi és Szerzői Jogi Szemle*, 14. (124.) évfolyam 5. szám, 2019. 79–97., ill. 14. (124.) évf. 6. szám, 2019. 42–58.

87 CDSM Directive, recital 5.

88 According to recital 29, a work or other protected subject matter forms a permanent part of the collection if the institution owns or permanently possesses copies of it. This may be based on a transfer of ownership, a usage contract, an obligation to provide a deposit copy or a permanent deposit agreement.

81 Orphan Works Directive, Article 6(1)(a)–(b).

82 Maier (n 7) 121.

national libraries and national archives, as well as educational establishments, research organizations and public-sector broadcasting organizations. Recital 25 also sets out the responsibilities of cultural heritage institutions, which include the preservation of their collections for future generations. In order to protect the heritage stored in a collection from destruction, it may be necessary to reproduce it, which act of conservation should be made possible by a binding exception. The new exception also aims to facilitate cross-border cooperation between cultural heritage institutions, the sharing of preservation methods and the creation of preservation networks. This could facilitate the efficient use of resources. According to Eleonora Rosati, recitals 25 and 26 thus provide the ‘twofold rationale’ for the Article 6 exception, which is to make better use of digital technologies in the preservation of cultural heritage and to mitigate the negative impact of the previously narrowly conceived archiving exception on the internal market.⁸⁹ Technological obsolescence or deterioration of the original medium, also in the case of video games, justifies the institution’s right to rely on the exception to the exclusive right of reproduction to make copies of a work or other protected subject matter in the collection at any time, by any appropriate means, method or technology, in any format or medium, in a sufficient number and in a quantity justified by the purpose of the preservation. However, if the protected subject matter was copied for a purpose other than preservation, authorization must still be sought unless an exception or limitation under other EU law does not allow it.⁹⁰ The objectives set out in recital 27 are, according to Rosati, open-ended examples of the concept of conservation. In any case, the CDSM Directive does not specify what should be considered as conservation. In general, any act that serves to maintain the original quality and condition of the copy in the collection can be considered as such.⁹¹ If the institution does not have the necessary technical means or expertise to make copies, it may seek the assistance of another cultural heritage institution with expertise or a third party that may make copies on its behalf and under its responsibility.⁹²

Article 6 requires Member States to provide for an exception to Articles 5(a) and 7(1) of the Database Directive, Article 2 of the InfoSoc Directive, Article 4(1)(a) of

the Software Directive and Article 15 of the CDSM Directive, in order to safeguard cultural heritage and to allow cultural heritage institutions to make copies of works and other protected subject matters forming a permanent part of their collections for conservation purposes, to the extent necessary for conservation purposes, in any format or on any medium. When implementing the exceptions and limitations, the three-step test should be considered, as set out in recital 6, and recital 7 states that, on the one hand, adequate protection of the effective technological protection measures referred to in the InfoSoc Directive should be maintained. It should also be ensured that the exceptions and limitations set out in the CDSM Directive are fully respected. The freedom of choice of specific technological protection measures should continue to be given to rightsholders.

Article 6 of the CDSM Directive is thus a much broader exception to the very narrow exception of the InfoSoc Directive, which allows for preservation and has been transposed by Member States without always taking into account the issue of digital formats.⁹³ The leeway given to Member States has resulted in a rather fragmented and limited exception.⁹⁴ This leeway and the non-binding nature of the exception are also reflected in the wording of the InfoSoc Directive: ‘Member States may provide for exceptions or limitations ...’. In other words, the EU legislator has so far left it to the discretion of Member States to decide on the scope and specificity of the exceptions they introduce for the purpose of preserving cultural heritage.⁹⁵ In comparison, the wording of Article 6 of the CDSM Directive—‘Member States shall provide for an exception ...’—refers to the mandatory nature of the exception. The CDSM Directive also operates with a much broader exception for the format and scope of the copy. The extent of copying is adapted to the extent necessary for preservation, while the Directive allows copies to be made in a different format (format shifting) from the original, on a different medium. The InfoSoc Directive’s narrow wording in Article 5(2)(c)—‘specific acts of reproduction’—does not suggest that the exception could have been interpreted more broadly.⁹⁶ However, Article 6 changes this and extends the scope of the exception. Rosati points out that in transposing the new rule, a Member State must transpose Articles 5(2)(c) and 6(2)(b)

89 E Rosati *Copyright in the Digital Single Market—Article-by-Article Commentary to the Provisions of Directive 2019/790* (Oxford University Press, 2021) 132–133.

90 CDSM Directive, recital 27.

91 Rosati (n 90) 136–137. Comp.: I Stamatoudi and P Torremans *EU Copyright Law—A Commentary, Second Edition* (Edward Elgar Publishing, Cheltenham, UK—Northampton, MA, USA, 2021) 696.

92 CDSM Directive, recital 28.

93 Rosati (n 90) 131.

94 Rosati (n 90) 132.

95 Torremans (n 77) 116. Comp.: M M Walter and S von Lewinski ‘Information Society Directive’ in M M Walter and S von Lewinski (eds) *European Copyright Law—A Commentary* (Oxford University Press, 2013) 1035–1038.

96 Torremans (n 77) 117. Comp.: Rosati (n 90) 133.

of the InfoSoc Directive, if it has not already done so.⁹⁷ The rule contained in Article 6 of the CDSM Directive is an exception in nature, ie Member States should refrain from adopting rules that would give rise to any form of legitimate compensation to the rightsholders.⁹⁸

The exception in Article 6 of the CDSM Directive may be appropriate to ensure that cultural heritage institutions can properly preserve video games in their collections. This means not only preserving the source code itself and the associated documentation and media but also ensuring the playability of the game. As playability is highly dependent on the hardware environment, which can make preservation difficult for older games, it is necessary that beneficiary institutions are free to copy games to newer digital media, ensuring at least readability. Furthermore, the above-mentioned emulation, ie the artificial creation of the original hardware environment, may be essential for the run. Achieving this goal may seem doubtful under Article 6 of the CDSM Directive, but Article 5(1)–(3) of the Software Directive may provide an opportunity for an institution that lawfully acquires software. 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 authorization, 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 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. If the intended purpose is the proper running of the software and the preservation of cultural heritage, I believe that the Software Directive and the CDSM Directive can provide an appropriate environment for the preservation of game software at the institutional level.

5. Preserving cultural heritage through video games

Video games can be considered not only as a cultural heritage to be preserved⁹⁹ but also as a tool that serves the purpose of cultural heritage preservation.¹⁰⁰ Several

games have been released that guide players through different historical themes.¹⁰¹ The strategy games of the Total War and Europa Universalis franchises (commercial historical games or documentary games)¹⁰² model the warfare, economic and social context of different historical periods in increasing complexity and detail. Total War games are renowned among fans for their modifiability,¹⁰³ meaning that game developer Creative Assembly and publisher Sega have allowed end users to customize the playing field to create a more realistic virtual environment. A prime example of such mods in Hungary is the so-called Hungarian Mod for Medieval II Total War, the UGC called The Shield of Christendom (Magyar Mod, A kereszténység pajzsa), which contains an incredible depth of additional modifications to the base game, borrowing medieval Hungarian music, historical events, weapons and uniform models.¹⁰⁴

The Assassin's Creed franchise brings the ancient Greek polis, 15th century Florence, Venice and Milan, 18th century Paris or even 19th century London to life in vivid detail. These games are particularly relevant for the preservation of cultural heritage, as the fictional characters in the fictional story are immersed in real historical events of the period, such as the French Revolution (Assassin's Creed Unity), where the creators have not only hidden a wealth of references to the events of the period and the actions of well-known historical figures,¹⁰⁵ but have also created digital copies of the architecture of the city in question, including an exact replica of Notre Dame, in astonishing detail. This proved particularly useful after the roof structure of the iconic French

101 EF Anderson and others 'Developing Serious Games for Cultural Heritage: A State-of-the-Art Review' (2010) 14 *Virtual Reality* 255.

102 Anderson and others (n 102) 259–260. Comp.: Bontchev (n 101), 50.

103 More and more game developers are releasing their game source code, which players can use to shape the game in their own image. The mods themselves may be works of authorship, and the exploitation of their economic benefits may be in the fundamental interest of the game's development studio. There are mods that have become games. An example is the Counter Strike FPS (First-person Shooter) game, which was originally created as a mod for the cult game Half Life, and later Valve, the developer of Half Life, acquired the rights related to Counter Strike. See Groffe-Charrier (n 30) 59. A mod called Defense of the Ancients (Dota), created for the game Warcraft 3, has followed a very similar path. The mod was such a hit with fans that Valve acquired the rights to it for Dota, and Blizzard, the publisher of the original base game, acquired the rights to the Dota, Dota Allstars mods. Valve later acquired the rights to use both mods, and Blizzard retained the right to use the Dota brand on in-game maps that players created for Warcraft 3 and Starcraft 2. See Groffe-Charrier (n 30) 77.

104 The Furgeur: A kereszténység pajzsa—Total War magyar mod. Available at <https://www.pcguru.hu/hirek/a-keresztenyseg-pajzsa-total-war-magyar-mod/25004> (accessed 9 March 2022).

105 Ubisoft, the developer of the Assassin's Creed series, is supported by full-time historian experts. See A Politopoulos and others "History Is Our Playground": Action and Authenticity in Assassin's Creed: Odyssey' (2019) 7 *Advances in Archaeological Practice, A Journal of the Society for American Archaeology* 319.

97 Rosati (n 90) 133.

98 Rosati (n 90) 134.

99 Barwick and others (n 21) 373.

100 B Bontchev 'Serious Games for and as Cultural Heritage' (2015) 5 *Digital Preservation and Preservation of Cultural and Scientific Heritage* 44.

Gothic building was destroyed by an extensive fire in 2019. Working on the video game, Caroline Miousse spent more than a year creating a digital replica of the cathedral. Although the model is based on photographs and is relevant from an artistic rather than an architectural point of view, it perfectly illustrates how a video game can become a form of heritage preservation that exists in reality. Experts say that the cathedral, which is accessible in *Assassin's Creed Unity*, cannot be used for post-fire reconstruction, but three-dimensional, photogeometric or laser scanning digital models of architectural works have come to the aid of the experts who are rebuilding the church.¹⁰⁶

A criticism of games that visualize cultural heritage in virtual space is that they often depict real-life places and objects in a way that is justified by the game's functions. Majed S Balela and Darren Mundy have examined the first instalment of the *Assassin's Creed* franchise for historical fidelity and concluded that the minarets modelled in the game (Jerusalem and Damascus) are not exact replicas of the originals but that the creators relied heavily on Egyptian minaret architecture for the models and used calligraphy from the Maghreb region of north-west Africa for the decoration. One of the undoubted reasons for the deviation from the original is to meet one of the basic functions of the game. Namely, that players should be able to climb to the heights that act as viewpoints. If the original architecture had been displayed, there simply would not have been enough angles for the digital avatar to climb.¹⁰⁷

Another interesting phenomenon is the so-called 'Hollywoodization'. Most video games sold in the Western consumer society are typically produced by North American and European studios. They try to adapt the characters and the virtual world to the tastes of these societies. Balela and Mundy have shown that the appearance and speech of the inhabitants of Levant in the first *Assassin's Creed* game do not reflect the dress and dialects of the region. The acting of the real actors playing the main characters in the game, captured and inserted into the game using motion capture technology, also reflects Western gestures, postures and speech styles.¹⁰⁸ In other words, while it is undoubtedly true that games have the

potential to represent cultural heritage in virtual, digital space, there is also a conscious effort by their creators to appropriate and modify certain elements of cultural heritage to suit their own ambitions (cultural appropriation, Hollywoodization, Westernization and selectivity).¹⁰⁹

In addition to entertainment games, there are also the so-called serious games, which basically use the graphics engines of video games and are designed to virtually transport the end user to a selected historical period in a detailed modelled built environment for educational and illustrative purposes.¹¹⁰ One such serious game is the *Roma Nova* project, which has been working on digitizing Ancient Rome and making it accessible, with the aim of achieving the most accurate historical authenticity.¹¹¹ In the *Ancient Pompeii* project, the creators virtually reconstructed the historic ruined city that was destroyed in 79 AD and populated it with avatars, simulating the daily life of Pompeii in real time. In the reconstructed city, several buildings have been made digitally accessible and players can even interact with the environment.¹¹²

The link between virtual and augmented reality and video games is also striking in terms of digital placemaking. Pang and others define placemaking as shaping the environment, facilitating community interactions and thus improving quality of life. There are smartphone games that use geo-location to interactively share information related to a physical location with community members.¹¹³ An excellent example of the interactive design of space was the *Puzzle Façade* project, which, as a result of Javier Lloret's thesis, encouraged passers-by to puzzle a giant Rubik's cube projected onto the façade of the *Ars Electronica* centre in Linz.¹¹⁴ *Pokémon GO* is a video game that players play half in virtual space and half in reality using their smartphones. The game system uses the geographical location of the smartphone to display the player in their real environment. The player is represented on the screen by a virtual avatar, and the task is to use the Global Positioning System coordinates of the phone to guide them along real space routes to virtual Pokémon, which they can 'capture' in the game

109 Ibid 13.

110 Anderson and others (n 102) 256. Comp.: Bontchev (n 87) 48.

111 Anderson and others (n 102) 257.

112 Ibid 258.

113 C Pang and others 'The Desire of a Location-Based Transit Game for Digital Placemaking' CSCW'20 Companion, October 17–21, 2020, Virtual Event, USA, 48. Comp. L Chew and others 'A Preliminary Design Vocabulary for Interactive Urban Play: Analysing and Composing Design Configurations for Playful Digital Placemaking' OzCHI'20, December 2–4, 2020, Sydney, NSW, Australia, 14.

114 Chew and others (n 114) 18. Comp: *Puzzle Façade*—SEGD—A Multidisciplinary Community Creating Experiences that Connect People to Place. Available at <https://segd.org/puzzle-facade> (accessed 4 August 2022).

106 N Rea: 'Can *Assassin's Creed* Help Rebuild Notre Dame? How Restoring the Cathedral Will Rely on Both New Tech and Ancient Knowhow'. Available at <https://news.artnet.com/market/how-technologies-old-and-new-will-be-needed-to-rebuild-notre-dame-1520689> (accessed 9 March 2022). Comp. Pittman (n 63) 1206–1207.

107 MS Balela and D Mundy 'Analysing Cultural Heritage and its Representation in Video Games' DiGRA'15—Proceedings of the 2015 DiGRA International Conference (Digital Games Research Association, May, 2015, Vol. 12, 9).

108 Balela and Mundy (n 108) 10.

and then match their strength against other players.¹¹⁵ Pokémon GO uses the data provided by Google Maps and OpenStreetMap and the real-life landmarks of the city in which the game is being played.¹¹⁶ Virtual reality and three-dimensional, video-game-like modelling are also extremely important for the preservation of cultural heritage. Digitization of built heritage and archaeologically proven modelling of past building periods are all possible with the help of virtual reality. In Hungary, much of the medieval built heritage was either destroyed during the Turkish–Hungarian wars of 1526–1699 or only survived with major reconstructions. Archaeologists have excavated important medieval royal centres such as Székesfehérvár, Buda, Visegrád and Diósgyőr. The ruins were reconstructed in a digital environment using virtual reality and software modelling. An excellent example of this activity is the digital content development company Pazirik, which produces three-dimensional historical reconstructions, historical animated films, interactive content based on theoretical reconstructions and mobile applications.¹¹⁷

6. Summary and conclusion

Video games are today's pioneering digital entertainment products. The rapid expansion of their market, the periodic re-emergence of new generation game platforms and hardware, and the need to quickly meet consumer demand make these interactive audiovisual games, involving complex copyright works and related legal performances, particularly challenging for preservation. Games that draw on an infinite cultural heritage are themselves part of this heritage, but their preservation is hampered by the rapid technological development and the rapid succession of ever-new game software. The elements to be preserved are not limited to the software itself, but include all the preparatory documents, marketing and branding elements that are related to the work. A particular challenge is multiplayer games that can be played over the internet, where it is not enough to preserve the software and associated visual elements to preserve the gaming experience. It would also be necessary to preserve the in-game performance of the players who populate the virtual space and the content produced by end users. The need to preserve video games has

been acknowledged not only by fans but also by the industry that produces them and by cultural heritage institutions—libraries, museums—as evidenced by the initiatives mentioned earlier. The preservation of video games in Europe could be facilitated by the exception in Article 6 of the CDSM Directive, which provides for a wider scope of reproduction for cultural heritage institutions than the previous InfoSoc Directive. The preservation and accessibility of video games for cultural purposes by the institutions responsible is in the public interest, as their loss would be a waste of the history of digital cultural heritage.

The video game industry is a highly capital-intensive industry that seeks to maximize IP rights for the products it produces. In this article, I have tried to demonstrate that video games, in addition to being contemporary works that are protected by copyright, are 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 preservation of the digital heritage by professional heritage institutions that are responsible for the preservation of cultural heritage and to make the video games to be preserved available to the public. Access to information and content in the digital society has brought a new dilemma to the surface.¹¹⁸ Namely, whether there is an access right in favour of end users which, in collision with copyright, could possibly limit the latter beyond the scope of the already known limitations and exceptions. This problem leads to the area of fundamental rights, which is not the subject of this study, but it does highlight the fact that access to video games for scientific, research, cultural and artistic purposes could very well serve as an argument for extending the scope of copyright limitations and exceptions. In this context, recital 25 of the CDSM Directive imposes an important task on cultural heritage institutions, which are responsible for preserving their collections for future generations. To this end, it is necessary for EU Member States to provide for exceptions and limitations under which cultural heritage institutions may make copies for conservation purposes, for example, due to technological obsolescence or deterioration of the original support material. Institutional preservation of video games for cultural heritage purposes could therefore be a point that tips the copyright balance, which is otherwise in favour of industry players, slightly in favour of end users in terms of access.

115 L Hjorth and I Richardson 'Pokémon GO: Mobile Media Play, Place-making, and the Digital Wayfarer' (2017) 5 *Mobile Media & Communication* 3–11. Comp.: Pokémon Go. Available at <https://www.pokemon.com/us/app/pokemon-go/> (accessed 4 August 2022).

116 Chew and others (n 114) 20.

117 Pazirik—Activity. Available at <https://pazirik.hu/en/> (accessed 4 August 2022).

118 For further details on the dilemma of the right of access, see M Favale 'The Right of Access in Digital Copyright: Right of the Owner or Right of the User?' 15 (2012) *The Journal of World Intellectual Property* 1–25.