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DISCUSSION PAPER SERIES:
Children's Rights and Business in a Digital World

CHILD RIGHTS AND ONLINE GAMING: OPPORTUNITIES & CHALLENGES FOR CHILDREN AND THE INDUSTRY

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The Child Rights and Online Gaming discussion paper has been drafted to engage gaming companies on this topic. Research findings are used solely to highlight potential risks or opportunities presented by the online gaming environment to children. This paper is not meant to offer a comprehensive or conclusive view of research findings in any of the areas covered. This paper does not articulate, nor does it represent any official position of UNICEF.

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ABOUT THIS DISCUSSION PAPER SERIES

As more children around the world spend more time on the Internet in more ways, it becomes increasingly essential to appreciate what children's rights mean in a digital world. While there is now a widely accepted public imperative to protect children from harm, abuse and violence online, there has been comparatively little consideration of how to empower children as active digital rights holders. At the same time, the rapidly expanding power and reach of the ICT sector have thrust communications and technology companies into key policy debates on the risks and opportunities children encounter online. This series of discussion papers seeks to explore the relationship between children's rights, business and the Internet in greater detail. The discussion papers address central themes, including children's rights to privacy, freedom of expression, information, education and non-discrimination. While the issues presented are by no means exhaustive, it is hoped that these discussion papers will contribute to broaden the conversation on children's rights and business in a digital world.

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1. INTRODUCTION

With digital games earning US$109.1 billion globally in 2018,[1] the online gaming industry is a highly profitable business. Expanded Internet capabilities, mobile technologies and affordable connected devices have revolutionized the industry and opened doors to a new generation of gamers – changing the way they communicate and interact with other gamers and as spectators, how they buy and play games, and how the games they play interact with other digital services.

Children are a key consumer group for online gaming, which can offer opportunities to collaborate, learn and simply have fun. Children and young people around the world can enjoy a shared activity, connect with friends near and far, and engage their families to spend quality time playing together.

TO DETERMINE THE BEST APPROACH TO POLICYMAKING, ADVOCACY AND INDUSTRY INITIATIVES, CAREFUL CONSIDERATION MUST BE TAKEN TO BALANCE RISKS AND OPPORTUNITIES PRESENTED BY ONLINE GAMING VIS-À-VIS CHILDREN'S RIGHTS.

While online gaming is an increasing presence in children's lives, parents, the general public – and researchers – remain divided on whether online games have a positive or negative influence on children and their development. Determining the influence of online gaming on children is not helped by the lack of quality research on their interactions within and around games, or on how the business models of the online gaming industry might impact them.

For the most part, the risks the online gaming ecosystem may pose to child rights mirror other aspects of children's online participation. These range from the collection and monetization of children's data to cyberbullying, hate speech and exposure to other inappropriate conduct or content. Similarly, emerging issues in e-sports – in which multiplayer video games are played competitively for spectators, usually by professional gamers or teams – echo those of traditional sports, such as overtraining or match-fixing. Some risks, however, are unique to the online gaming environment, such as those immersive virtual reality environments may present or the use of gambling-like features, such as loot boxes, to drive commercial engagement.

DEFINITION OF ONLINE GAMING

In this discussion paper, 'online gaming' is defined as playing any type of single- or multiplayer commercial digital game via any Internet-connected device, including dedicated consoles, desktop computers, laptops, tablets and mobile phones.

The 'online gaming ecosystem' is defined to include watching others play video games via e-sports, streaming or video-sharing platforms, which typically provide options for viewers to comment on or interact with the players and other members of the audience.

[1] SuperData, '2018 Year in Review: Digital games and interactive media', SuperData Research Holdings Inc., 2019, p. 5

Stemming from these concerns, there have already been some policy measures taken relating to children's use of online games, ranging from content classification to moderation of speech or limiting play time. While the motivation behind these efforts is to ensure children's safety and well-being, some measures may disproportionately restrict children's rights to participation and play.

To determine the best approach to policymaking, advocacy and industry initiatives, careful consideration must be taken to balance risks and opportunities presented by online gaming vis-à-vis children's rights. When solutions for addressing any issue are proposed, they need to be based on quality research and always in the best interests of the child.

THERE IS A VITAL NEED TO UNDERSTAND HOW THE INDUSTRY CAN BEST LEVERAGE ITS POTENTIAL TO ENHANCE CHILDREN'S LIVES AND CONTRIBUTE TO THEIR WELL-BEING WHILE ADDRESSING CONCERNS AROUND PRESENT AND POTENTIAL HARM.

While individual online gaming companies and industry associations are taking steps to create environments that are positive, inclusive and safe for all age groups, these efforts remain somewhat fragmented, raising an opportunity to come together, learn from different initiatives and explore a positive way forward for the industry. There is a vital need to understand how the industry can best leverage its potential to enhance children's lives and contribute to their well-being while addressing concerns around present and potential harm.

This paper, built on desk research and stakeholder consultations, is a first attempt to apply a child rights framework to the challenging conjunction of gaming and the Internet to improve the online gaming environment for children. Aimed specifically at online gaming companies, the paper discusses how child rights may be impacted by online gaming and business models of gaming companies, to encourage further debate and joint work among different stakeholders, taking the set of issues outlined here as a starting point.

1.1 SUMMARY OF RESEARCH INTO ONLINE GAMING AND CHILDREN

The way in which playing offline or online video games affects children has been the subject of research for decades. Most of this research has been conducted in Europe, the United States and Australia, with more studies beginning to emerge from parts of Asia. Research has aimed to determine consequences of exposure to game content and its potential to affect children's behaviour offline, the impact of gaming on social relationships, education, physical activity or mental well-being, and psychological or developmental challenges such as depression, social anxiety, stress and excessive play.

Despite the volume of research, to date, the results from studies on online gaming have been mixed. The few higher quality studies that exist suggest that time spent on online games has a very marginal effect on children's well-being, whether positive or negative.[2]

Various studies have focused on **how online gaming might benefit children**.[3] Social relationships, for example, have been frequently studied from an empowerment perspective, or the relationship between online gaming and improvements in various cognitive abilities. Some researchers have compared games to controlled training regimens, which if harnessed properly could contribute to positive learning outcomes.[5]

A considerable body of research into children and gaming has focused on **violent content and its potential to affect children's behaviour offline**. This remains a controversial topic and much of the evidence has been inconsistent or methodologically flawed.[4] Some studies have found evidence that violent video games are associated with more violent thoughts or behaviours, while others find no such association. Generally, when effects are found, they tend to be small, suggesting that other factors such as children's exposure to violence in the home, school or community, and experiences of neglect or interpersonal violence, may be more important drivers.[5]

Research looking at trends over time has found that while consumption of more violent media increased during the past decades, youth violence overall has dropped.[6] While this is unlikely to signify a causal effect, it does suggest that violent media is not a strong catalyst for violent behaviour on a social level. Several professional associations have suggested that the relationship may at most be viewed as a cumulative risk factor, where exposure to violent content at a young age can potentially increase the tendency for violent behaviour later in life, compared to children who are less exposed.[7]

The evidence on children and online gaming that has been generated so far is generally suitable for exploring the issues or building initial theories, but it is not robust or reliable enough to inform policy decisions or best practice recommendations. This is the case not only for studies looking at the influence of online gaming on children, but for research on the influence of digital technologies more broadly.

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[2] Kardefelt-Winther, Daniel, 'How Does the Time Children Spend Using Digital Technology Impact Their Mental Well-Being, Social Relationships and Physical Activity? An evidence-focused literature review', Innocenti Discussion Paper 2017-02, UNICEF Office of Research-Innocenti, Florence, Italy, December 2017, p. 7, open PDF from <www.unicef-irc.org/publications/pdf/Children-digital-technology-wellbeing.pdf>.

[3] *For example:* Granic, Isabela, Adam Lobel and Rutger C. M. E. Engels, 'The Benefits of Playing Video Games', *American Psychologist*, vol. 69, no. 1, pp. 66–78, open PDF from <www.apa.org/pubs/journals/releases/amp-a0034857.pdf>; and Kowert, Rachel, and Thorsten Quandt, eds., *The Video Game Debate: Unravelling the physical, social, and psychological effects of digital games*, Routledge, New York and London, 2016.

[4] Australian Government, Attorney-General's Department, 'Literature Review on the Impact of Playing Violent Video Games on Aggression', Commonwealth of Australia, September 2010; Swedish Media Council, 'Summary of Violent Computer Games and Aggression: An overview of the research 2000–2011', Swedish Media Council, Stockholm, 9 January 2012, available at <www.isfe.eu/about-isfe/news/violence-video-games-and-aggression-literature-review>; and

[5] Ferguson, Christopher J., 'Do Angry Birds Make for Angry Children? A Meta-analysis of video game influences on children's and adolescents' aggression, mental health, prosocial behavior, and academic performance', *Perspectives on Psychological Science*, vol. 10, no. 5, 2015, pp. 646–666.

[6] Glynn, John, 'Guns and Games: The relationship between violent video games and gun crimes in America; Arts and Social Sciences Journal, vol. 7, no. 4, 4 August 2016, pp. 1–4.

[7] *For a more thorough review of these debates, see:* Common Sense Media, 'Media and Violence: An analysis of current research', Research Brief, Common Sense Media, San Francisco, Calif., 2013, available at <www.commonsensemedia.org/research/media-and-violence-an-analysis-of-current-research>.

Longitudinal research that follows children's participation in gaming over time is needed to respond to the many important questions we have around the effects of online games. To understand how online gaming impacts children's well-being in the long term, researchers need to also consider how the influence of online gaming compares to other factors such as their family situation, friendships, school environment, community safety and a range of social inequalities, including gender inequality. As more and more children around the world engage in online games, it is also important that research is conducted in countries outside of Europe and the United States.

In the interest of supporting further quality research on the impact of online gaming on children's lives and well-being, it would be useful to explore how online gaming companies might be able to safely, securely and anonymously and with appropriate consent of players, share data with independent researchers on children's gaming habits and in-game behaviours.

1.2 HOW ARE CHILD RIGHTS RELEVANT TO ONLINE GAMING COMPANIES

Following the recommendations of the United Nations Guiding Principles on Business and Human Rights,[8] it is clear that gaming companies have a role to play by ensuring they understand their potential impacts on child rights – and follow through by establishing policies, processes and guidance to best respect those rights and to provide access to remedy when required. Currently, however, there is no comprehensive global review or mapping of the impacts of online gaming on children's rights. This section outlines the impacts, based on the Convention of the Rights of the Child, which defines the civil, political, economic, social, health and cultural rights of all children.[9]

As the most widely ratified human rights treaty in the world, the governments that have ratified the Convention are legally bound to uphold these rights. It further outlines the rights and responsibilities of parents and caregivers, with expectations in relation to the private sector more fully developed in a general comment by the Committee on the Rights of the Child.[10]

The Convention builds on the Declaration of the Rights of the Child, which maintains that children merit specific protections, including legal protection, due to their physical and mental immaturity. Children will experience impacts on their human rights in different ways, in part, depending on their age, gender, race, class, geography, sexual orientation and socio-economic status and other factors. For the purposes of this discussion, the rights that relate to the potential positive and negative impacts of online gaming on children are briefly described below.

Always acting in the **best interests of the child** (article 3) is viewed a fundamental legal principle. The Committee on the Rights of the Child interprets this as "the obligation to ensure that the *interests of the child have been assessed and taken as a primary consideration in decisions and actions taken by the private sector*, including those providing services, or any other private entity or institution making decisions that concern or impact on a child" (emphasis added).[11]

While businesses have a responsibility to respect children's rights, the Convention calls for **parental guidance consistent with the child's evolving capacities** (article 5) and outlines **parents' primary responsibility** (article 18) for the upbringing and development of the child. This means not only parental responsibility of supervision but also the need for parents to consider the views of the child on gaming-related matters. This is an area where parents can greatly benefit from the insight and support of gaming companies, as will be highlighted in this paper.

The right to leisure, play and culture (article 31) relates strongly to the online gaming sector. As individual play is accompanied by multiplayer formats, for young people to socialize, relax, play and interact with one another gaming has become a more mainstream activity. How much of their leisure time children spend in the digital world is an increasingly debated topic, raising concerns among some on **health** (article 24) implications of excessive use or over-training in competitive scenarios. Children's right to freedom of association (article 15) and to meet each other and to join groups and organizations, both gaming and non-gaming related, are also relevant for the gaming sector.

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[8] Office of the High Commissioner for Human Rights, 'Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework', United Nations, New York and Geneva, 2011, open PDF from <www.ohchr.org/Documents/Publications/GuidingPrinciplesBusinessHR_EN.pdf>.

[9] *For the full text of the Convention on the Rights of the Child, in multiple languages and formats, see:* Office of the High Commission for Human Rights, <www.ohchr.org/EN/ProfessionalInterest/Pages/CRC.aspx>.

[10] Committee on the Rights of the Child, 'General Comment No. 16: State obligations regarding the impact of the business sector on children's rights', CRC/C/GC/16, United Nations, 17 April 2013, open PDF from <www2.ohchr.org/english/bodies/crc/docs/CRC.C.GC.16.pdf>

[11] Committee on the Rights of the Child, 'General Comment No. 14: The right of the child to have his or her best interests taken as a primary consideration', CRC/C/GC/14, United Nations, 29 May 2013, para. 13(c), available at <www.refworld.org/docid/51a84b5e4.html>.

Children's right to non-discrimination (article 2) is an umbrella principle, confirming that children should not be distinguished, excluded, restricted or given preference on any ground, including race, colour, sex, language or religion. This encompasses exposure to unsafe or unfriendly environments that discourage participation, including in games.

The Convention also calls for **protection of children from sexual abuse** (article 34). As with all types of online communication, gaming platforms and communities may be misused by adults to connect anonymously to and groom children for sexual abuse or even for radicalization.

Respect for the views of the child (article 12) calls for children's views to be given due consideration in all matters affecting them, according to their age and maturity. However, Respect for the views of the child (article 12) calls for children's views to be given due consideration in all matters affecting them, according to their age and maturity. However, children are rarely consulted in studies on gaming-related harms as other than research subjects, nor are they consulted on policies to restrict gaming activities.

The child's right to freedom of expression (article 13) further includes the right "to seek, receive and share information and ideas of all kinds, regardless of borders, through speech and writing, in print, in the form of art, or through any other media of the child's choice." Participation in online gaming may facilitate children's enjoyment of their right to freedom of expression, enabling children to explore creative and communicative opportunities, form cross-cultural bonds with other gamers, and learn through educational gaming environments.

Protection of the **privacy and personal information** (article 16) of children is a relevant consideration for all online service providers. Article 16 states that children have "the right to protection from interference with their privacy, family, home and correspondence, and to protection from unlawful attacks on their honour and reputation". This is particularly relevant given challenges around new monetization practices that may infringe on children's right to privacy or selling their personal information.

The Convention also calls for children to be protected from **all types of exploitation** (article 36), including commercial exploitation. Forms of economic exploitation relevant to online gaming may include stealth advertising, such as product placement, sponsorship of streamers or use of other influencers, excessive data collection for the purpose of profiling child consumers, and forms of in-app purchases.

Although this paper does not specifically discuss educational games, online gaming is increasingly providing an avenue to explore innovative ways of teaching and learning, thereby presenting a valuable opportunity, supporting children's **right to education** (articles 28 and 29). Because gaming is fun and engaging, it can in theory serve as an effective learning platform.

All of these rights are interlinked, and no one right supersedes another – all rights of children need to be considered together. Some of the relationships among these rights are highlighted in the next section.

2. APPLYING A CHILD RIGHTS PERSPECTIVE TO ONLINE GAMING

Popular online activities present both risks and opportunities for children. When it comes to online gaming, there is some tension in balancing children's right to play, participate and express themselves, while protecting them from discrimination and abuse, or violations of their right to privacy and freedom from economic exploitation.

Part 2 of the discussion paper offers examples of how children's engagement in online games, and their exposure to business models and the policy landscape that surrounds them, may enhance or undermine their rights. Each section proposes topics for further discussion among the industry, policymakers and other stakeholders in the interest of upholding children's rights.

2.1 CHILDREN'S RIGHT TO PLAY AND FREEDOM OF EXPRESSION

GAMING TIME AND HEALTH OUTCOMES

As children spend more of their free time playing online games, there are concerns over how this activity might have negative impacts on physical exercise, real-life social interaction or other activities important to children's health and well-being. Research to date, however, does not suggest that gaming time causes negative health outcomes or 'addiction'.[12] Having said that, any activity taken to extremes will eventually cause some negative outcomes, including gaming.

Although time spent playing games can crowd out other activities children may benefit from or be expected to participate in, this is not different from any other hobby they might engage in. Whether gaming is accepted as a 'good' hobby or not is often based on cultural norms and expectations. In some contexts, for example, children are expected to spend most of their time in school or on extra-curricular activities[13] and girls, in particular, may be restricted from having access to devices connected to the Internet.[14]

For many children, playing online games with friends after school does not pose issues from a health perspective. However, due to the immersive qualities of online games and the incipient expansion of virtual reality games, children may need additional support to find a healthy balance between gaming and other activities. A small percentage of players do engage in gaming in an unhealthy fashion, just like other children (or adults) sometimes overdo things they enjoy, neglecting other important parts of life to a significant degree. While little research has been conducted directly with those gamers who clearly play excessively, early observations seem to indicate that problem gaming is more likely to be driven by underlying social or emotional problems than by gaming.

[12] Etchells, Pete, et al., 'Screen Time Guidelines Need to Be Built on Evidence, Not Hype' (Open Letter), Guardian, 6 January 2017, <www.theguardian.com/science/head-quarters/2017/jan/06/screen-time-guidelines-need-to-be-built-on-evidence-not-hype>; Griffiths, Mark D., et al., 'Working towards an International Consensus on Criteria for Assessing Internet Gaming Disorder: A critical commentary on Petry et al.', *Addiction*, vol. 111, no. 1, January 2016, pp. 167–175; Przybylski, Andrew K., Netta Weinstein and Lou Murayama, 'Internet Gaming Disorder: Investigating the clinical relevance of a new phenomenon', *American Journal of Psychiatry*, vol. 174, no. 3, 2017, pp. 230–236; and Przybylski, Andrew K., and Netta Weinstein, 'A Large-Scale Test of the Goldilocks Hypothesis: Quantifying the relations between digital-screen use and the mental well-being of adolescents', *Psychological Science*, vol. 28, no. 2, 2017, pp. 204–215.

[13] Bax Trent, 'Internet Addiction in China: The battle for the hearts and minds of youth', Deviant Behavior, vol. 35, no. 9, 2014, pp. 687–702 T. (2014). Internet addiction in China: The battle for the hearts and minds of youth. Deviant Behavior, 35, 687–702.

[14] *For a global study on how girls struggle to access mobile phones, see:* Girl Effect and Vodafone Foundation, 'Real Girls, Real Lives, Connected', Girl Effect, London, 2018, available at <www.girleffect.org/stories/real-girls-real-lives-connected>.

At the same time as the concern over excessive play is voiced, government recognition and support of e-sports is becoming more common.[15] Since improving gameplay requires many hours of practice, just as it does with other sports, government encouragement for e-sports may appear to contradict concerns about excessive gaming time. How the rapidly increasing interest, professionalization and financial returns of e-sports will impact future discussions about gaming and health remains to be seen.

FOR MANY CHILDREN, PLAYING ONLINE GAMES WITH FRIENDS AFTER SCHOOL DOES NOT POSE ISSUES FROM A HEALTH PERSPECTIVE. DUE TO THE IMMERSIVE QUALITIES OF ONLINE GAMES, HOWEVER, CHILDREN MAY NEED ADDITIONAL SUPPORT TO FIND A HEALTHY BALANCE BETWEEN GAMING AND OTHER ACTIVITIES.

The World Health Organization (WHO) has recently included unhealthy engagement in gaming in the International Classification of Diseases as a 'Gaming Disorder', a classification intended to support those who suffer severe life impairments as a result of their gaming habits.[16] It is defined as a pattern of gaming behavior 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. The behaviour pattern must be of sufficient severity to result in significant impairment in personal, family, social, educational, occupational or other important areas of functioning and would normally have been evident for at least 12 months.

Such a diagnosis can support actual "problem gamers" if implemented correctly. It will be important, however, to monitor how the WHO proposal is implemented and what consequences and possible unintended spill-over effects it will have for children and parents around the world.

There is some concern that a disorder classification may result in undue limitations to children's agency and their right to freedom of expression, participation and play, or make parents of children who play games more worried than warranted. Researchers have cautioned that children who play games and identify as gamers may feel increasingly stigmatized or ostracized by their parents, schools or communities as a result – and be falsely seen as suffering from a mental disorder.[17] However, other researchers claim that the classification is strict enough to avoid over-diagnosis, arguing that WHO's decision constitutes an important step towards ensuring adequate insurance coverage for those in need of treatment.[18]

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[15] See, *for example:* Batchelor, James, 'Philippines Government Pledges Support for Esports', Gamer Network, 2 August 2017, <www.gamesindustry.biz/articles/2017-08-02-philippines-government-pledges-support-for-esports>; Rosen, Daniel, 'Esports Meets Mainstream: The role of governments in esports', Score Media Ventures, 11 July 2017, <www.thescoreesports.com/news/14730-esports-meets-mainstream-the-role-of-governments-in-esports>; Ramineni, Venkat, 'P1 Visa for eSport Professionals: Let the USCIS game begin!', LinkedIn, 8 May 2017, <www.linkedin.com/pulse/p1-visa-esport-professionals-let-uscis-game-begin-venkat-ramineni>; and Wood, Joss, 'The UK Gets a Government-Sponsored National Governing Body for Esports', The Lines, 20 June 2016, <www.thelines.com/uk-government-esports-body>.

[16] World Health Organization, 'ICD-11 for Mortality and Morbidity Statistics: 6C51 Gaming disorder', WHO, 2018, <https://icd.who.int/browse11/l-m/en#/http://id.who.int/icd/entity/1448597234>.

[17] Aarseth, Espen, et al., 'Scholars' Open Debate Paper on the World Health Organization ICD-11 Gaming Disorder Proposal', *Journal of Behavioral Addictions*, vol. 6, no. 3, 2017, pp. 267–270; Kardefelt-Winther, Daniel, et al., 'How Can We Conceptualize Behavioral Addiction without Pathologizing Common Behaviors?', *Addiction*, vol. 112 no. 10, October 2017, pp. 1709–1715; and Van Rooij, Antonius J., et al., 'A Weak Scientific Basis for Gaming Disorder: Let us err on the side of caution', *Journal of Behavioral Addictions*, vol. 7, no. 1, 2018, pp. 1–9.

[18] Billieux J, King DL, Higuchi S, Achab S, Bowden-Jones H, Hao W, Long J, Kook Lee HK, Potenza MN, Saunders JB, Poznyak V. Functional impairment matters in the screening and diagnosis of gaming disorder. Commentary on: Scholars' open debate paper on the World Health Organization ICD-11 Gaming disorder proposal (Aarseth et al.). *Journal of Behavioral Addictions*, 2017; 6:285–289. Király O, Demetrovics Z. Inclusion of Gaming Disorder in ICD has more advantages than disadvantages Commentary on: Scholars' open debate paper on the World Health Organization ICD-11 Gaming Disorder proposal (Aarseth et al.). *Journal of Behavioral Addictions*, 2017; 6: 280–284. Higuchi S, Nakayama H, Mihara S, Maezono M, Kitayuguchi T, Hashimoto T. Inclusion of gaming disorder criteria in ICD-11: a clinical perspective in favour. Commentary on: scholars' open debate paper on the World Health Organization ICD-11 Gaming Disorder proposal (Aarseth et al.). Journal of Behavioral Addictions, 2017; 6: 293–295.

As with all forms of screen time, care should be taken in the use of clinical terms such as 'addiction' when discussing concerns around gaming. Blurring the line between destructive and commonplace behaviour may make it harder to support young people in developing their digital literacy skills, healthy screen-time habits and exercising their rights when using technology.[19]

Citing health concerns, some countries have implemented legislation to restrict the number of hours and the time of day children of a certain age can play a game, or to mandate in-game warnings to indicate how much time has been spent playing. Legislation has also been introduced requiring 'real name' registration or parents' consent to identify underage players.

Outside of the gaming context, however, real name registration laws have been rejected in a number of countries for violating the right to privacy and the protection of personal data. Increased observation and monitoring of children playing online games – for example, the use of facial-recognition systems to identify underage gamers and curb game time[20] – may segue into surveillance that collects and retains children's personal and behavioural data for commercial or political purposes.

A former United Nations Special Rapporteur noted that some states have adopted disproportionate restrictions on freedom of expression, particularly on the internet, presenting them as measures to protect children from harm, but which in effect limit the rights of children and adults.

As an alternative to legislation, many different parental control options exist for various operating systems to limit screen time for specific apps or the whole device. These systems place the power to limit play time in the hands of parents and caregivers, with the view that they are able to take into account the level of maturity and development of individual children, which legislation cannot do.[21]

Although technological and legislative solutions that seek to moderate children's engagement in online games continue to be discussed and introduced, it is unclear whether they are effective in reducing the time spent gaming and what unintended consequences they might bring.

Young people often have exceptional knowledge about the gaming environment and how it affects them, and they should be engaged in discussions about legislation, parental controls and disorder classifications whenever possible. While parental controls or other methods of restricting access can offer a suitable option, particularly for younger children, it is important that children have opportunities to learn to regulate their own behaviours as they get older. Being able to self-regulate the time one spends on digital technology may be an increasingly important skill for the future.

DISCUSSION POINTS ON GAMING TIME AND HEALTH OUTCOMES

1. How can the industry support parents and caregivers to set fair rules and boundaries together with their children for healthy gameplay? Do governments have a role to play to encourage offline activities for children to support a healthy balance?
2. Can game (and platform) design support children to learn how to manage their gaming time? Can game (and platform) design encourage healthy playing habits (e.g. by encouraging breaks)? Are there features in games that are deliberately designed to 'hook' players and which children might find harder to resist? Should governments regulate to ban or restrict game features that might lead to excessive use by children?

DISCUSSION POINTS ON GAMING TIME AND HEALTH OUTCOMES

3. What should be the prerequisites for government legislation to restrict children's access or time of play, in addition to solid, independent and high-quality research and evidence?
4. How can the privacy concerns relating to legislation that requires children to be identified or authenticated with their real names be addressed?
5. Is there a contradiction between encouraging the growth of the e-sports industry and professional gamers – some of whom will be children – and the discourse around excessive gameplay?
6. What new health and developmental issues will virtual-reality-based games pose to children? Have these been sufficiently explored and understood to market VR-games to children?

[19] United Nations Children's Fund, 'The Debate Over Digital Dependency', *The State of the World's Children 2017: Children in a digital world*, UNICEF, New York, December 2017, pp. 111–112, 114–115, available at <www.unicef.org/sowc2017>.

[20] Burt, Chris, 'Tencent Trials Facial Recognition to Combat Video Game Addiction in Minors', Biometric Update.com, 5 October 2018, <www.biometricupdate.com/201810/tencent-trials-facial-recognition-to-combat-video-game-addiction-in-minors>.

[21] "Statement to the 69th Session of the UN General Assembly." OHCHR | Freedom of Religion: UN Expert Hails Albania, but Notes New Challenges and Unresolved Issues from the Past, 23 Oct. 2014, www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=15220&LangID=E.

2.2 NON-DISCRIMINATION, PARTICIPATION AND PROTECTION FROM ABUSE

SOCIAL INTERACTION AND INCLUSION

Games and the communities built around them can offer friendships, positive role models and messages, but may also present content and conduct that are unsuitable for children in general, or for children of certain age groups. Preventing such environments and building communities that make everyone feel welcome are key success factors for gaming companies – and for upholding children's rights.

Social interaction is one of the main reasons people play online games. This type of community participation can take place entirely within the game while playing, or outside the game via forums or public streaming channels through which people can watch games and talk about them.

Research in the United States shows that online gameplay is second only to social media as the most common digital venue for adolescents to meet new friends,[22] which suggests that online games may fulfil part of the need for social contact and support.[23] Studies of online social interaction indicate that gaming can enhance a child's social relationships, as those who play together are sharing experiences that can lead to strong connections and contribute to developing teamwork skills.[24] In this sense, games can be seen as a digital space where children can pass time, develop relationships, learn, and participate in many important aspects of life.[25] Online gaming can also offer new ways for children with disabilities to join a social activity with their peers. This participation can be spurred on by development of tools that allow game controls to be adapted to specific needs.

But the world of online gaming is not fully inclusive. Girls and women may experience the gaming world as hostile or at least less welcoming, partly driven by the lack of female characters in games and the over-sexualization and stereotyping of the female characters that do exist.[26] Women represent a fraction of game developers, which could explain why major games evolve around topics traditionally associated with male interests such as sports and combat. In some countries, girls' participation can be curbed because gaming is not seen as a suitable activity for them or because popular places where games are played, such as Internet cafes, are not acceptable places for girls to visit.

Inequalities also appear in e-sports. This may have to do with the player bases for e-sport games being unequally distributed, or that existing gender norms, gender gaps in adoption of technology and sexist – and sometimes even threatening – attitudes discourage girls and women from participating.

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[22] Lenhart, Amanda, et al., 'Teens, Technology & Friendships', Pew Research Center, Washington, D.C., August 2015, p. 2, available at <www.pewinternet.org/2015/08/06/teens-technology-and-friendships>.

[23] Valkenburg, Patti M., and Jochen Peter, 'Social Consequences of the Internet for Adolescents: A decade of research', *Current Directions in Psychological Science*, vol. 18, no. 1, 1 February 2009, pp. 1–5.

[24] Desjarlais, Malinda, and Teena Willoughby, 'A Longitudinal Study of the Relation between Adolescent Boys and Girls' Computer Use with Friends and Friendship Quality: Support for the social compensation or the rich-get-richer hypothesis?', *Computers in Human Behavior*, vol. 26, no. 5, September 2010, pp. 896–905.

[25] Kowert, Rachel, Emese Domahidi and Thorsten Quandt, 'The Relationship between Online Video Game Involvement and Gaming-Related Friendships among Emotionally Sensitive Individuals', *Cyberpsychology, Behavior, and Social Networking*, vol. 17, no. 7, 3 July 2014, pp. 447–453.

[26] Lynch, Teresa & Tompkins, Jessica & Driel, Irene & Fritz, Niki. (2016). Sexy, Strong, and Secondary: A Content Analysis of Female Characters in Video Games across 31 Years: Female Game Characters across 31 Years. Journal of Communication. 66. 10.1111/jcom.12237

Children will seek to identify with characters for the enjoyment of the gaming experience. To draw positive experiences and learning from games, it is important that they can find diverse characters in diverse roles. Despite the tremendous diversity of the gaming population, lead characters in games are still predominantly white males.[27] Diversity in the representation of characters, choices for building avatars or choosing a character, or stereotyping in casting are issues for the gaming industry,[28] as they are for the entertainment industry in general. Game characters frequently adopt unrealistic or cartoonish features: some male characters are exceedingly muscular, and female characters have enhanced curves. Although little research exists on this topic, there is a concern that these representations may exacerbate the body image issues that are increasingly prevalent among young girls and boys.

Though gender stereotypes remain the norm in most societies, the gaming world would present a great opportunity to create new realities, deconstructing and reforming gender stereotypes, and offer an environment that everyone can relate to. Some games, for example, notably offer a wide range of customization options that can help children explore gender roles in a more fluid manner.

AVERTING TOXIC ENVIRONMENTS

Watching others play and compete at playing digital games is a relatively new phenomenon, with streaming services allowing anyone to broadcast the player's computer screen (sometimes with an inset displaying the player's face) from any location. An associated chat function lets viewers interact with each other and with the player, just like within many online games themselves, making this a highly interactive activity. The most popular streamers, for example, have a large following with thousands of simultaneous viewers. Due to their 'pop star' status in the gaming community, what they say and how they behave can have an influence on their audience, particularly younger viewers.

RACISM, HOMOPHOBIA, SEXISM, HATE SPEECH AND OTHER FORMS OF BULLYING ARE OFTEN REFERRED TO AS 'TOXIC BEHAVIOUR' BY THE GAMING COMMUNITY. ALTHOUGH MANY COMPANIES ARE MAKING EFFORTS TO COMBAT THIS BEHAVIOUR, THERE ARE A NUMBER OF CHALLENGES TO ERADICATING IT.

However, the same interactivity that makes online gaming and streaming attractive for many children, also poses specific challenges for child rights. Racism, homophobia, sexism, hate speech and other forms of bullying are often referred to as 'toxic behaviour' by the gaming community, stemming largely from people-to-people interaction. While equally keen to play, women and girls in particular are targeted for harassment, because they are perceived by some players as an intrusive minority.[29]

[27] Hassan, Aisha, 'Video Game Companies Leave Much More than Just Money on the Table If They Lack Diversity', Quartzy, 18 November 2018, <https://qz.com/quartzy/1467237/video-game-companies-leave-much-more-than-just-money-on-the-table-if-they-lack-diversity>; Petit, Carolyn, and Anita Sarkeesian, 'Gender Breakdown of Games Featured at E3 2018', Feminist Frequency, 14 June 2018, <https://feministfrequency.com/2018/06/14/gender-breakdown-of-games-featured-at-e3-2018>; and Mediakix, '11 Female Gamer Statistics that Illustrate the Shifting Demographics of the Gaming Industry', 9 January 2018, <http://mediakix.com/2017/10/female-gamer-statistics-demographics/#gs.A7Kc1Rcm>.

[28] GameDesigning, 'The Issue of Diversity in Gaming', 2019, <www.gamedesigning.org/gaming/diversity>.

[29] Cote, Amanda C., '"I Can Defend Myself": Women's strategies for coping with harassment while gaming online', *Games and Culture*', vol. 12, no. 2, 24 May 2015, pp. 136–155.

Game developers are paying increasing attention to toxic behaviour, in part because it can lead players to withdraw from multiplayer games and therefore threatens revenue streams.[30] The terms of service and community standards established by most online games and streaming services prohibit vulgar, sexist or racist language and sexual content on their platforms. One major streaming provider's terms of service, for example, state that a user may not "create, upload, transmit, distribute, or store any content that is inaccurate, unlawful, infringing, defamatory, obscene, pornographic, invasive of privacy or publicity rights, harassing, threatening, abusive, inflammatory, or otherwise objectionable."[31]

In practice, however, compliance is difficult to monitor and enforce effectively. As a result, gaming platforms can become a hostile environment when discriminatory and offensive language is common – enabled partly by anonymity and lack of face-to-face feedback. While popular streamers have been temporarily banned for breaking the terms of service, some repeatedly get away with racist or sexist language.

Although many companies are making efforts to combat toxic behaviour, there are a number of challenges to eliminating it on their platforms. Codes of conduct, terms of service and age verification mechanisms are difficult to enforce for all online service providers. As on any social media platform, moderating chat and other content is not easy to automate, due to the complexity and diversity of languages used and the vast amounts of user-to-user communication.

Most services rely on community policing and users reporting content that does not comply with the community rules. There have been some encouraging results from 'flagging' mechanisms, where players can report any incident in real time through in-game mechanisms. A certain number of 'flags' from different players leads to an automatic removal of the content or a warning issued to the player, and if the same user's content is repeatedly flagged there is a temporary or permanent ban.

Because the identity of the 'flagger' is not available to the player being reported, this type of mechanism spares the child who makes a report from becoming viewed as an 'informer' and perhaps subjected to bullying. On the flip side, unwarranted flagging can become a tool for harassment. Furthermore, because bans only happen after incidents have occurred, this means children are still subjected to the toxic behaviour.

The gaming industry has a great opportunity to work with and encourage popular gamers and streamers to openly speak out against racism, homophobia, sexism and hate speech. This could provide positive role-modelling for children who play games and help reduce toxic behaviours both in the gaming environment and outside it.

DISCUSSION POINTS ON SOCIAL INTERACTION, INCLUSION AND AVERTING TOXIC ENVIRONMENTS

1. Are companies making conscious efforts to introduce diverse characters (including lead characters) and avoiding stereotypical representations or gender roles for the game characters? Is there a conscious effort to make games appealing to both girls and boys? How can this be mainstreamed into game design?
2. Are efforts made in hiring, promotions and inclusive workplace policies to ensure companies' workforce reflects and understands the needs and desires of its diverse customer base?

[30] Shores, Kenneth B., et al., 'The Identification of Deviance and Its Impact on Retention in a Multiplayer Game', *Proceedings of the 17th ACM Conference on Computer Supported Cooperative Work and Social Computing*, Association for Computing Machinery, New York, 2014, pp. 1356–1365.
[31] Twitch, 'Terms of Service', Twitch Interactive Inc., 2017, <www.twitch.tv/p/legal/terms-of-service>.

DISCUSSION POINTS ON SOCIAL INTERACTION, INCLUSION AND AVERTING TOXIC ENVIRONMENTS

3. How can streaming services best enforce their community standards and actively weed out racist and sexist language and sexually explicit content? What flagging and reporting mechanisms work best? Are these immediately visible, transparent, and easy to use – also for younger children?
4. What can companies do more to encourage popular streamers to openly speak out against racism, homophobia, sexism, hate speech and other forms of bullying, and promote diverse role models to set a healthy precedent for children and young adults?
5. How can e-sport tournament hosts, sponsors and teams tackle toxic behaviour by e-sport professionals, including commentators, players and other representatives of organizations and promote positive gender behaviours and greater social and gender inclusion? Who has the primary responsibility?

AGE LIMITS AND VERIFICATION

Age limits and verification are a widely used child safeguarding method across multiple industries that offer goods and services online. Intended to shield children from negative influences, inappropriate content and products that can cause them harm, they can provide essential information and guidance for parents and children to find appropriate games and gaming content.

But there is a range of different and even contradictory sets of age limits for online games. Game developers will define age limits within their terms of service, and these may differ, for example, from the ratings of Google Play or Apple App stores, and again from ratings by independent bodies. The International Age Rating Coalition offers a service to game developers to navigate some of this contradiction via their service where developers can receive the ratings for their game applicable to different locations after answering questions about their game.[32]

As with popular social media services, the terms of service of many streaming services do not allow viewers under age 13, but the age limit is not always displayed prominently and can often only be found in the complex legal terms of service. Further, the terms of service may state that anyone between age 13 and 18 (or the age of legal majority in the user's country of residence) can only use these services if they are supervised by a parent or legal guardian who has agreed to follow the complete terms of service. It is unlikely that these terms of service are followed in practice.

As with online stores where games can be bought, the only safeguard in place is not allowing a child under 13 years old to sign up to the service, provided they declare their real birthdate. On most streaming services, anyone can view a majority of the content without signing in. There is no age verification for different streams and even pure chat streams which state having adult themes can be accessed after reading a simple warning.

This means that children who use streaming services are potentially watching content from games or streamers meant for adults and witnessing and participating in conversations without any age limits or warnings being displayed. In other words, streaming providers are inadvertently broadcasting content unsuitable to minors, regardless of whether the minors are violating their terms of service.

While the question how ratings and age limits could be better enforced does not exclusively relate to online gaming, efforts should be made in seeking solutions in the best interest of children.

[32] International Age Rating Coalition, <www.globalratings.com>.

Making age ratings for all entertainment content legally binding remains a country-by-country decision. Some countries lack local age rating systems, while some have made regional efforts to harmonize approaches.

Ratings by the Entertainment Software Rating Board (ESRB), a self-regulatory organization based in the United States, are not legally enforced under federal law. Most retailers, however, will not stock games that have not been rated by the ESRB.[33] Within the European Union, most games are rated on content and suitability for particular age groups via the Pan European Game Information (PEGI) system.[34] While PEGI is used in more than 30 countries, it is not always a legal requirement, and it remains unclear how the system is actually applied online. The United Kingdom has incorporated PEGI into legislation making it enforceable in the retail industry[35] while in Switzerland, Netherlands, France and Italy PEGI is either integrated into law or has been endorsed by the relevant ministry. Germany has established legislation on ratings, using its own, stricter, system.[36]

PROTECTION FROM GROOMING AND SEXUAL ABUSE

The anonymity associated with Internet use, including online gaming, means that children may be approached by people with the intention to harm them. With online streaming and two-way video chat, there is a risk that children could be contacted for grooming, the process in which a person aims to build a trusted relationship over time to engage in sexually inappropriate and abusive behaviour.

Abuse can range from harassment and sexually explicit conversations to stalking, people exposing themselves to children, offers of money or other rewards for sexual favours, and sharing intimate photos that can be later used to extort children or disseminated to others online. There is also a possibility of online abuse leading to physical contact and abuse in real life.

Regarding unwanted sexual solicitation on the Internet, a national survey of children aged 10–17 (girls and boys) in the United States found that 56 per cent of these incidents occurred in a social networking site, 11 per cent via an online video chat room and 6 per cent in a game room or site.[37]

It is important that companies take the potential for this type of misuse of online gaming services into consideration. One example is a programme in New York state, in which Microsoft, Apple, Blizzard Entertainment, Electronic Arts, Disney Interactive Media Group, Warner Brothers and Sony worked with the attorney general to remove thousands of registered sex offenders from their online video game platforms.[38]

Given the existence of grooming and other forms of sexual abuse online, much of which likely remains undocumented or unavailable to the public, the gaming industry should take additional steps to systematically document the prevalence of online grooming or abuse on their respective platforms and ensure they are prepared to collaborate with law enforcement in the most serious cases.

DISCUSSION POINTS ON AGE LIMITS AND VERIFICATION, AND PROTECTION FROM GROOMING AND SEXUAL ABUSE

1. Can age limits effectively protect children without preventing their right to play and participation? Should the age limits that apply to games be applied to streaming services that broadcast the same games? Would 'age-bracketing' (setting a minimum and maximum age) work in some games, particularly targeted at younger children?
2. Given that children will access content regardless of the age limit, what are companies doing to ensure that the content they access is suitable for children?

DISCUSSION POINTS ON AGE LIMITS AND VERIFICATION, AND PROTECTION FROM GROOMING AND SEXUAL ABUSE

3. Should age limits be more strongly enforced or even made legally binding? How could this work in practice online?
4. Is there room for further innovation around age verification and enforcement of age limits of terms of service? Should industry-wide solutions be sought or are the gaming companies best placed to find solutions for their specific environments?
5. What are the challenges preventing app stores and other online distributors to conform their age limits to those set by rating agencies?
6. Are current mechanisms for monitoring potentially illegal activity during in-game communication effective? What privacy concerns might occur with different monitoring mechanisms?
7. What are the most effective solutions to report and respond quickly when unsuitable or predatory behaviour is identified? Do companies have internal processes in place to report illegal activity to the authorities?
8. Internet service providers and social media platforms have worked extensively on responding to cyberbullying and forms of online sexual abuse. What mechanisms could encourage the gaming industry to join existing initiatives and bring in their perspective, experiences and data?

[33] Pan European Game Information, 'PEGI Online', <https://pegi.info/page/pegi-age-ratings>.
[34] VSC Rating Board, 'Who We Are', St. Albans, UK, 2018, <https://videostandards.org.uk/RatingBoard>.
[35] Hilgert, Felix, and Philipp Sümmermann, 'Video Game Age Ratings in Europe (Part 1 of 3: The Basics)', VideoGames.Law, 24 March 2016, <http://gameslaw.org/video-game-age-ratings-in-europe-part-1-of-3-the-basics>.
[36] Mitchell, Kimberly J., et al., 'Trends in Unwanted Sexual Solicitations: Findings from the Youth Internet Safety studies', Crimes against Children Research Center, University of New Hampshire, February 2014, p. 7, open PDF from <www.unh.edu/ccrc/pdf/Sexual%20Solicitation%201%20of%204%20YISS%20Bulletins%20Feb%202014.pdf>.
[37] Mitchell, Kimberly J., et al., 'Trends in Unwanted Sexual Solicitations: Findings from the Youth Internet Safety studies', Crimes against Children Research Center, University of New Hampshire, February 2014, p. 7, open PDF from <www.unh.edu/ccrc/pdf/Sexual%20Solicitation%201%20of%204%20YISS%20Bulletins%20Feb%202014.pdf>.
[38] Crime Victims Center, 'A. G. Schneiderman's "Operation Game Over" Purges Thousands of Sex Offenders from Online Video Game Networks', Ronkonkoma, N.J., 2012, <www.parentsformeganslaw.org/prevention-safer-online-gaming>.

2.3 THE RIGHT TO PRIVACY AND FREEDOM FROM ECONOMIC EXPLOITATION

DATA-FOR-ACCESS BUSINESS MODELS

An important business model in the online gaming world is through digital marketing. Although game developers make money through selling games, in-game purchases or subscription fees, for some, the collection of user data in exchange for behaviourally targeted or contextual advertising[39] provides additional sources of revenue.

Some advertising techniques involve the collection and analysis of data. For behavioural targeting, multiple bits of data are acquired and combined to develop sophisticated profiles of user segments and to build a profile of the characteristics and demographics of individual users. In the case of online gaming, some companies may collect data not only on user behavioural patterns but their interactions with other users, online behaviour before and after playing an online game, and behaviour across multiple devices and services linked to their gaming device.

Social media platforms with commercial models purely based on data collection are already used to sign into some games, making them part of the data collected by these services. This trend may continue as social media services are developing their own streaming platforms.

The collection and monetization of children's personal data have been regulated in the United States since 1998, when the United States Congress passed the Children's Online Privacy Protection Act (COPPA); the updated version came into force on 1 July 2013.[40] The European Union's General Data Protection Regulation (GDPR), which entered into force on 25 May 2018, is generating a vigorous focus on data protection across all types of services and sites offered online.[41] Both of these measures contain rules intended to protect children from unlawful data collection, with severe sanctions to companies that do not comply.

Children are inclined to agree to terms and conditions, including the disclosure of their personal data, without fully understanding the ways in which that data will be used and what the implications might be. While 13 has emerged in legislation as the age of digital consent in the United States and some countries in Europe, this decision was seemingly not informed by evidence nor by children's own voices and experiences.[42]

Unless we know whether children over 13 have the capacity to provide informed consent to the processing of their personal information, and that they are aware of the wider implications of giving that consent, such an age limit is arbitrary and not necessarily aligned with the best interests of the child. Regardless of regulatory regimes, children have specific rights until they reach age 18 and should not be treated as adults as soon as they reach the age of digital consent. Older children – and adults – may also struggle to understand the extent and implications when permitting the collection of personal data.

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[39] Contextual advertising inventory is purchased based on the type of website or platform the ad appears on.

[40] *For the COPPA text and related documents, see:* Federal Trade Commission, 'Children's Online Privacy Protection Rule ("COPPA")', Washington, D.C., <www.ftc.gov/enforcement/rules/rulemaking-regulatory-reform-proceedings/childrens-online-privacy-protection-rule>.

[41] *For information on the regulation and the full text of the GDPR, see:* European Commission, '2018 Reform of EU Data Protection Rules', <https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules_en>.

[42] Livingstone, Sonia, 'What Will the General Data Protection Regulation (GDPR) Mean for Children's Privacy and Rights?', Media Policy Project Blog, London School of Economics and Political Science, 25 May 2018, <https://blogs.lse.ac.uk/mediapolicyproject/2018/05/25/what-will-the-general-data-protection-regulation-gdpr-mean-for-childrens-privacy-and-rights>.

Privacy policies and terms of service are often written from the point of view of the service provider rather than that of the user and are focused on addressing the legal risks and obligations of the provider. Written in legalistic language and forcing users to accept terms to access the service, they leave children with little choice but to provide the information and consent requested.[43] It could be questioned whether such 'forced consent' represents real consent.

DISCUSSION POINTS ON DATA-FOR-ACCESS BUSINESS MODELS

1. Can gaming companies use other methods than birthdate given by the user to determine when their customers are children and take necessary precautions relating to collection of personal and behavioural data from them? Could companies use behavioural data in a positive way to avoid underage access?
2. Should behavioural advertising be used vis-à-vis anyone who cannot guarantee to be above the age of consent?
3. Regardless of regulatory regimes, what kinds of mechanisms could be built to ascertain that the child possesses the capacity to understand what personal data is being collected about them, what it is being used for, how long it will be kept, and with whom it will be shared, without relying on the consent of children for the collection of personal data?
4. What prevents privacy policies and terms and conditions for services that are open to children under age 18 from being written in a more accessible and unambiguous way?
5. Could the gaming industry collaborate with PEGI or ESRB to develop ratings that prominently inform players when their data are being collected while playing, used by the gaming company or sold to a third party?
6. How important are 'data for access' business models, which pose several challenges from child rights and regulatory perspectives, for the gaming industry as opposed to other monetization techniques?
7. Is data collection and behavioural tracking used for same purposes by online gaming companies to e.g. social media companies? How do gaming companies communicate about their motivations for data collection?

FREE-TO-PLAY GAMES AND MONETIZATION

Free-to-play (F2P) games are one of the business models that have emerged as the Internet transforms the gaming industry. In this model, companies offer games free of charge, while monetization takes place elsewhere. The majority of revenue from this model is acquired through microtransactions – in-game purchases of additional content, new lives or in-game currency – making the player's investment in games optional and continuous rather than a mandatory one-off purchase.

F2P games have been enormously attractive, played by 2.5 billion people on mobile and PC platforms in 2017.[44] And they are very profitable. During the month of May 2018, for example, a single game earned its development company $300 million on purchases of trinkets, accessories and customized moves for game characters.[45]

[43] *For further considerations on children and privacy, see*: United Nations Children's Fund, 'Privacy, Protection of Personal Information and Reputation', Discussion Paper, UNICEF, Geneva, March 2017, available at <www.unicef.org/csr/ict_paper-series.html>.

[44] SuperData, '2017 Year in Review: Digital games and interactive media', SuperData Research Holdings Inc., 2018, p. 5, open PDF from <http://progamedev.net/wp-content/uploads/2018/03/2017_SuperData_YIR.pdf>.

[45] Gach, Ethan, 'What Fortnite's Dance Emotes May Owe to the Black Artists Who Created Them', Kotaku, 20 July 2018, <https://kotaku.com/what-fortnites-dance-emotes-may-owe-to-the-black-artist-1827760523>.

F2P games are typically designed so that the full game can be played without paying, but the player is encouraged to buy additional cosmetic features that do not impact the actual gameplay. When game characters, particularly if they are known to children from other media, promote purchases in games it is reminiscent of 'host-selling', a practice that has been long prohibited in TV advertising in the United States.[46]

Some games make it considerably harder or slower to progress to the next level unless in-game items, such as more lives or tries are purchased – a feature that has raised controversy as a strategy aiming for short-term profit over long-term player engagement.[47] In online games that consist of short games where the player moves up levels step by step, algorithms or various 'nudge-techniques' may be at work to drive the frustration level of the player to incentivize purchases of game aids or additional lives. These may be particularly difficult for children to identify as attempts to influence them or even for them to get around.

Some F2P games display advertisements to the player in between levels or offer the player new 'lives' for watching advertising videos, as a strategy for monetization. Streaming services are also preceded and cut by advertisements. Although the game itself may be appropriate for the age of the child, there does not seem to be any control over the age appropriateness of these ads, which may be promoting unhealthy food or drink products or other gaming content for a much older audience.[48]

From a child rights perspective, an F2P business model has benefits in that a greater number of children can access high-quality games and participate in these communities because the original content is free. However, as online gaming companies identify new monetization strategies for F2P games, unexpected challenges to children's rights occur. A recent and successful development in monetization, the loot box, provides a good example. This feature allows the user to purchase a virtual box, containing a randomized selection of virtual items. The contents can have real monetary value, as certain items are particularly rare and can be sold or traded in the game or via third-party sites. In some games, players can spin a fortune wheel or buy a loot box directly for real money. Because the player spends money but has no way of determining what the payoff will be, the loot box has been compared to gambling.

AN F2P BUSINESS MODEL HAS BENEFITS IN THAT A GREATER NUMBER OF CHILDREN CAN ACCESS HIGH-QUALITY GAMES AND PARTICIPATE IN THESE COMMUNITIES. HOWEVER, AS COMPANIES IDENTIFY NEW MONETIZATION STRATEGIES FOR F2P GAMES, UNEXPECTED CHALLENGES TO CHILDREN'S RIGHTS OCCUR.

While it is not inherently problematic to buy in-game items, it is unclear whether younger children fully grasp the concept of money or commercial pressure and are able to make informed choices on how to spend it. Parental control over payments made and payment options stored is crucial in moderating such actions. Loot boxes further complicate this matter as they force the player to rely on random chance, rather than choosing what to buy.

[46] Bowles, Nellie, 'Your Kid's Apps Are Crammed with Ads', New York Times, 30 October 2018, <www.nytimes.com/2018/10/30/style/kids-study-apps-advertising.html>.
[47] Alha, Kati, et al., 'Free-to-Play Games: Professionals' perspectives', Proceedings of Nordic DiGRA 2014, Digital Games Research Association, 2014, p. 2, open PDF from <www.digra.org/wp-content/uploads/digital-library/nordicdigra2014_submission_8.pdf>.
[48] United Nations Children's Fund, 'Children and Digital Marketing: Rights, risks and opportunities', Discussion Paper, UNICEF, July 2018, p. 5, available at <www.unicef.org/csr/ict_paper-series.html>.

While an F2P model has significant advantages for children and game developers, the loot box is a good example of a monetization strategy that requires additional guidance from lawmakers on whether this practice should be allowed for minors. Online games have not usually been within the scope of most gambling laws, but with the addition of loot boxes, the question of applying gambling laws to regulate in-game purchases is being debated.[49] Over the past few years, regulation for loot boxes has been introduced and discussed in several countries around the world. In response, some major gaming companies have removed loot boxes from their products.

GAMING VERSUS. GAMBLING

Items that are won from loot boxes are of varying value. Whilst some may be near-worthless, others can be extremely valuable, and some may even be sold on secondary markets for thousands of dollars.[50] It is worth noting that there are distinct similarities between loot boxes and gambling. When opening a loot box, individuals are unaware of the value of the item that they are purchasing. Both when spending money on a loot box and when gambling, individuals therefore stake something of value on the uncertain hope of receiving something of greater value in return. However, whether purchasing loot boxes could be considered a form of gambling or not thus depends on the nature of the loot box and whether there exists a mechanism for monetizing the reward. The similarities between loot boxes and gambling have led to concerns amongst regulators over the incorporation of gambling elements into video gaming. The intersections between gambling and gaming go beyond loot boxes however, and incorporate practices like skin gambling,[52] esports betting , and social casino play.[53] This is an important concern that is receiving more attention as this form of monetization strategy becomes more common.

LACK OF TRANSPARENCY IN COMMERCIAL CONTENT

Digital marketing is not only about observing users' behaviour for the purpose of serving appropriate advertising, but about directly influencing users' behaviour – frequently through methods that are hard to identify as marketing. For example, games are increasingly used as a form of marketing, as 'advergames' are deployed by brands to promote their product in an engaging environment that might obscure its commercial intent. Advergames are specifically created to incorporate and promote advertisers' products into games and online immersive environments. As noted by the European Commission, embedded marketing in advergames and other immersive experiences reduces conscious attention to advertising and has a demonstrable effect on users' consumption of products.[54,55]

Another challenge relates to certain marketing practices associated with streaming services. Many streamers are sponsored and talk about products while they are playing. For children, it can be difficult to determine if a streamer is mentioning a product because they appreciate it or because they are paid for doing so, making it a form of product placement, influencer endorsement or surreptitious advertisement.

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[49] *See, for example:* Hood, Vic, 'What the UK Can Learn from the Far East's Battle with Loot Boxes', Eurogamer, 10 October 2017, <www.eurogamer.net/articles/2017-10-19-what-the-uk-can-learn-from-the-far-easts-battle-with-loot-boxes>.

[50] Knoop J. The most expensive CS:GO skins of 2017. PC Gamer. 2017; published online Nov 30. 0/ (accessed Aug 10, 2018).

[51] Wardle H. The Same or Different? Convergence of Skin Gambling and Other Gambling Among Children. J Gambl Stud 2019; : 1–17.

[52] Macey J, Hamari J. eSports, skins and loot boxes: Participants, practices and problematic behaviour associated with emergent forms of gambling. New Media Soc 2019; 21: 20–41.

[53] Gainsbury SM, Russell AMT, King DL, Delfabbro P, Hing N. Migration from social casino games to gambling: Motivations and characteristics of gamers who gamble. *Comput Hum Behav* 2016; 63: 59–67.

[54] European Commission, Study on the impact of marketing through social media, online games and mobile applications on children's behaviour, 2016, pp. 80–84, open PDF from <https://ec.europa.eu/info/sites/info/files/online_marketing_children_final_report_en.pdf>.

[55] United Nations Children's Fund, 'Children and Digital Marketing: Rights, risks and opportunities', Discussion Paper, UNICEF, Geneva, July 2018, p. 11, available at <www.unicef.org/csr/ict_paper-series.html>.

Similarly, it can be difficult for children to distinguish it as commercial influence when other strong influencers in their lives promote gameplay in ways that perhaps only those who play the games will recognize. An example of this is how footballers perform 'moves' that players can purchase for their game characters in *Fortnite* as they celebrate goals, or even become streamers themselves.[56]

Popular streamers sometimes have celebrity guests, such as musicians, join them in gameplay, which, if they are sponsored, is clearly driven by commercial intent. In addition to their share in subscription fees, streamers get revenue via advertising, tips and donations, depending largely on the platform they use to stream.[57] Children may be more vulnerable for pleas for donations in general. With popular guests on the stream, this can drive up revenues considerably by increasing direct donations.

At e-sport events, companies contract or sponsor individual players or teams, host tournaments, provide prize money and use players to market their products. Corporate sponsorship is nearly identical to sponsorship of other sports, though possibly with less oversight and control due to a lack of regulatory frameworks for e-sports. This is an area that requires additional consideration as e-sports grows to become more mainstream.

DISCUSSION POINTS ON FREE-TO-PLAY GAMES AND MONETIZATION, AND LACK OF TRANSPARENCY IN COMMERCIAL CONTENT

1. What are the ethical implications of F2P monetization strategies when the players are children? Are there techniques, such as positive reinforcement that encourages a player to pay because they are excited about additional content, that can offer more ethical solutions?
2. Should games that allow direct in-game purchases be marketed directly to children? Would it be appropriate to prohibit monetization methods such as loot boxes in games that are marketed to and played by an underage audience that is not legally allowed to gamble?
3. Should advertising inside games and during streams be governed by the same advertising regulations or self-regulatory principles that apply to advertising to children in traditional advertising?
4. Are existing restrictions on advertising to minors being appropriately applied in streamer and event sponsorships? Should there be restrictions on the type of companies (e.g. unhealthy drinks or foods) that can sponsor streamers or e-sports tournaments? Is it an issue that 'over 18' e-sport tournaments may be sponsored by companies that are not allowed to market to minors (e.g. alcohol)?
5. Are there restrictions in place on the use of advergames for younger audiences? Should children be targeted as an audience for advergames at all?
6. What kind of options can companies offer for parents to restrict in-game purchases? What kind of safeguards are in place to prevent children repeatedly purchasing content without their parents' approval?
7. What methods could be used to protect underage gamers from stealth and camouflaged advertising in the form of influencer endorsement? Is labelling a sufficient solution? Are there ethical questions around the use of celebrity influencers and others to encourage gaming-related purchases?
8. Are there special considerations regarding e-sports players or streamers who are children? Can and should regulation from traditional sports be applied to child e-sport athletes?

[56] ESPN Staff, 'Dele Alli's Fortnite Stream Draws Thousands of Viewers on Twitch', ESPN UK, 25 April 2018, <www.espn.co.uk/soccer/blog/the-toe-poke/65/post/3471762/dele-allis-fortnite-stream-draws-thousands-of-viewers-on-twitch>.

3. IN THE CHILD'S BEST INTERESTS: INDUSTRY ENGAGEMENT

When it comes to the news media, online game features that are perceived as negative or threatening usually get into the headlines. The focus of public debate around the risks for children playing online games has frequently been on violent or harmful content, purchases spurred by advertising within games, and concerns about excessive game time. Although the industry has participated in various efforts to protect children, most solutions remain piecemeal, disconnected, localized or difficult to enforce.

ALTHOUGH THE INDUSTRY HAS PARTICIPATED IN VARIOUS EFFORTS TO PROTECT CHILDREN, MOST SOLUTIONS REMAIN PIECEMEAL, DISCONNECTED, LOCALIZED OR DIFFICULT TO ENFORCE.

At the same time, policymakers are attempting to react to the highly publicized negative news. The fragmented and sometimes contradictory regional or country-specific legislation and policies that have emerged, and the international nature of business operations, can make it difficult for the industry to implement globally enforceable solutions. The situation is not dissimilar to that faced by the social media companies, now under the regulatory microscope.[58]

Part 3 begins by highlighting examples of industry best practices. It follows through with an outline of initial recommendations for discussion, and concludes with a brief description of potential next steps for UNICEF in its engagement with the online gaming industry.

[58] Waterson, Jim, 'Ofcom to Push for Regulation of Social Networks', The Guardian, 17 September 2018, <www.theguardian.com/media/2018/sep/17/ofcom-to-push-for-regulation-of-social-media-platforms>.

3.1 INDUSTRY BEST PRACTICES

Gaming companies have already taken many steps to make gaming a more positive and safer experience for children, although similarly to government policy initiatives, these initiatives remain far from taking a holistic approach to protecting children and children's rights. This could represent a great opportunity for the gaming industry to learn from and align with each other's good practices and implement self-regulatory solutions that will allow the business to continue to flourish, while best protecting younger consumers.

The Pan European Game Information (PEGI) system, a well-regarded self-regulatory initiative spanning across the industry, maintains PEGI Online,[59] which offers key advice on games for parents. In the United States, the Children's Advertising Review Unit (CARU) was founded in 1974 to promote responsible advertising in general, and especially in video games during the past year. CARU conducts actual monitoring, including of online services.[60] The non-profit organization Common Sense Media is another group that provides content age-rating recommendations for all types of products, including video games – and importantly offers ratings and reviews by children themselves.[61]

ESRB, which has introduced a Privacy Certified for Kids seal,[62] was recently called on to examine the marketing of loot boxes to children and to develop recommendations for best practices. In response, in 2018, it established an interactive 'In-Game Purchases' label as part of its ratings system, which applies to all types of video games for in-store purchase or download.[63] ESRB also set up a microsite for parents in order to raise awareness of how to use parental controls to manage in-game purchasing. These initiatives cover all microtransactions, loot boxes included.[64] In the United Kingdom, a similar microsite called 'Ask about Games' is being operated by the VSC Rating Board (which administers PEGI) and industry trade body Ukie.[65]

Rather than selling content directly for money, some companies provide gift-card tokens that the player trades for additional in-game content.[66] This is a way for parents to purchase tokens for their child's account, allowing a limited option for acquiring additional in-game content. This safeguards children against accidental overspending, which can happen if purchases are made directly with a stored credit card, while encouraging them to make their own choices of what to purchase for their limited tokens.

Some gaming companies have joined initiatives to tackle online bullying[67] and hate speech, while others have conducted research on how to assuage toxic environments.[68] An increasing number of gaming companies include easily accessible information on their websites for parents on how games work, how to balance play time and restrict in-game purchases, and manage data usage related to mobile games.[69, 70] A variety of games can be played in offline mode or make it possible to restrict in-game communication, which may be useful solutions to protect younger children in particular.

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[59] Pan European Game Information, 'PEGI Online', <https://pegi.info/page/pegi-online>.
[60] Council of Better Business Bureaus Inc., 'The Children's Advertising Review Unit (CARU)', 2018, <https://bbbprograms.org/programs/caru>.
[61] Common Sense Media, 'Video Reviews', <www.commonsensemedia.org/search/video%20games>.
[62] Entertainment Software Rating Board, 'ESRB Privacy Certified', <www.esrb.org/privacy>.
[63] Vance, Patricia, 'Letter on behalf of the ESRB to Senator Margaret Wood Hassan', 27 February 2018, p. 1, open PDF from <https://cdn.arstechnica.net/wp-content/uploads/2018/02/ESRB-response-to-Senator-Hassan_Vance-2-27-18.pdf>.
[64] ESRB, 'The Control Is in Your Hands!', <www.esrb.org/parentaltools>.
[65] VSC Rating Board and Ukie, 'Ask About Games', <www.askaboutgames.com>.
[66] For example, *Fortnite* allows the use of gift cards to purchase the 'V-Bucks' in-game currency.
[67] Mobile game developer Supercell, for example, is a member of the anti-cyberbullying campaign 'Stop, Speak, Support' (www.stopspeaksupport.com).
[68] Maher, Brendan, 'Can a Video Game Company Tame Toxic Behavior?', Scientific American, 31 March 2016, <www.scientificamerican.com/article/can-a-video-game-company-tame-toxic-behavior>
[69] For example: Rovio for Parents, <https://info.rovio.com/hc/en-us/categories/360000081067-Rovio-for-Parents>; Supercell, 'Parent's Guide', <https://supercell.com/en/parents>; Ubisoft's Parents Corner, <www.ubisoft.com/en-US/company/parents.aspx>; and Sony PlayStation, 'A Safer Space to Play', <www.playstation.com/en-gb/get-help/playstation-safety>.
[70] Epic Games, 'Terms of Service', <www.epicgames.com/site/en-US/tos>.

Most games include features to flag behaviours that are contrary to the game's code of conduct or community guidelines, although these mostly seem to refer to reporting those who are cheating or using hacks in the game. In e-sports, some corporate sponsors are using their weight to promote more inclusiveness and diversity by sponsoring female gamers and specific female e-sport challenges at tournaments.[71]

Driven by stricter privacy legislation, all companies operating in the European Union display privacy policies that include information about what data is collected, for what purpose and how it is used. The best examples include specific sections on policies on data collection on children and how to contact the company to remove any data that may be collected of children unintentionally.[72] There is still significant opportunity for companies to live up to their responsibility to make visible and readable privacy policies and terms of service, particularly as they contain important information to children and parents about age limits, advertising practices, unwanted content and behaviour and data collection.

Most companies offer health information and warnings related to virtual reality features and epilepsy. Some offer links for those concerned about mental health issues, though without specifying whether there may be concerns related specifically to gaming.[73]

Concerns over excessive screen time likely inspired Apple to introduce a feature to track how much time is spent on different apps and features, and to enable setting app limits in its iOS12 launch.[74] Efforts like this may become more common in the future, as society grapples with questions around how much screen time is too much, and for whom.

[71] Vodafone Group, 'Vodafone and ESL Announce International Esports Partnership', 26 April 2018, <www.vodafone.com/content/index/media/vodafone-group-releases/2018/vodafone-esl-announce-international-esports-partnership.html#>.
[72] King, 'Privacy Policy: Children', King.com Ltd., St. Julian's, Malta, 2019, <https://king.com/privacyPolicy>.
[73] Activision Blizzard, for example, offers a link to mental health services in the United States at the bottom of its pages (www.activisionblizzard.com).
[74] Apple Inc., 'iOS 12 Introduces New Features to Reduce Interruptions and Manage Screen Time', Press Release, 4 June 2018, <www.apple.com/newsroom/2018/06/ios-12-introduces-new-features-to-reduce-interruptions-and-manage-screen-time>.

3.2 INITIAL RECOMMENDATIONS FOR ONLINE GAMING SECTORS

Companies are far from being alone in bearing responsibilities towards children, but they do have specific accountabilities to respect and support children's rights. All sectors of the gaming industry can, for example, take the initiative to carry out child rights impact assessments of their operations.[75] This will enable companies to clarify their responsibilities and find ways to further protect children through changes in business operations, game functions and support for parents. To take full advantage of this opportunity, companies could form review teams to ensure child rights issues are considered before games are designed or marketed.

This discussion paper offers many examples of how children's rights can be affected in the online gaming environment and highlights practices that could mitigate some issues if they were more widely implemented. Initial actions for various sectors of the gaming industry to consider are outlined below.

For game developers:

- Ensure games are inclusive environments, representing the diversity of the players, providing positive role models, avoiding stereotyping and overtly sexualized representations, and providing characters that both boys and girls from diverse backgrounds can relate to. This may start by looking in-house at the diversity of your workforce and review of workplace practices to ensure they are inclusive.
- Address challenges to flagging mechanisms in the game, intended to report inappropriate behaviour, to ensure these are not misused. These mechanisms should be easily available and always visible to the player and should go beyond flagging hacks or cheating.
- When creating F2P monetization models, consider how players under age 18 may be affected by these methods and how they can be protected from misuse.
- In game design, consider how some features might be restricted if required for underage players. This could be related specifically to monetization features, such as loot boxes or turning off in-game purchasing and setting spending limits. It could also apply to regulating communication features or being able to play games in offline mode.
- Review use of techniques that are explicitly designed to hold attention and prevent users from logging off, which may make it more difficult for children to manage their game time.
- Consult with children on game design, safety and any other issues they encounter.
- Research and develop new age-verification or parental consent methods that do not infringe children's rights to privacy or collect unnecessary personal data.

[75] *See:* United Nations Children' Fund and Danish Institute for Human Rights, 'Children's Rights in Impact Assessments: A tool for companies', UNICEF and Danish Institute for Human Rights, Geneva and Copenhagen, December 2013, available in English, French and Spanish at <www.unicef.org/csr/assessments.htm>.

For game publishers:

- Ensure all games have clear community guidelines on what behaviour is and is not acceptable. Promote and enforce these guidelines by actively managing potentially toxic environments and inappropriate behaviour during in-game communication and on streaming services. This includes provision of monitoring and flagging mechanisms, and giving prompt responses to reports from players including outcomes of investigations and ability to appeal decisions, and taking action against players who do not respect the rules.
- Make information about community guidelines, privacy policies, and terms and conditions easily accessible and visible. In particular, identify areas of relevance to children and parents and make sure that these topics (such as age restrictions and data collection from children) are highlighted and worded in a simple and understandable manner. Use creative methods to present information from the point of view of a child customer in formats they prefer and can easily understand, such as video, cartoons or icons.
- Provide information to parents to help them be more in control of their child's gaming experience. Explain how the games work, how interaction in the game works, how purchases in the game work and how they can teach children about safe online behaviour.
- Marketing of games with in-game purchasing options should take into account that children may also view this content.

For game distributors:

- Ensure age restrictions are displayed in a clear and visible way. Align age restrictions to relevant international ratings and legal requirements.
- Create parental control solutions and relevant guidance to parents, appropriate to different age groups of children, that allows parents to manage play time together with their child and restrict access to certain games.
- Marketing placed in online games should be properly identified as such, and children should be clearly informed about anything of commercial nature in the game.

Gaming experience providers:

- Ensure there are clear community guidelines in place regarding what behaviour is and is not acceptable. Enforce these guidelines by actively managing potentially toxic environments and inappropriate behaviour on streaming services. This includes the provision of monitoring and flagging mechanisms and giving prompt responses to reports from players including outcomes of investigations and ability to appeal decisions, and taking action against players who do not respect the rules.
- Clearly display age restrictions that apply to your service. Design new age-verification methods that do not infringe children's rights to privacy or collect unnecessary personal data, or consider solutions based on parental consent.
- Clearly flag and add additional controls to mature content.
- Provide information to parents to help them be more in control of their child's experience, explaining how services work and how children may be at risk of inappropriate content and contact.
- Engage individual streamers to drive positive examples of behaviour against toxic environments. Support diversity among streamers and e-sport players.
- When taking on sponsors, carefully consider which products are not suitable for children, are unhealthy for children, or are harmful/illegal for children to consume or access.

Given that regulation is likely to continue to follow the more controversial aspects of games, there is a real opportunity for the industry to speed up self-regulatory initiatives through, for example, new industry partnerships, engagement with existing associations to take on new agendas, or joining existing multi-stakeholder initiatives around:

- Fighting the creation, storage and distribution of child sexual abuse content, and combating predatory behaviour in online platforms.
- Creating cyberbullying and other awareness initiatives relating to child safety, empowering children and parents to be safe online.
- Consulting with children on game design, safety and any issues they encounter.
- Funding independent, quality research on the effects of gaming on children's health and well-being, including the educational potential of games.
- Collaboration with independent researchers by securely sharing anonymous data with appropriate consent of players, on children's gaming habits, time spent online, types of games played and any other information that may contribute to build better evidence base.
- Harmonization of age ratings and limits and scoring mechanism that rate games per their educational content.

3.3 UNICEF'S NEXT STEPS

Following consultation with internal experts and industry partners, UNICEF plans to engage more companies, industry associations and other experts in the area of online gaming to continue discussion of the issues and opportunities outlined in this paper with the view of developing recommendations for the industry. In addition, we hope to expand the dialogue to explore the potential of educational games with the industry.

This engagement is meant to inform all participants about child rights issues relating to online gaming, to further the understanding of UNICEF on the business models and positions of the industry on certain issues, and to confirm or dispel assumptions on all sides. While finding areas of common ground that various groups are comfortable engaging with and investigating further, the objective is that, ultimately, joint initiatives and projects may result from this work to benefit all stakeholders, and especially, children.

APPENDIX: COMPONENTS OF THE ONLINE GAMING VALUE CHAIN

Business practices and models across the online gaming value chain are continuously evolving, with new industry actors and intermediaries emerging or fading in rapid succession. There is significant blurring of lines between various elements of the value chain, for example, as smaller, popular developers are bought by larger and more powerful companies. Software companies, social media platforms and retailers are also developing new revenue streams from online gaming and streaming, making the field ever more complex.

The basic components outlined in this appendix are far from exhaustive. **Listing examples of actors in a fairly simple set of categories** aims to provide a handle for understanding the business environment. The overall intention is to help guide discussions to identify which issues and recommendations are most relevant for particular segments/companies in the online gaming business, and to spur conversations on finding solutions to child rights issues across the industry.

THE VALUE CHAIN

Developers:

- Mojang, King, Epic Games, Riot, Supercell, Tencent, Valve, Rovio Entertainment, independent studios.

  Game developers create the storyline, design the characters and visuals and the software to make the game work. Game developers also set the monetizing methods and rules of the game. Larger game developers are also publishers and distributors.

Publishers:

- Microsoft, Electronic Arts, Nintendo, Sony, Activision Blizzard, Bandai Namco Entertainment, Square Enix, Sega, Warner Bros. Interactive Entertainment, Ubisoft

  Game publishers are largely responsible for the marketing and advertising of games. They may finance the production of the game, and they may have influence over its features, like an editor would. They oversee releasing the final product and marketing it, sharing the profits with the developer. Many game publishers are also developers and distributors.

Distributors:

- Gaming console stores (Sony PlayStation Platform, Nintendo eShop, Microsoft Xbox Live Marketplace)
- Online distributors (Steam, Origin, Amazon.com, Green Man Gaming, GamersGate, Blizzard)
- App stores for mobile devices and tablet (Google Play, Apple App Store, Samsung Galaxy Apps)
- Offline distribution/retail

  Online games are mostly distributed and sold by major game publishers, console manufacturers, and dedicated or general online retailers. Games can be bought directly online from game developers and publishers – whether these are large or small. These stores will be displaying age restrictions and ratings and collecting payment information.

  Data collection of individual gamers would start at purchase and continue by the platforms on which the games are played, depending on which platform the device to play used runs on, or whether the player has logged into the game through another service, such as Facebook.

Gaming experience value chain

This relatively new value chain revolves around e-sports, streaming and gaming communities. The main players in this business ecosystem are described below.

Streaming and interaction services:

- Twitch, YouTube Gaming, Facebook Live and FB.gg, Douyu TV, Hatch Entertainment, Discord)

Streaming service offer anyone the possibility to stream themselves live playing a game or doing other things. Content can be viewed for free or with a paid subscription. Viewers can tip or give donations to streamers and comment their play via chat. Discord is a voice and text chat software developed specifically for gamers, allowing anyone with the same service to communicate with each other.

E-sport organizations/teams:

- Gfinity, Alliance, EG, Liquid, NiP, Virtus Pro, Renegades, Faze Clan, TSM

Gaming teams built around specific games who stream and compete on streaming services.

Sponsors:

- Intel, HyperX, Comcast Xfinity, T-Mobile, Coca-Cola, Red Bull, Mountain Dew, Doritos, Snickers

Corporate sponsors for competitive online gaming sponsor individual players, e-sport teams players or events, much like in traditional sports. Many sponsors represent Internet service providers, as well as game publishers (see above), streaming/interaction services (e.g., Twitch, YouTube) and manufacturers of gaming devices or accessories (e.g., CORSAIR, Logitech G, Bose). But beverage and food companies – along with many other types of product manufacturers and service providers, from auto products to insurance – are also highly visible sponsors.

Betting companies:

- Unikrn, Bet365, Betway, Rivalry, Betspawn, GGBet, esportsbetting.com

Traditional betting companies have begun adding e-sports to their offer a couple of years ago, and some dedicated providers have since emerged. Betting sites are restricted in some countries, but access is possible as long as the person can prove they live in a country where it is legal.

Leagues/tournament organizers:

- Blizzard, DreamHack, Electronic Sports League (ESL), Major League Gaming, Perfect World, Valve, Riot Games

E-sport leagues are organized around specific games, companies or even by countries to foster e-sport talent. They can organize daily games or tournaments that take place once or twice a year. Winners receive cash prizes, which can amount to several million dollars and are raised through sponsors, participation fees or crowd-sourcing (including crowd-funding services dedicated to e-sport tournaments, such as Matcherino).

Individual streamers/professional gamers:

Streamers show their screens as they play a game live online, simultaneously commenting on their play and responding to viewers' chat. Some streaming services enable a second screen showing the player's face. Most popular streamers have millions of followers, earning up to several million US dollars per year. Ways to earn income from their gameplay include acquiring sponsorships, advertising, influencer marketing and revenue from viewers' paid subscriptions and one-time donations or tips to support their favourite players. In some cases, professional gamers run charity streams that collect donations from viewers for a particular cause.

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