



House of Commons  
Digital, Culture, Media and  
Sport Committee

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# Immersive and addictive technologies

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**Fifteenth Report of Session 2017–19**

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to the report*

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## Summary

Social media is fundamentally changing the way we interact and communicate with each other. This report considers the latest evidence in the battle being waged for our attention. Technologies like social media and many forms of video games are designed to stimulate users and reward them for spending as much time on them as possible. The 2019 Ofcom 'Media Nations' report shows that on average 18-to-34-year-olds spend more time each day on YouTube and playing video games than they do watching live television. Further to this, according to Ofcom, amongst all adults, people spend as much time each day watching YouTube as they do BBC 2, Channel 4 and Channel 5 combined.<sup>1</sup>

The arrival of 5G mobile technology is expected to further increase consumer demand for content. The recent '5G Consumer Potential' report published by Ericsson, based on over 35,000 online interviews of people aged between 15 and 69 across 22 countries proposed that, "Three hours' more video content will be consumed on mobile devices weekly when away from home, of which one hour will be on AR [augmented reality]/VR [virtual reality] glasses in a 5G future."<sup>2</sup>

The film director Steven Spielberg made VR a central feature of his 2018 film 'Ready Player One', set in a dystopian future where people spend more time in a virtual world than the real one. He said of this project, "I think in the future VR is going to be the super drug. The message of the film is simply, it's your choice. Where do you want to spend the majority of your time? Do you want to spend it with real people in a real world, which is often harder than spending it in a virtual world where you can be the person you always wanted to be".<sup>3</sup>

Yet alongside the use of rapidly developing technologies such as virtual and augmented reality, people are becoming increasingly aware of the power of everyday digital platforms, including games and social media, to capture their attention and immerse them in a digital world—sometimes at the expense of other priorities. For many, these technologies serve an entirely positive function; however, for the minority who struggle to maintain control over their use of digital technologies, or that of another under their care, this can be a source of serious harm.

In this report we build on the newly established principle of 'online harms' by considering potential psychosocial and financial harms associated with the use of immersive technologies. Following the World Health Organisation's formal designation of 'gaming disorder', we have heard calls from gamers, academics, and clinicians for urgent action to better understand and address the condition. While gaming disorder is a relatively new area of understanding, immersive technology providers also have clear responsibilities to protect users from well-established online harms including bullying and harmful content. We also consider the effects of disordered spending within games, and consider the links between game design mechanics such as loot boxes and gambling.

1 Ofcom, [Media nations: UK 2019](#), (7 August 2019)

2 Ericsson, [5G consumer potential](#), (May 2019), p 5

3 "[Q&A: 'Ready Player One's' Steven Spielberg and Ernest Cline on pooling their nostalgia to tell a new story](#)", *Los Angeles Times*, 23 March 2018

The potential harms outlined in this report can be considered the direct result of the way in which the ‘attention economy’ is driven by the objective of maximising user engagement. This report explores how data-rich immersive technologies are driven by business models that combine people’s data with design practices to have powerful psychological effects.

Our long and technically complex inquiry, which included 12 oral evidence sessions and four visits, broke new ground for Parliament in holding major games and social media platforms to account. For the first time, representatives of technology companies including Epic Games—the makers of *Fortnite*—Snapchat and Instagram appeared before a Select Committee to answer questions about the design of their games and platforms. While much of the discussion of the Government’s forthcoming online harms legislation has been framed around social media, there are many ways in which immersive technologies including games and virtual reality come under its scope. We intend for this report to inform understanding of, and the debate around, those technologies as the Government introduces a new regulatory framework to tackle online harms. Whilst we recognise that the vast majority of people gain pleasure from social media and online gaming, we must balance that against the potential harms that can occur.

# 1 Introduction

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1. Digital technologies are making ever increasing demands on people’s time and attention. According to Ofcom, people in the UK check their smartphone every 12 minutes, and one in five spend more than 40 hours a week online.<sup>4</sup> Among young people, 12-to-15-year-olds spend an estimated 13 hours 48 minutes per week playing video games.<sup>5</sup> While these technologies make a significant positive contribution to people’s personal and professional lives, there is growing concern that overuse can have a detrimental effect, with four in ten adults feeling that they “spend too much time online”.<sup>6</sup> Ofcom’s research also suggests that 44% of parents of 12-to-15-year-olds find it hard to control their child’s screen time—concerns that are shared by an increasing proportion of young people in that age range.<sup>7</sup>

2. The way in which certain digital technologies are deliberately engineered to capture users’ attention or draw them back to the platform was raised with us by former Google design ethicist and co-founder of the Center for Humane Technology, Tristan Harris, when he gave evidence to our previous inquiry on disinformation and ‘fake news’. He told us that:

There is a set of techniques that are used in the tech industry under the guise of creating engagement that mask other problems like addiction. They are basically about hijacking the deeper underlying instincts of the human mind.<sup>8</sup>

The greater the length of time that people can be enticed into spending online, the greater the chances of them being monetised through online advertising or in-game merchandising.

3. This inquiry built on that evidence by looking at a range of social media platforms and other data-driven technologies. That included internet-connected video games, particularly those operating on a ‘free-to-play’ model, which we will explore further in Chapter 4.<sup>9</sup> Three quarters of 5-to-15-year-olds play online games, and, like social media, these games collect vast amounts of information about their users and operate business models based on maximising player engagement in the manner Tristan Harris outlined.<sup>10</sup> We were interested in how games and applications that people interact with every day, and other potentially data-rich technologies such as virtual and augmented reality, combine people’s data with certain design practices to maximise the time people spend using them.

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4 Ofcom, [Communications Market Report](#), (2 August 2018), p 14 and 59

5 Ofcom, [Children and parents: Media use and attitudes report 2018](#), (29 January 2019), p 7

6 Ofcom, [Communications Market Report](#), (2 August 2018), p 19

7 Ofcom, [Children and parents: Media use and attitudes report 2018](#), (29 January 2019), p 13

8 Oral evidence taken on 22 May 2018, HC (2017–19) 363, [Q3147](#)

9 For the sake of brevity, we shall refer to the playing of video games as ‘gaming’ and the people who do so as ‘players’ or ‘gamers’ interchangeably. We acknowledge that this use of the term ‘gaming’ is distinct from its application with regards to gambling, and that the term ‘gamers’ is contested among some groups.

10 Ofcom, [Children and parents: Media use and attitudes report 2018](#), (29 January 2019), p 7

## What are ‘immersive’ and ‘addictive’ technologies?

4. Immersive technologies integrate virtual content with the physical environment, thus ‘immersing’ the user in a simulated experience. The term often refers to technologies such as virtual and augmented reality, which offer varying levels of immersion in digital worlds.<sup>11</sup> Increasingly, games and social media are making use of such technologies, especially augmented reality: for example, in *Pokémon GO* players discover characters on their smartphone depending on their actual location, while Instagram and Snapchat both offer image-enhancing ‘filters’ or shopping features based on real-world images captured through a smartphone’s camera.

5. The experience of these technologies differs significantly depending on both the type of product and the individual user. For example, the games industry alone includes casual games that are designed to deliver a satisfying game experience on a smartphone in under a minute, games that are built around 20 minute battles with other players around the world, and long-form games that offer hours of storytelling and adventure. Games also feature highly diverse ‘mechanics’—rules that determine how a game works—and we acknowledge at the outset that not all games or game mechanics have the same effects on all users, so any legislative response to the risks they present must be similarly nuanced.

6. We have considered the links between immersion and the power of a technology to capture people’s attention or influence their behaviour. In evidence to us, representatives of the games industry repeatedly drew parallels between gaming and other absorbing hobbies such as reading or watching television. However, we would argue that games are inherently more immersive than such activities because their interactivity means players actively shape their own experience. Timea Tabori, the national co-ordinator for Women in Games in Scotland and an Engine Programmer at Rockstar North, told us:

I strongly believe that games are an interactive medium because of the way that we engage with them and they are a lot more active than TV or movies or whatever that are a bit more passive. They are colloquially referred to as lean-back entertainment because you are not engaged, whereas games are lean-forward entertainment because you are fully engaged. Therefore, I do think that they can have a real impact on the way we perceive the world and the way we interact with the world.<sup>12</sup>

7. Similarly, we heard that the psychological effects of virtual reality may be amplified by the user’s direct participation in it. Sarah Jones of Birmingham City University told us that from her experiences of VR, she believes that:

If you are reading a book, you have this barrier. If you are watching a film, you have a barrier. When you are talking about an immersive experience, when you are talking about virtual reality, you are talking about jumping into that frame, you are actually part of the environment. You might not have active agency so much in the world, but you are really part of it. That means that the whole experience is intensified massively.<sup>13</sup>

11 Virtual reality (VR) uses technology to simulate an interactive, three-dimensional environment, and augmented reality (AR) uses it to superimpose a virtual object on to a real-world environment.

12 Q790

13 Q16

8. The concept of technological ‘addictions’ is highly contested, and there is a notable difference between clinical and colloquial uses of the term, especially in the context of technology use. Academics are divided on whether it is accurate to talk of people being ‘addicted’ to digital technologies, because of the differences between those technologies and the substances or behaviours that are inherently harmful and on which the diagnostic criteria for addictions is typically based, such as smoking tobacco.<sup>14</sup> On the other hand, ‘addictive technologies’ is widely used in a colloquial sense to refer to platforms or devices that people perceive themselves to have a dependency on, and it is a term that some people readily use to describe their own experiences outside of a clinical context without it necessarily meaning they are experiencing harm.

### *Evidence and visits*

9. Our inquiry broke new ground in interrogating the business and design strategies of a range of major technology platforms and holding them to account for the effects of their products on users. To inform our understanding of the potential effects of immersive technologies we spoke to academics and clinicians, and sought the views of people for whom social media and video games are integral to their personal and professional lives. Over the course of 12 sessions we took oral evidence from a range of technology companies, including social media platforms and games makers who had not previously appeared before a Select Committee. We also undertook four visits, including to companies working on these technologies, to see their work at first hand.

10. We thank all those who shared their knowledge and experiences with us during the inquiry, especially those who have been open and frank about the negative consequences that these technologies have had on them or their loved ones. We also thank our Specialist Advisers to the inquiry, Professor Anna Cox and Dr Charles Kriel, for their invaluable insights and expertise, which helped us to grapple with the complexities of these technologies and the vague and opaque information we sometimes received from the companies behind them.

11. In contrast, we were struck by how difficult it was to get full and clear answers from some of the games and social media companies we spoke to and were disappointed by the manner in which some representatives engaged with the inquiry. We felt that some representatives demonstrated a lack of honesty and transparency in acknowledging what data is collected, how it is used and the psychological underpinning of how products are designed, and this made us question what these companies have to hide. It is unacceptable that companies with millions of users, many of them children, should be so ill-equipped to discuss the potential impacts of their products.

**12. Having struggled to get clear answers and useful information from companies across the games industry in particular, we hope that our inquiry and this report serve to focus all in the industry—particularly large, multinational companies whose games are played all over the world—on their responsibilities to protect their players from potential harms and to observe the relevant legal and regulatory frameworks in all countries their products reach.**

### ***Legislative context***

13. Our inquiry took place alongside consultations on a number of relevant regulatory measures including the Government’s Online Harms White Paper and the Information Commissioner’s Office’s ‘Age Appropriate Design Code’. We will demonstrate that there are clear ways in which immersive technologies already come under the scope of the regulatory framework envisaged in the Online Harms White Paper, for example in protecting children from cyber-bullying or the risks of grooming. The White Paper and ICO code also recognise “excessive screen time” as an emerging challenge, and we will outline different ways that manifests across immersive technologies, as well as highlighting the need for clarity and action from Government on other potential online harms arising from the use of these technologies.

### ***Structure of this report***

14. In this report, we build on the newly established concept of online harms to explore potential personal and societal effects of immersive technologies. The report outlines a range of specific psychosocial and financial harms related to the use of these technologies and then explains how certain design practices and business models exacerbate those harms. It then explores positive ways legislators and industry can address both those problems and some broader structural challenges we have heard about during the inquiry.

## 2 Psychosocial harms of immersive technologies

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### Gaming disorder

15. In the UK, an estimated 32 million people play video games.<sup>15</sup> For the vast majority, playing games is a positive hobby and form of entertainment enjoyed as part of a balanced lifestyle. As trade body Ukie identifies, gaming offers many “educational, physiological, psychological, recreational and social benefits” including the ability to connect with other players.<sup>16</sup> For some, including those with physical disabilities or forms of neurodiversity, gaming can be a profound source of enablement and connection.<sup>17</sup> However, there is a minority of players who experience significant challenges related to gaming, such as struggling to maintain control over how much they are playing. This was articulated by Dr Daria Kuss of Nottingham Trent University, who told us:

If you take the whole population of gamers, involving millions of people all around the world, only a very small percentage are developing problems that may be associated with addictions [...] Although we do not want to over-pathologise something that is a very enjoyable pastime activity for the large majority of gamers, we do need to be aware of the significant problems that a small minority do experience.<sup>18</sup>

16. We heard from two members of the Game Quitters network—a global community that offers support to people who are, in their own words, suffering from “video game addiction”.<sup>19</sup> James Good told us that during his first year of university he played for “32 hours straight” without eating, sleeping or leaving his room.<sup>20</sup> It was only when his studies started to suffer that he realised the detrimental impact that his gaming was having.<sup>21</sup> Similarly, Matus Mikuš told us about the impact that playing up to 12 hours a day had on his social life and relationships:

I was very comfortable online, I was very good at the games I would play. Then I would go outside for a lecture and would not know how to interact with my friends or people around me. It is a feedback world. You go online, you are doing well and feel good. You then go outside, it is stressful and you do not know how to relate to people. You go back and play a bit more and feel happy. It is self-perpetuating in that way but I think it made me much less open to people in the real world.<sup>22</sup>

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15 Ukie ([IMM0023](#))

16 Ukie ([IMM0023](#))

17 Dr Paul Cairns and Dr Christopher Power ([IMM0004](#))

18 Q55

19 <https://gamequitters.com/>, accessed 22 July 2019

20 Q134

21 Q135

22 Q153

17. James and Matus's experiences was echoed by Dr Henrietta Bowden-Jones, the spokesperson on behavioural addictions for the Royal College of Psychiatrists. She told us that from a behavioural perspective disordered gaming is accompanied by “a withdrawal from real life” in which:

The individual spends more time online and invests in online relationships. The fact that these are often global relationships means that across multiple time zones it is possible never to want to go to bed. A lot of people I have treated dropped out of university or school because they were compelled—and some of them did have slightly obsessional traits—not to let go because they feared that in doing so they would be letting their new friends and new teams down, having already isolated themselves from their real-life cohorts who used to drive them and give them pleasure.<sup>23</sup>

### *The World Health Organisation's designation and academic debate*

18. In 2018, the World Health Organisation formally included ‘gaming disorder’ in its International Classification of Diseases. The WHO characterises gaming disorder as a “pattern of persistent or recurrent gaming behaviour”, either online or offline, that is manifested by:

- (1) impaired control over gaming (e.g., onset, frequency, intensity, duration, termination, context);
- (2) increasing priority given to gaming to the extent that gaming takes precedence over other life interests and daily activities; and
- (3) continuation or escalation of gaming despite the occurrence of negative consequences.<sup>24</sup>

It goes on to say that this behavioural pattern is “of sufficient severity to result in significant impairment in personal, family, social, educational, occupational or other important areas of functioning.”<sup>25</sup> This was again echoed in evidence to us by Dr Bowden-Jones, who summarised the negative consequences of disordered gaming as “a loss of control over what matters most to you”.<sup>26</sup>

19. We heard that the WHO's decision was not uncontroversial.<sup>27</sup> Academics from 34 international institutions cautioned the WHO against including the term, on the basis that formally diagnosing disorders requires a “stronger evidence base than we currently have.”<sup>28</sup> However, supporters pointed to the growing numbers of people around the world who are seeking treatment “because they are suffering from functional impairment related to GD [gaming disorder] symptoms”, and the lack of suitable services for them, as evidence of an “unmet need”.<sup>29</sup>

23 Q57

24 World Health Organisation, [International Classification of Diseases 11th Revision](#), (Version : 04 / 2019), 6C51

25 Ibid

26 Q59

27 Q1391

28 Antonius J van Rooij, et al. “[A Weak Scientific Basis for Gaming Disorder: Let Us Err on the Side of Caution.](#)” PsyArXiv, (8 February 2018), Web

29 Hans-Jürgen Rumpf, et al., “[Including gaming disorder in the ICD-11: The need to do so from a clinical and public health perspective, Commentary on: A weak scientific basis for gaming disorder: Let us err on the side of caution \(van Rooij et al., 2018\).](#)” *Journal of Behavioral Addictions*, vol. 7.3, (16 July 2018)

20. This debate was reflected in the evidence we received. On the one hand it is argued that high engagement with gaming is not inherently harmful, and may in fact be a coping mechanism for other underlying conditions.<sup>30</sup> Moreover, as evidence to us stated, it is held that misuse of the term “addiction” in this context implies:

that video games, or digital technologies, are inherently harmful, such that excessive use is a cause for concern—in the same way that excessive substance use or gambling is. This assumption is incorrect, however: such technologies are, by their very nature, immersive and interactive hobbies. Therefore, a clear distinction needs to be made between high-engagement (yet unharmed) use, and problematic or addictive use.<sup>31</sup>

On the other hand, written evidence from Nottingham Trent University’s International Gaming Research Unit told us about the associations between excessive gaming and “many psychosocial and physical health problems” including:

poorer response-inhibition and emotion regulation, impaired brain functioning and cognitive control, poorer working memory and decision-making, lower visual and auditory functioning, and a reward system deficiency, akin to that found in substance addiction.<sup>32</sup>

21. Overall, the evidence we received acknowledged that there is a spectrum of behaviour in relation to gaming, ranging from positive to harmful, and that this can vary significantly between individuals and over the course of their lives.<sup>33</sup> Indeed, there is evidence to suggest that gaming disorder develops as a response to pre-existing life stress. A study of *World of Warcraft* players found that:

less stressed individuals manage to play WoW so as to enhance their offline lives. By contrast, more highly stressed players further magnify the stress and suffering in their lives by playing problematically the online game within which they sought refuge from their offline problems.<sup>34</sup>

This evidence aligns with that presented by Matus Mikuš and James Good who both described to us how their problems developed when they left home and went to university. The transition to more independent living at university can be a stressful time for young people and a trigger for mental health issues. Therefore, even if specific games have innocuous effects on most players, for others, events may conspire to create a situation in which they develop problematic behaviours related to gaming.

22. Dr Bowden-Jones told us that she is alarmed by much of the public rhetoric around there being an “epidemic’ of [...] ‘gaming addiction’” because that is not an accurate reflection of prevalence, especially when compared to other addictions and behaviours.<sup>35</sup> We were also told that a large-scale cross-national study put the prevalence of disordered

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30 Professor Andrew Przybylski, Netta Weinstein, Pete Etchells and Amy Orben (IMM0014)

31 Professor Andrew Przybylski, Netta Weinstein, Pete Etchells and Amy Orben (IMM0014)

32 The International Gaming Research Unit/ Cyberpsychology Research Group, Nottingham Trent University (IMM0013)

33 The International Gaming Research Unit/ Cyberpsychology Research Group, Nottingham Trent University (IMM0013)

34 Jeffrey G. Snodgrass, et al. “A vacation from your mind: Problematic online gaming is a stress response.” *Computers in Human Behavior*, vol. 38, (2014) pp 248–260.

35 Q55

gaming at 0.3% to 1.0% of players.<sup>36</sup> The number of people in the UK who experience such significant problems with video gaming can therefore be estimated to be 96,000 to 320,000.

### *Supporting research into gaming disorder*

23. There is broad consensus that research on gaming disorder is “scarce” and more high-quality “longitudinal and epidemiological” studies are needed to understand it.<sup>37</sup> Dr Kuss identified that “within the UK the research base is relatively poor”, especially when compared to southeast Asian countries that have recognised the term for much longer.<sup>38</sup> Professor Andrew Przybylski of the Oxford Internet Institute also told us that many of the studies in this area are of poor quality and lack academic transparency, or are based on self-reporting or diagnostic tools that are inherently flawed.<sup>39</sup> As the then Minister for Digital and the Creative Industries, Margot James MP, observed in her evidence to us:

there is a paucity of research done in this country, which holds the field back and holds treatment of people back.<sup>40</sup>

24. Very little is known about what sort of games or game mechanics are more or less associated with levels of harmful gaming, and what the most effective interventions or treatments are. The high levels of comorbidity—the presentation of two or more disorders in the same individual—related to gaming disorder can also present challenges to those establishing the causal links between gaming and problem behaviours.<sup>41</sup> It is therefore unsurprising that we have heard consistent calls for further data and research on gaming disorder. A group of psychiatrists with an interest in the links between mental health and gaming told us that:

there should be appropriate funding and encouragement of further research into gaming disorder, of a high quality (emphasising pre-registered studies using open data), covering both general and clinical populations.<sup>42</sup>

25. The role of games companies in supporting research into gaming disorder is crucial, as the data they hold on player behaviour could be highly valuable to researchers. We have been told that “governmental pressure should be exerted on the gaming industry to share their data with academic researchers and other interested parties for independent third party analysis.”<sup>43</sup> Furthermore, we would argue that a global industry that generates billions in revenue should contribute financially to research on potential harms associated with its products, as the gambling industry is already expected to do. However, we have also heard strong calls for any resulting research to be independent of the games industry

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36 The International Gaming Research Unit/ Cyberpsychology Research Group, Nottingham Trent University ([IMM0013](#))

37 The International Gaming Research Unit/ Cyberpsychology Research Group, Nottingham Trent University ([IMM0013](#))

38 Q67

39 Qq29, 31

40 Q1528

41 The International Gaming Research Unit/ Cyberpsychology Research Group, Nottingham Trent University ([IMM0013](#))

42 Gaming the Mind ([IMM0099](#))

43 The International Gaming Research Unit/ Cyberpsychology Research Group, Nottingham Trent University ([IMM0013](#))

in the interests of legitimacy and impartiality.<sup>44</sup> The then Minister told us that when it comes to understanding the potential harms of an online product such as games, “there is a role there for public funding of research.”<sup>45</sup>

26. When we put the proposal to games makers of sharing aggregated data on player behaviour with researchers, they expressed willingness in principle; however, none have been able to point to examples of doing so in practice.<sup>46</sup> Moreover, in its evidence to us the industry has been highly reluctant to acknowledge that it might have a role in understanding gaming disorder. For example, neither Epic Games, which makes *Fortnite*, nor Electronic Arts, which makes the *FIFA* series, have commissioned any research into potentially harmful engagement with their games.<sup>47</sup> In response to this, the then Minister told us that if games companies are not sharing their player data, “perhaps it is time they did or at least learned from it themselves.”<sup>48</sup>

27. In its written evidence, the Department for Digital, Culture, Media and Sport told us that the Government is “looking closely at studies and research around the potentially addictive nature of some technologies”. However, it also acknowledged that evidence:

is still emerging, and at this stage it can sometimes provide a conflicting picture. It is important that we take steps to better understand both the positive and negative impacts of new technologies.<sup>49</sup>

It was therefore disappointing that the then Minister was unable to tell us what the Government is doing to facilitate or commission research on gaming disorder, and was unfamiliar with the Department’s own ‘areas of research interest’, which makes no mention of it.<sup>50</sup>

### **Support for those with gaming disorder**

28. While the academic evidence base may take a while to establish, we have heard calls for improved support for people with gaming disorder in the UK. Dr Bowden-Jones told us that she does not “know of any free, evidence-based, high-quality intervention that uses the latest research-based techniques” and that she has:

a list of about 40 letters from desperate people [...] waiting for me to see their children, and I cannot see them because I do not have the funding or the commissioning stream to see gamers.<sup>51</sup>

However, she also told us that she was “hopeful” that the NHS would fund gaming disorder treatment in the near future, which in turn could contribute to building the evidence base on prevalence and effective interventions.<sup>52</sup>

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44 Qq68, 1536

45 Q1536

46 Qq539, 755

47 Q1078 ff.

48 Q1540

49 Department for Digital, Culture, Media and Sport ([IMM0038](#))

50 Qq1528, 1545

51 Q72

52 Q71

29. Dr Bowden-Jones also made a persuasive case that preventing disordered gaming is preferable to treating problems once they have become too severe. She told us:

It is integral for us to implement, in my opinion, campaigns and sessions within the school context for students, teachers and parents to raise awareness of potential problems and to stop the problems from occurring in the first place.<sup>53</sup>

She was also clear that the games industry needs to “play its part” and “take on the responsibility of making sure it is not polluting the world out there with stuff that is harmful.”<sup>54</sup>

### *The industry’s role*

30. In direct contrast, representatives of games companies appearing before Parliament for the first time told us that they do not consider it either possible, or their responsibility, to define what counts as normal or excessive engagement with their games, which could help them to intervene to protect players from the potential harms of excessive play. Canon Pence, Epic Games’s General Counsel, told us that he does not consider it the company’s “primary responsibility to determine how much individual players should play *Fortnite*” because engagement “varies from person to person and it varies from time to time, even, on a person-by-person basis”.<sup>55</sup> Similarly, Shaun Campbell, UK Country Manager of Electronic Arts, observed that harmful levels of play are “what feels out of balance for the individual.”<sup>56</sup> Furthermore, in their evidence to us some industry representatives have disputed the significance and basis of the WHO’s decision, which chimes with Professor Przybylski’s observation that “entrenched interests in industry will interpret an absence of evidence with evidence of absence.”<sup>57</sup>

31. The industry’s evidence to us has instead focused on positive impacts that games can have. For example, British games company Jagex told us that it invests significantly in mental health awareness and fundraising campaigns, including putting characters in their games from mental health charities so that players can “ask questions and interact with them around issues of mental health.”<sup>58</sup> While such best practice is to be welcomed, it is far from the norm among the companies we have heard from, and by no means all games companies consider it their responsibility to acknowledge or tackle players’ concerns around gaming disorder or other gaming-related harms.

32. Games companies repeatedly stressed the significance of parental responsibility in promoting responsible gaming. For example, Epic Games’s Director of Marketing, Matthew Weissinger, told us:

Parents can monitor play time through things like our weekly play usage report and then take advantage of some of these parental controls around

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53 Q76

54 Q75

55 Qq, 1140, 1078

56 Q1056

57 Qq25, 1126 ff., 1391

58 Q472

screen time, access and purchasing access, in order to make decisions based on how they would like either their child or somebody else who they share an account with to play the game.<sup>59</sup>

However, as James Good observed, parental controls can be easily subverted when “most young people playing videogames know more about their computers than their parents do.”<sup>60</sup> In an attempt to tackle this, trade body Ukie provides advice to parents through resources such as Askaboutgames.com, and advocates for parents to play games with their children, claiming that “parents who talk to their children, for instance, or play games themselves, have a far better understanding of how to protect them from excessive play time.”<sup>61</sup>

33. Yet we believe that some responsibility still lies with games providers to protect users from disordered levels of engagement, including where parents are unwilling or unable to do so. Moreover, with the average age of gamers in the UK being the mid-30s, and evidence we have heard of disordered gaming being linked to stressful life situations such as starting university, it is clear that problem gaming can occur at any age.<sup>62</sup> The industry’s focus on parental controls does not address the needs of vulnerable adults who may struggle to maintain control over how much they are playing. We find this worrying, especially given that the Royal College of Psychiatrists’ written evidence states that “adults may be more vulnerable to excessive internet use if they have pre-existing depression or anxiety.”<sup>63</sup>

**34. Although the vast majority of people who play games find it a positive experience, the minority who struggle to maintain control over how much they are playing experience serious consequences for them and their loved ones. At present, the games industry has not sufficiently accepted responsibility for either understanding or preventing this harm. Moreover, both policy-making and potential industry interventions are being hindered by a lack of robust evidence, which in part stems from companies’ unwillingness to share data about patterns of play.**

**35. *The Department should immediately update its areas of research interest to include gaming disorder, working with researchers to identify the key questions that need to be addressed and develop a strategy to support high-quality, independent research into the long-term effects of gaming.***

**36. *The Government should also require games companies to share aggregated player data with researchers and to contribute financially to independent research through a levy administered by an impartial body. We believe that the industry should pay a levy to fund an independent body formed of academics and representatives of the industry to oversee research into online gaming and to ensure that the relevant data is made available from the industry to enable it to be effective.***

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59 Q1121

60 Q167

61 Q1397

62 Qq1404, 129

63 Royal College of Psychiatrists ([IMM0098](#))

## Control over healthy use of social media and other apps

37. According to Ofcom, 80% of adults, 70% of 12–15-year-olds and 20% of 8–11-year-olds who use the internet have a social media profile.<sup>64</sup> Like gaming, social networking enables people to communicate widely and express themselves creatively. Most users will do so happily; however, there is a growing awareness that for some people maintaining control over social media use is a cause of concern. The Diana Award says that 70% of young people participating in its digital resilience programme “had seen their peers affected by excessive tech/internet use or feeling ‘hooked’ to a device”.<sup>65</sup>

38. The evidence on the links between social media use and mental health is limited, as our colleagues on the Science and Technology Committee found in their recent inquiry on the impact of social media and screen-use on young people’s health.<sup>66</sup> However, a University of Pennsylvania study on the causal link between social media use and mental wellbeing found that limiting use of Facebook, Instagram and Snapchat to 10 minutes per day led to “significant reductions in loneliness and depression”.<sup>67</sup> Moreover, it suggested that simply being more aware of one’s own social media use led to a decrease in “fear of missing out” and anxiety.<sup>68</sup> Dr Jacob Johanssen of the University of Westminster states in written evidence:

The widespread discussion of terms like ‘digital detox’ in the media points to a trend that suggests that many individuals use digital technologies, like social media, to an extent that feels overwhelming and unhealthy. It can lead to difficulties in controlling their online habits. Members of the public report that it is difficult for them to disconnect, unplug and distance themselves from the platforms and apps they use.<sup>69</sup>

39. Jack Edwards, a lifestyle blogger whose YouTube channel has more than 140,000 subscribers, said that although he would not recognise his social media use:

as an addiction in the traditional sense, when I wake up I do check it straight away, it is the first thing I do. When I am at university, I come out of a lecture and the first thing I do is open my phone and check social media. I suppose those are essentially addictive tendencies. Maybe the vocabulary we have to talk about social media does not think of it in that particular way because it is so accessible, it is in your pocket all the time.<sup>70</sup>

He also drew a comparison between social media and online gaming, which offers an “endless universe of possibilities” by enabling people to play with others in different time zones. He observed that:

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64 Ofcom, [Adults: Media use and attitudes report 2019](#), (May 2019), p 9 and [Children and parents: Media use and attitudes report 2018](#), (January 2019), p 8

65 The Diana Award ([IMM0121](#))

66 Science and Technology Committee, Fourteenth Report of Session 2017–19, [Impact of social media and screen-use on young people’s health](#), HC 822

67 Melissa G Hunt, et al. “[No More FOMO: Limiting social media decreases loneliness and depression](#)”, *Journal of Social and Clinical Psychology*, vol 37.10, (2018), pp 751–768

68 Ibid

69 Dr Jacob Johanssen ([IMM0122](#))

70 Q139

because there are so many people on the planet and a vast majority will be on social media now there is always someone to talk to, there is always someone awake, there is always someone sharing something and there is always something to discuss.<sup>71</sup>

In particular, YouTube was highlighted as a “rabbit hole”, with the seemingly infinite stream of content enabling people to watch one video after another without making a conscious decision to do so.<sup>72</sup> YouTube’s Marketing Director, Rich Waterworth, confirmed to us that around 70% of the time people spend on YouTube is spent watching videos that have been ‘recommended’ to them by the platform’s algorithms, rather than content they have actively searched for.<sup>73</sup>

### **Engagement metrics**

40. All the major social media platforms use ‘engagement’ metrics that quantify people’s use and encourage them to extend it. For example, within the image-messaging platform Snapchat, a ‘streak’ is a number icon that counts how many consecutive days two friends have contacted each other. Both Facebook and Instagram detail how many friends or followers a user has, and alerts them to the number of times someone has ‘liked’ their post or image. As we shall explore in Chapter 4, these metrics are one of the ways platforms reward users psychologically, which in turn incentivises them to keep using them; however, it also raises concerns about how they impact people’s ability to maintain meaningful control over their use of technology.

41. In order to maintain a Snapchat streak, both users have to send an image within every 24-hour window—if they miss one, the running total is lost. The 5Rights Foundation, founded by Baroness Beeban Kidron, states that this means “children feel unable to disengage” and Tristan Harris told us that “Snapchat has taken over the currency of whether or not kids believe that they are friends with each other.”<sup>74</sup> Indeed, teenagers themselves say that streaks are considered such a measure of friendship and sign of popularity that losing them can cause stress, and maintaining them takes priority over other things, including sleep.<sup>75</sup> Moreover, streaks appear by default and cannot be switched off by users, which Harris describes as an example of the platform using “agency-inhibiting or disempowering architectures.”<sup>76</sup>

42. We invited Snapchat to give evidence to a Select Committee for the first time, and put those concerns to them. Snapchat’s Senior Director of Public Policy, Stephen Collins replied that the idea behind streaks “was to deepen individual friendships. It was not meant to create extra time on the application”, and committed to going away and review their use on the platform.<sup>77</sup> We will be monitoring the platform’s ongoing design strategies as evidence of whether Snapchat has taken our comments on board.

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71 Q215

72 Q227

73 Q816

74 5Rights Foundation ([IMM0126](#)) and oral evidence taken on 22 May 2018, HC (2017–19) 363, [Q3150](#)

75 [“Teens explain the world of Snapchat’s addictive streaks, where friendships live or die”](#), Business Insider, 14 April 2017

76 Oral evidence taken on 22 May 2018, HC (2017–19) 363, [Q3173](#)

77 Q259

43. On Instagram, the popularity of a posted image is measured through the number of people who signal they ‘like’ it, and such reinforcement systems may understandably have an impact on self-esteem. At a recent developer conference, Instagram announced that it would test hiding the ‘like’ and ‘view’ count from some users’ photos and videos—although the company would still hold the data about those users’ engagement with content on the platform for advertising targeting purposes.<sup>78</sup> At the platform’s first ever public appearance in Parliament, Instagram’s Head of Product, Vishal Shah, told us that this is to lessen the influence of the engagement metrics that may cause people to compare themselves to others:

The idea is to reduce the pressure around feeling like you are not only competing with yourself on your previous posts but with the rest of Instagram, frankly, and feeling that every time you have to always be perfect and achieve a certain number of likes in order to feel like your expression was worthwhile. That is something that we are looking at more broadly, not just for young people.<sup>79</sup>

44. The effects of engagement metrics sit alongside the fact that platforms such as Snapchat and Instagram use augmented reality technologies to provide users with image-enhancing filters that can be applied to photos before they are shared. There are concerns that ‘beautifying’ filters can have a potentially negative impact on self-esteem, and Instagram was ranked worst by young people surveyed by the Royal Society of Public Health for its effect on body image.<sup>80</sup> These filters allow users to make their lips appear fuller, hips rounder or waist narrower in order to conform to others’ pre-conceived ideas of physical beauty. It is also argued that this can lead to body dysmorphic disorder, with cosmetic surgeons reporting that patients are increasingly bringing ‘filtered’ pictures of themselves to consultations, despite such images being unobtainable using surgical procedures.<sup>81</sup> Vishal Shah told us that the company takes the issue of body dysmorphia “seriously”.<sup>82</sup>

45. Jack Edwards also told us that seeing others share a curated version of their lives on social media can impact self-esteem:

If you are having a bad day and click onto Instagram, instantly, at the touch of a button, you have everyone’s best day of their life right in front of you and it can be really harmful.

Therefore he argued that social media influencers—those with large followings, whose posts influences others’ behaviours or purchasing habits—have a responsibility to present a more realistic image.<sup>83</sup> He told us:

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78 “Instagram is testing hiding your likes”, CNN, 30 April 2019

79 Q991

80 Royal Society for Public Health, [#StatusofMind: Social media and young people’s mental health and wellbeing](#), (May 2017), p 23

81 Susruthi Rajanala, Mayra B.C. Maymone, and Neelam A. Vashi, “Selfies—Living in the Era of Filtered Photographs.”, *JAMA facial plastic surgery*, vol. 20.6 (August 2018), pp 443–444

82 Q999

83 We will pursue the role that social media’s influencer culture plays in promoting unhealthy or unrealistic expectations through our inquiry on reality TV.

I think it is really important for us as people who portray a lifestyle that is really motivated, productive and proactive to also show this is not every second of every day and we can talk about when we trip up and things do not go to plan.<sup>84</sup>

## Cyber-bullying, harassment and grooming

46. We have heard clear evidence that games, social media and other immersive technologies can expose players to other online harms explicitly in scope of the Government’s proposed legislation. Online games enable players to connect and collaborate in a game remotely by means of voice and/or text chat. Often, players use them to connect with friends, which led Dr David Zendle of York St John University to describe games “as a playground or a social space”.<sup>85</sup> However, Matus Mikuš told us that he found playing *League of Legends* with strangers “very stressful” because of the verbal abuse he received. He told us that:

After every game my heartbeat would be elevated, and I would be shaking because of the things people say to you. Let us say you die in the game, people would tell you to kill yourself because you are so terrible at the game. This was a very common occurrence, it was almost every game.<sup>86</sup>

Such harassment can be particularly acute for female players, who may find that their “mistakes are amplified” or that they are perceived “not as a person but as a girl”.<sup>87</sup>

47. We have heard that such experiences are by no means new or isolated cases. Marie-Claire Isaaman from Women in Games told us that “the industry recognised that it is a problem” following a 2014 harassment campaign against several women in the video game industry, colloquially known as ‘Gamergate’.<sup>88</sup> Yet Jodie Azhar from diversity initiative POC in Play told us that the industry has been “very good at self-regulating”, including introducing community management and moderators. Electronic Arts told us about work it is doing to combat what it calls “toxicity”, or players behaving badly in games, including developing a machine learning natural language tool to monitor voice chat.<sup>89</sup>

## Social VR

48. Similar challenges around bullying and harassment are seen in other immersive technologies. Some virtual reality environments facilitate social interaction with other VR users—this is known as ‘social VR’. However, concerns have been expressed about the safety of players in social VR, and Sarah Jones told us that recent research found that 49% of female VR users had felt sexually harassed within an immersive experience.<sup>90</sup> She described how “it is the same as harassment that you would feel in everyday life”; however, it still raises the ethical and potentially legal question:

If you feel like you have been harassed within virtual reality, is that the same as being harassed in a non-virtual world?<sup>91</sup>

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84 Q214  
 85 Q57  
 86 Q150  
 87 Q224  
 88 Q696  
 89 Q1229  
 90 Q8  
 91 Qq44, 47

Yet we again heard that the industry has introduced measures to tackle harassment.<sup>92</sup> For example, social VR has seen the introduction of personal ‘safety bubbles’ that surround virtual avatars and prevent other users from invading virtual personal space, as well as the ability to mute users.<sup>93</sup>

### **Risks of grooming through in-game chat**

49. Ofcom’s research indicates that 38% of 8-to-11-year-olds and 58% of 12-to-15-year-olds use chat features within online game to talk to others.<sup>94</sup> Yet this behaviour and the popularity of livestreaming platforms such as Twitch, which enables players to stream video of themselves playing games, fuels concerns about grooming. For example, an NSPCC survey of nearly 40,000 school children found that 6% of young people who had livestreamed had been “asked to change or remove their clothes”.<sup>95</sup> We also heard from James Good and Matus Mikuš that it can be “hard to tell” how old a person communicating through in-game chat is, especially as it is “really easy” to “download software to change your voice” and pretend to be someone you are not.<sup>96</sup> This is of particular concern to us as Ofcom found that a quarter of 12-to-15-year-olds chat in games to people they only know online, with boys of that age twice as likely as girls to chat to people they only know through gaming.<sup>97</sup>

50. We felt that the games industry’s response to the challenge of protecting users from the risk of grooming was mixed. Electronic Arts’s Vice President for Legal and Government Affairs, Kerry Hopkins, told us that the company does “not have a monitoring policy” for its in-game chat.<sup>98</sup> When we raised concerns that children have been groomed through *Fortnite*, Matthew Weissinger admitted that Epic Games is not able to protect players before an act of harm is committed.<sup>99</sup> However, evidence our Sub-committee on Disinformation has heard, in particular from the Finnish company Utopia Analytics, demonstrates that natural language tools already exist to enable companies to monitor chat for patterns of harmful behaviour.<sup>100</sup> Epic’s General Counsel Canon Pence acknowledged that “there is room for growth and sophistication on our side” in the company’s use of technology and policies around safeguarding.<sup>101</sup> More encouraging was the evidence from British games company Jagex, which Director of Player Experience, Kelvin Plomer, described as “among the leaders in our space in chat moderation and screening”.<sup>102</sup> As well as identifying references to suicide and self-harm, the company says that it reviews “all chat 24/7 for additional triggers, particularly around areas of sex and minors”, which are reviewed manually and escalated to law enforcement if necessary.<sup>103</sup>

**51. Immersive technologies including online games and virtual reality facilitate interaction between users and user-generated content. Given the technological sophistication of the games industry, and the popularity of its products among**

92 Q6

93 Q46

94 Ofcom, [Children and parents: Media use and attitudes report 2018](#), (29 January 2019), p 7

95 NSPCC ([IMM0012](#))

96 Qq151 [Mr Mikuš], 251 [Mr Good]

97 Ofcom, [Children and parents: Media use and attitudes report 2018](#), (29 January 2019), p 7

98 Q1228

99 Q1209 ff

100 Oral evidence taken before the Sub-Committee on Disinformation on 20 June 2019, HC (2017–19) 2204, [Q180](#)

101 Q1211

102 Q472

103 Q472

children, there is more that companies could be doing to safeguard players, and the future online harms regulator will need to pay due attention to monitoring the industry's efforts in this regard.

## Exposure to age-inappropriate or harmful content

### *Age-ratings in games*

52. In the UK, games are age-rated using the PEGI (Pan European Game Information) system. This includes an age-rating system and eight content labels warning consumers that games contain features such as bad language, violence or drug-use. To obtain a rating, game developers complete an assessment questionnaire about a game's features and content. The Video Standards Council—the statutory body responsible for the age rating of video games in the UK using the PEGI system—then compares that assessment to video footage and examples of the game play. Finally, the full game is tested and the company receives a licence stating which rating labels the game must display. Trade body Ukie states that “only 4% of games across Europe are rated 18+, and 49% of all games are rated suitable for all (rated 3).”<sup>104</sup>

53. Yet the different legal status of age-ratings across the variety of distribution methods in the games industry does not help to provide clarity for consumers. In the UK, the physical distribution of games is regulated under the Video Recordings Act 1984 and its subsequent amendments. Under the Act, PEGI 12, 16 and 18 rated games cannot legally be sold in a physical format to anyone under those ages. However, the 1984 Act has not kept pace with the changing technology of video games, especially given the wholesale move towards online distribution.<sup>105</sup>

54. At present, games that are published and played online are not subject to a legally enforceable age-rating system—instead, PEGI ratings and the new International Age Ratings Coalition (IARC) system serve voluntary, consumer advisory roles. Ian Rice of the Video Standards Council explained that this is because “the Video Recordings Act applies to devices capable of storing media”—in essence, “a physical disk rather than online distribution.”<sup>106</sup> He went on to explain that while games companies may voluntarily display the PEGI age-rating for their games:

Legally speaking, there are no restrictions as to who those storefronts can sell those products to.<sup>107</sup>

This has led to a situation where Epic Games can make *Fortnite: Battle Royale*, a PEGI 12 rated game, available to any player through its website without asking their age—although as we shall explore in Chapter 4, this approach presents separate problems regarding data protection.<sup>108</sup> As the British Esports Association observed in written evidence:

There are some competitive games whose digital download versions do not carry an age rating, and that is troubling.<sup>109</sup>

104 Ukie (IMM0023)

105 “[Campaigners call for video game laws fit for the internet age](#)”, The Telegraph, (8 December 2017)

106 Q1410

107 Q1410

108 Q1089

109 British Esports Association ([IMM0006](#))

55. The plethora of distribution methods for online games also highlights the challenge of enforcing age-ratings across the distribution of games. The games studios that develop games are rarely the only ones who distribute them. Instead, there a range of what Epic's Canon Pence referred to as "delivery mechanisms", which can have different voluntary approaches to displaying or enforcing age-ratings.<sup>110</sup> For example, the British Esports Association told us that "platforms like Steam do not have to adopt enforced age ratings on their games. This is because every country's law is different."<sup>111</sup>

56. Representatives of the games industry have also expressed concern that not all parents take age-ratings, or their responsibilities to observe them, seriously. Timea Tabori told us that:

A lot of games are still viewed as children's toys, even though a lot of video games are rated 18-plus. If you go into a physical game shop, as much as they are on the decline, you will see adults, parents, purchasing 18-plus rated games for their 12 year-old kids. I have seen it happen.<sup>112</sup>

She went on to argue that parents have a responsibility to understand the impact that games might have and to talk about that with their children:

If you do not recognise it as something that can have a powerful impact on you or the way you see the world, then you are surprised when it changes the way you see the world or the way you interact with the world.<sup>113</sup>

**57. There are inconsistencies in the games industry's self-regulation around the distribution of games. If companies hold that it is not their responsibility, but that of parents, to enforce age ratings, and parents themselves are not willing or able to do so, further legislation may be needed to protect children from playing games that are not appropriate for their age. This could include extending the statutory duties that apply to physical distribution to the online distribution of games. Likewise, games companies should not assume that the responsibility to enforce age-ratings applies exclusively to the main delivery platforms: all companies and platforms that are making games available online should uphold the highest standards of enforcing age-ratings. *The Video Recordings Act should be amended to ensure that online games are covered by the same enforceable age restrictions as games sold on disks.***

### **Removal of content**

58. Through our previous inquiry on disinformation and 'fake news', and our work as part of the International Grand Committee, we have repeatedly questioned online platforms, including YouTube, on their failure to remove harmful content in a timely fashion.<sup>114</sup> Moreover, we have attempted to understand how these company's revenues compare to their expenditure on content moderation, which we believe is illustrative of the lack of priority and attention paid to the issue.<sup>115</sup>

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110 Q1090

111 British Esports Association ([IMM0006](#))

112 Q791

113 Q791

114 Oral evidence taken on 28 May 2019, House of Commons Canada, Standing Committee on Access to Information, Privacy and Ethics, [International Grand Committee on Big Data, Privacy and Democracy](#)

115 Oral evidence taken on 8 February 2018, HC (2017–19) 363, [Q296](#) ff.

59. We have heard commitments from platforms that they will do more; however, that does not seem to stop violent or otherwise distressing content from being shared on their platforms, such as occurred with the attack in Christchurch, New Zealand. Following that tragic incident, YouTube's Public Policy Director, Marco Pancini, told us that:

We learn from the failure of some of the systems that we put in place, and that is why [...] changing our policy is a way to address the risk that something like this can happen in the future, and make sure that the content that is related to a video uploaded of this nature is blocked as soon as possible.<sup>116</sup>

60. Instagram has also been criticised for the time it has taken to remove violent images, and content related to self-harm, from its platform. We asked what more the platform could do to use the data it holds on its users to identify and support people who may be at risk of self-harm. While Instagram uses language recognition tools to offer support to users whose behaviour on the platform indicates they may be in need of support, Vishal Shah said that the company will:

think about how we can use all of the signals that we have on the platform, all the ways that people interact with content, and the accounts that they follow, to understand if there is additional risk, and from a product perspective, see if we can get ahead of some of these issues.<sup>117</sup>

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116 Q814

117 Q927 ff.

## 3 Financial harms of immersive technologies

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### Disordered levels of spending on games

61. In the past, the games industry was built on a ‘premium’ model: people paid upfront for a hard copy of a game and that was the only opportunity for monetisation. However, the growth of internet-connected games has enabled the industry to develop new ways of making money, including through ‘microtransactions’—small payments that players make throughout the process of playing a game, for example to acquire in-game skills or items or to progress more quickly through levels. We shall explore the contribution of these business models to the industry in Chapter 4, after detailing the effect that this monetisation strategy can have for the minority of players who might struggle to maintain control over how much they are spending on gaming.

#### *RuneScape*

62. We were contacted by a member of the public whose adult son built up considerable debts, reported to be in excess of £50,000, through spending on microtransactions in British company Jagex’s online game *RuneScape*. For example, bank statements showed that in one day the individual spent £247.95 by making five separate payments to the company. The resulting debt caused significant financial harm for both the player and his parents, whose evidence attributed the situation to the fact that Jagex has no limits on the amount of time or money players can spend on the game.<sup>118</sup> This demonstrated to us that even companies with good policies to support some aspects of player wellbeing can fall short in other areas.

63. Jagex told us that it generates about one-third of its revenue from microtransactions, with two-thirds coming from an alternative subscription model.<sup>119</sup> The company’s director of player experience Kelvin Plomer told us that players “can potentially spend up to £1,000 a week or £5,000 a month” in *RuneScape*, but that only one player had hit that limit in the previous 12 months.<sup>120</sup> The company’s reasoning for setting this limit seemed to stem from fraud prevention, rather than out of a duty of care to prevent people spending more than they are able.<sup>121</sup> Jagex does allow players to “request deletion of the account or suspension of the account or a payment block”; however, crucially in the case of the parent who contacted us, for data protection reasons it can deal only with account holders and so was unable to take direct action in response to the parent’s concerns.<sup>122</sup>

64. Other players have raised similar concerns about in-game spending in *RuneScape*, and have referenced the way the game is designed to encourage players to spend more. For example, one told us that in his five years playing *RuneScape*:

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118 Anonymous ([IMM0105](#))

119 Q451

120 Qq440, 445

121 Q465

122 Q452

I've spent over \$2000 CAD on in-game wealth and in-game progression. I am not proud of this. I've loaded my credit card with \$500 CAD in one night to skip hundreds of hours of content I didn't find enjoyable to unlock achievements because of a promotion they were running. I've spent \$300 CAD in 20 minutes legally on in-game wealth I lost instantly gambling because I wanted more in-game wealth to purchase better gear.<sup>123</sup>

### Industry interventions

65. With so many games featuring microtransactions, we asked other leading games companies what they do to prevent people from spending more than they are able to in a game. Epic Games, the makers of *Fortnite: Battle Royale*, said that although it has no specific cap on how much people can spend, purchases are limited to what is in the virtual shop and so the maximum anyone could spend would be about \$200 a day.<sup>124</sup> The company's director of marketing suggested that it is an individuals' responsibility to manage spending and that the company provides tools, including parental controls, "to allow players to make those decisions for themselves."<sup>125</sup> However, as we have already examined, parental controls are of limited effectiveness when it comes to adult players.

66. The games companies we spoke to were generally reluctant to accept that they might have a role or responsibility to intervene proactively if a player's spending fell outside of normal patterns. Moreover, they said that it would be too difficult to determine what level of spending might be harmful. Alex Dale, senior vice president for King, the makers of *Candy Crush Saga*, told us that while it used to alert users when they reached a certain spending threshold, it had stopped doing so because of player feedback. He told us:

we would send an e-mail out when a player's spend was \$250 in a week for the first time. It was an e-mail that said, "We notice you are enjoying the game a lot at the moment. Are you sure you are happy with this?" [...] We got back, "I wouldn't spend the money if I didn't have it" and things like, "I'm fine, please leave me alone". We felt it was too intrusive so we stopped doing that.<sup>126</sup>

67. Dr Henrietta Bowden-Jones told us that the games industry might learn from approaches in the gambling industry, which has much clearer, industry-wide protocols enabling people to self-exclude from spending.<sup>127</sup> She told us that "gaming is several years behind gambling in relation to protecting the vulnerable", a situation that the then Minister described, if true, as "lamentable", adding that "the industry has a job to do."<sup>128</sup> When we asked Neil McArthur, Chief Executive of the Gambling Commission, whether games companies should be obligated to monitor how much people spend, identify people with a problem and proactively support them, he responded that, "this is an area where progress needs to be made."<sup>129</sup> His colleague Brad Enright went on to tell us that self-exclusion measures to protect players "could be adopted by the video games industry voluntarily to address some of the concerns about excessive time [and] excessive expenditure."<sup>130</sup> Yet the Royal College of Psychiatrists goes further in suggesting that:

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123 Ty Beauchamp ([IMM0110](#))

124 Q1029 ff.

125 Q1020 ff.

126 Q1292

127 Q80

128 Q1540

129 Q1558

130 Q1582

There should be no in game spending by children. Children are less prepared to deal with the potentially addictive nature of some modern computer games and are less able to make informed decisions about spending.<sup>131</sup>

## Gambling-like behaviours

68. In considering the way that some games facilitate gambling-like behaviours among players, it is important to acknowledge the distinction between licensed online gambling, social casino-style games that “have the look and feel of traditional gambling” but may not be licensed as such, and games containing features akin to gambling as one aspect of the overall product or game experience rather than the predominant quality.<sup>132</sup> Our inquiry has focused on the latter, although the other two are both important issues that merit further consideration.

69. Many games contain features that are highly similar to conventional gambling products, without gambling being the primary aim of the game. However, there are concerns that being exposed to such features from a young age might normalise gambling. One parent expressed concern that the game *Bricky Farm*, which is rated suitable for children, contains a gambling-like feature. He told us:

Most worrying for me is a roulette style wheel mini-game whereby differing amounts of gems can be won for further advancement. This is where the game could become addictive to someone with a susceptibility but more than that it is introducing children as young as 4 to the ‘thrill’ of gambling.<sup>133</sup>

70. The parent’s concern is supported by Dr David Zendle’s acknowledgment “that a really good predictor of problem gambling is the social acceptance and availability” of it.<sup>134</sup> Indeed, the Gambling Commission told us that the Advisory Board for Safer Gambling expressed concerns in response to the Online Harms White Paper about the associations between “gambling lite behaviours and children’s behaviours”.<sup>135</sup> Furthermore, Brad Enright from the Gambling Commission told us that even when games do not meet the regulatory threshold for gambling, but contain gambling-like features, the regulator does:

not think the current age ratings are in line with public expectation, so that should not be available for four-plus or even 12-plus.<sup>136</sup>

71. However, others have argued that there is not yet enough evidence on the psychosocial effects of gambling-like mechanics, particularly on children. We have been told by academics that:

This is largely because academic scientists do not have access to the proprietary industry data needed to provide an answer to this question. Scientific research needs to study which gaming mechanisms are the most problematic and needing of both monitoring and regulation.<sup>137</sup>

131 Royal College of Psychiatrists ([IMM0098](#))

132 Gambling Commission, “[Virtual currencies, eSports and social casino gaming – position paper](#)”, (March 2017), p 13

133 Scott Rooney ([IMM0129](#))

134 Q68

135 Q1569

136 Q1561

137 Professor Andrew Przybylski, Netta Weinstein, Pete Etchells and Amy Orben ([IMM0014](#))

Dr Mark Griffiths from Nottingham Trent University's International Gaming Research Unit recommended in written evidence that:

A scientific working group should be set up under the DCMS to collate the latest evidence relating to the effects of gambling-like gaming. This could then inform an evidence-based paper on gambling-like gaming in order to: (i) provide clarity regarding the evidence and the recommendations, (ii) be shared as a common guideline and practice by relevant UK organizations (i.e. UK Gambling Commission, UK Council for Child Internet Safety, Parent Zone, Childnet) that deal with support and advice provision towards parents and the community.<sup>138</sup>

**72. We believe that any gambling-related harms associated with gaming should be recognised under the online harms framework. To inform this work, the Department for Digital, Culture, Media and Sport should immediately establish a scientific working group to collate the latest evidence relating to the effects of gambling-like mechanics in games. The group should produce an evidence-based review of the effects of gambling-like game mechanics, including loot boxes and other emerging trends, to provide clarity and advice. This should be done within a timescale that enables it to inform the Government's forthcoming online harms legislation.**

### Loot boxes

73. One of the most prominent features in the debate about the potential links between game mechanics and gambling is loot boxes. Loot boxes are “items in video games that may be bought for real-world money, but which provide players with a randomised reward of uncertain value.”<sup>139</sup> Those rewards will be virtual items for use in the game, such as tools, outfits and weapons, or characters with particular skills, all of which will be of variable benefit within the game. They are a common form of microtransaction, with a 2018 Gambling Commission survey finding that 31% of 11–16 year olds have paid money or used in-game items to open loot boxes.<sup>140</sup> Although some games (including, notably, a version of *Fortnite*) reveal the contents of a loot box to the player before they decide whether to pay for it, usually the contents of loot boxes are unknown to the player at the point of purchase—what a player gets for their money is therefore based on chance.<sup>141</sup>

74. At the 2018 ‘4C International Game Developers Conference’ in Prague, Ben Lewis-Evans, a user experience researcher at Epic Games gave a presentation called ‘Reward Psychology—Throwing out the Neurotrash.’ In this he set out some of the reward mechanics behind devices like loot boxes in games such as *Fortnite*. He said that, “The reason these are famous is they are quite often the ratios used in gambling. The response they tend to get is a very constant and high level response and that’s because you don’t know how many times you have to respond before you get the reward, so people tend to keep it up.” He also added in his presentation that, “We do have to be careful about controlling people, but we do need to make sure that they feel in control”.<sup>142</sup>

138 International Gaming Research Unit, Nottingham Trent University ([IMM0003](#))

139 David Zendle, Rachel Meyer, Stuart Waters, Paul Cairns, “[The prevalence of loot boxes in mobile and desktop games](#)”, PsyArXiv. (19 May 2019), Web

140 Gambling Commission ([IMM0025](#))

141 We note that loot boxes vary considerably across games, for example some are not purchased for money but obtained through game-play. For the purposes of this discussion, however, we are referring to loot boxes that can be brought with real-world money and do not make the contents clear to the player before purchase.

142 “[Reward Psychology—Throwing out the Neurotrash / Ben Lewis-Evans, UX Researcher, Epic Games](#),” YouTube, published 13 February 2018, accessed 2 September 2019

75. Much of the evidence that we received from gamers critiqued the loot box mechanics in Electronic Arts's *FIFA* series. In the game's 'Ultimate Team' mode, players build their own football team by buying virtual 'packs' containing a randomised selection of footballers. To purchase these packs, players use 'coins' that are earned in the game and 'points' purchased for real-world money. In 2016, EA's CFO Blake Jorgensen told investors that the Ultimate Team mode accounted for roughly half of the \$1.3 billion the company makes from extra digital content—that is equivalent to \$650 million in annual revenue, in addition to that generated by units sales of the full games.<sup>143</sup>

76. Electronic Arts releases a new game in the *FIFA* series every year. However, with each new release, players' teams are not transferred over and therefore they must rebuild their teams by purchasing more packs to acquire the best players. One gamer told us that this cycle resulted in them spending "almost £800 to £1000 a year annually on *FIFA*".<sup>144</sup> Another gamer told us that because a pack's contents "directly affects gameplay because some players are not as good as others", it incentivises people to keep buying packs in the hope of getting better players and, therefore, performing better in the game. They told us that:

in order to compete, players feel like they need to buy hundreds, if not thousands, of £s worth of packs in order to get the best players. Children are especially vulnerable because they lack the maturity to understand that these purchases are manipulative, and their parents may not understand that these purchases are entirely unnecessary.<sup>145</sup>

77. Moreover, because the probability of securing some footballers in a pack is less than 1%, some gamers have expressed frustration at spending vast amounts without receiving the desired reward.<sup>146</sup> To tackle the issue of speculative spending on loot boxes, one player recommended that:

the sale of items in game, cosmetic or otherwise, should only be allowed via direct purchase or via achievements unlocked through in game actions. In a loot box type system the player, typically, has a very small chance of unlocking the item they actually want. This encourages further spending on loot boxes in order to get the item they want.<sup>147</sup>

78. We put some of these concerns to Kerry Hopkins from Electronic Arts, who responded that the way they have implemented this mechanic in *FIFA* "is quite ethical and quite fun".<sup>148</sup> Yet this is noticeably out of step with the attitude of many of the gamers who contacted us following our evidence session, including those who vehemently rejected her characterisation of packs not as loot boxes but as "surprise mechanics".<sup>149</sup> One gamer called the company's testimony to us "a bare face lie", and another told us that the company has:

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143 ["EA's Ultimate Team earning around \\$650 million a year"](#), Gamesindustry.biz, 2 March 2016

144 Lathan Boyle (IMM0087)

145 Cameron Graham (IMM0058)

146 James Handford (IMM0090)

147 Dave Gannon (IMM0044)

148 Q1142

149 Q1142

heavily marketed and referred to their systems as ‘loot boxes’ for several years and [...] the mechanics of the system are exactly the same no matter what they choose to call it.<sup>150</sup>

**79. We recommend that loot boxes that contain the element of chance should not be sold to children playing games, and instead in-game credits should be earned through rewards won through playing the games. In the absence of research which proves that no harm is being done by exposing children to gambling through the purchasing of loot boxes then we believe the precautionary principle should apply and they are not permitted in games played by children until the evidence proves otherwise.**

### *Potential harms of loot boxes*

80. We have heard concerns about the “structural and psychological similarities” between loot boxes and gambling.<sup>151</sup> Dr Aaron Drummond and Dr James Sauer told us in written evidence that the random delivery of loot box rewards is akin to conventional gambling products and:

designed to exploit potent psychological mechanisms associated with the development and maintenance of gambling-like behaviours.<sup>152</sup>

81. Dr Drummond and Dr Sauer argue that “it is plausible that engaging with these loot box systems could have short-term consequences (e.g., over-spending on accessing loot box systems) and longer-term consequences (e.g., facilitating migration to more conventional forms of gambling)”.<sup>153</sup> However, academics broadly acknowledge that there is not yet enough evidence to reliably conclude that loot boxes cause problem gambling.<sup>154</sup> This was echoed by the then Minister’s observation to us that:

If evidence does emerge that loot boxes can be a gateway to problem gambling, then we need to take that seriously and we need to take some action. But the evidence is not there yet. There are not many studies.<sup>155</sup>

Yet, even if there is not enough evidence at this stage to establish a causal link between loot boxes and problem gambling, other research suggests that they may still be causing harm.

82. A study by Dr David Zendle and Dr Paul Cairns identified a link between the amount that gamers spend on loot boxes and their score on the Problem Gambling Severity Index (PGSI). Moreover, the large-scale study of more than 7,000 gamers suggested “that the gambling-like features of loot boxes are specifically responsible for the observed relationship between problem gambling and spending on loot boxes” as other forms of microtransaction did not display such a strong link.<sup>156</sup> A further study found the same link among adolescents—in fact, the link between loot box spending and problem gambling among adolescents was more than twice as strong as the relationship observed in adults.<sup>157</sup>

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150 Alexis Somerville ([IMM0130](#)), Andrew Stormont ([IMM0132](#))

151 Dr Aaron Drummond and Dr James D. Sauer ([IMM0005](#))

152 Dr Aaron Drummond and Dr James D. Sauer ([IMM0005](#))

153 Dr Aaron Drummond and Dr James D. Sauer ([IMM0005](#))

154 Q68

155 [Q1518](#)

156 David Zendle and Paul Cairns, [Video game loot boxes are linked to problem gambling: Results of a large-scale survey](#), PLoS ONE, vol. 13.11, (21 November 2018)

157 Dr David Zendle and Dr Paul Cairns ([IMM0019](#))

83. Dr Zendle told us in oral evidence that although his studies have not identified a causal link between loot boxes and problem gambling:

Something very different might be happening here where people who are already problem gamblers, people who already have a disordered and excessive relationship with gambling-related activities that may to some extent be beyond their control, are now going into their favourite games and saying, “Oh look, it is something that looks an awful lot like this thing I have a disordered and excessive relationship with”. That is why they are spending more money on loot boxes. It is not that it is a gateway; it is that it is a way that video games companies may, accidentally or incidentally, be profiting from problem gambling among their consumers.<sup>158</sup>

84. Dr Zendle and Dr Cairns, among others, therefore make the case for enhanced regulation of loot boxes, such as ensuring games containing loot boxes carry parental advisories or descriptors outlining that they feature gambling content, and propose that “serious consideration is given to restricting games with loot boxes to players of legal gambling age”.<sup>159</sup> Brad Enright told us that these “seemed like very sensible recommendations” which “the video games industry should probably take stock of.”<sup>160</sup>

85. Games regulated under the PEGI system can feature content labels alerting users to the fact they contain in-game purchases. However, there is no specific content descriptor for loot boxes, despite Dr Zendle telling us that “they are formally very different to other microtransactions”.<sup>161</sup> Moreover, PEGI has a content label alerting users to the fact a game contains actual, or simulated, gambling; however, again, this does not apply to games with loot boxes. The reason for this has been stated by a PEGI representative who said:

The main reason for this is that we cannot define what constitutes gambling. That is the responsibility of a national gambling commission. [...] If a gambling commission would state that loot boxes are a form of gambling, then we would have to adjust our criteria to that.<sup>162</sup>

Yet Dr Mark Griffiths argues that PEGI’s position appears to be:

somewhat hard line given that PEGI’s descriptor of gambling content is used whenever any videogame “teaches or encourages” gambling. Such a descriptor would arguably cover gambling-like games or activities and the buying of loot boxes is ‘gambling-like’ at the very least.<sup>163</sup>

**86. Loot box mechanics are integral to major games companies’ revenues and evidence that they facilitate profiting from problem gamblers should be of serious concern to the industry. We recommend that working through the PEGI Council and all other relevant channels, the UK Government advises PEGI to apply the existing ‘gambling’ content labelling, and corresponding age limits, to games containing loot boxes that can be purchased for real-world money and do not reveal their contents before purchase.**

158 Q68

159 Dr David Zendle and Dr Paul Cairns ([IMM0019](#))

160 Q1562

161 Q79

162 “[PEGI on Loot Boxes: We Can’t Define What’s Gambling, Only A Gambling Commission Can](#)”, WCCFTech, 12 October 2017

163 International Gaming Research Unit, Nottingham Trent University ([IMM0003](#))

### *The regulatory framework for loot boxes*

87. At present, the Gambling Commission states that purchasing loot boxes does not meet the regulatory definition of licensable gambling under the Gambling Act 2005 because the in-game items have no real-world monetary value outside the games.<sup>164</sup> That position is despite the fact the regulator acknowledges that:

The payment of a stake (key) for the opportunity to win a prize (in-game items) determined (or presented as determined) at random bears a close resemblance to the playing of a game of chance. The playing of a game of chance for a prize of money/money's worth is gambling under UK law.<sup>165</sup>

88. We have been told that the regulator's position centres on the definition of 'money's worth'. Neil McArthur told us:

There is quite a lot of case law around what money or money's worth means, the difference between how you would assess value, the fact that value needs to be objectively assessed rather than in the eye of the beholder, so it is quite a complicated area.<sup>166</sup>

However, this is arguably out-of-step with the digital economies in the games industry. Indeed, Brad Enright acknowledged that the definition of 'money's worth' is an area where the Gambling Commission is "constrained [...] by the current legislation." He told us that that a broader definition of value:

would need a change in legislation, but also in doing that you would have to be very careful not to catch lots of other activities, which may also incorporate expenditure, chance and a prize of value or worth to the player.<sup>167</sup>

89. The existing legislative framework has been critiqued by Dr Aaron Drummond and Dr James Sauer, who argue that real-world monetary value is too narrow a definition of value when it comes to loot boxes:

It ignores the subjective value created for players from the combination of scarcity of, and competitive advantage provided by, in-game items in the gaming environment. These in-game rewards can have value for players—and influence players' behaviour (i.e., motivate them to engage with loot box mechanisms)—without being converted into real currency. Perhaps more importantly, it ignores the fact that players are demonstrably willing to pay real money for the chance to acquire these items; implying they have a monetary value even in the absence of the ability to convert them back in to currency.<sup>168</sup>

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164 Gambling Commission, [Loot boxes within video games](#), (24 November 2017), accessed 18 February 2019

165 Gambling Commission ([IMM0025](#))

166 Q1557

167 Q1556

168 Dr Aaron Drummond and Dr James D Sauer ([IMM0005](#))

90. It is also widely acknowledged that the virtual contents of many loot boxes can be ‘cashed out’ for real-world monetary value—a process known as ‘real-world trading’, which brings them closer in line with the legal definition of gambling.<sup>169</sup> The games industry has taken a hard line against the practice, which is usually prohibited within a game’s terms and conditions. Kerry Hopkins told us that Electronic Arts has “24/7 security staff monitoring activity to be sure that people are not engaging in this type of behaviour”, and yet still bans thousands of people a year for violating its rules prohibiting people from selling in-game items outside the game.<sup>170</sup>

91. The prevalence of real-world trading suggests the industry does not have as secure a hold on it as it might argue, and Dr Mark Griffiths told us that the Gambling Commission’s position “appears to be a case of the law struggling to keep pace with technology.”<sup>171</sup> Indeed, the Gambling Commission’s written evidence states that the problem is more widespread than the industry acknowledges:

Based on open source research, the volume, variety and sophistication of websites advertising opportunities to exchange in-game items for cash, indicates that to term such circumvention of regulation as ‘occasional’ understates the extent of this issue for certain games.<sup>172</sup>

It goes on to conclude:

We are concerned that there are large video game companies who are failing to proactively enforce their own platform’s terms of use to prevent in-game items being readily exchanged for cash. Whilst technical challenges may exist, such companies should have the resource and creative talent to develop solutions and we consider they have a responsibility given these problems have arisen from the platform and eco-system for games that they have created in pursuit of commercial objectives.<sup>173</sup>

In particular, Brad Enright cited US-company Valve’s *Counter-Strike: Global Offensive* as an example of a company failing to proactively enforce real-world trading.<sup>174</sup> He also told us that research here and in North America suggests “that understanding of gambling law is pretty poor in the video games industry” and called for the industry to do more to tackle the problem, stating:

We think that they have the creativity and the talent to come up with solutions that would make that far more proactive, so that individual gambling commissions around the world are not dealing with this issue one by one.<sup>175</sup>

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169 Gambling Commission ([IMM0025](#))

170 [Qq1155, 1070–72](#)

171 International Gaming Research Unit, Nottingham Trent University ([IMM0003](#))

172 Gambling Commission ([IMM0025](#))

173 Gambling Commission ([IMM0025](#))

174 Q1575

175 Qq1557, 1558

### Regulatory framework in other countries

92. Other countries have taken different regulatory approaches to loot boxes, which we believe the UK could learn from. For example, Belgium’s Gaming Commission concluded that loot boxes constituted “games of chance” subject to the country’s gambling laws. Brad Enright told us that this was because “Belgian gambling legislation has a broader definition of ‘prize’”, which “has allowed the authorities to threaten legal action against some of the larger operators”.<sup>176</sup> The Netherlands Gambling Authority also recently concluded that some loot boxes it studied—including in *FIFA 18*—contravened the country’s Betting and Gaming Act. We were told by the Gambling Commission that the Netherlands’s “view is pretty much the same as ours”, as the contravention arises from the fact players can exchange in-game items obtained through loot boxes for real-world money.<sup>177</sup>

93. The experiences of other regulators also indicates what could happen if loot boxes were determined to be gambling under UK law. We heard that if legislation was changed, any games company using loot boxes would need to obtain an operating licence, which are accompanied by a range of regulations around transparency, duty of care and age restrictions.<sup>178</sup> Yet, the way in which games companies have withdrawn mechanics in response to the ruling in Belgium suggests that:

In reality, it would withdraw all the mechanics. It presumably would not want to be subject to all the rules and regulations.<sup>179</sup>

94. In China, games that feature loot boxes are legally required to state the odds of obtaining each item. However, Brad Enright was clear that even if companies voluntarily introduce transparency in this way, if loot boxes were still legally defined as gambling, “that is not a substitute for a licence” or all the conditions they impose.<sup>180</sup>

### Skin betting

95. There are other ways in which games have become linked to betting. For example, ‘skin betting’ or ‘skin gambling’ is the use of virtual items acquired in a game as a method of payment for a stake in external, unlicensed gambling.<sup>181</sup> A recent Gambling Commission survey found that 3% of 11–16 year olds had bet with in-game items on websites outside of video games or privately.<sup>182</sup> Since 2015, the Gambling Commission has investigated a number of websites that provide facilities for this form of unlicensed gambling, including to children. That included bringing a criminal prosecution against the operators and advertisers of a website called FutGalaxy.

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176 Q1570

177 Q1570

178 Q1578 ff.

179 Q1581

180 Q1579

181 ‘Skins’ is a term for cosmetic enhancements, such as outfits for a player’s character to wear, in a game; however, a range of virtual items, including virtual currencies, may be used for unlicensed gambling in this way.

182 Gambling Commission ([IMM0025](#))

96. The Gambling Commission argues that the games industry has a role to play in preventing such third-party activities. Its written evidence states:

The significant risk of harm posed by these unregulated gambling websites, whilst unintended, is nonetheless a by-product of the manner in which games have been developed and in-game economies incorporated for commercial benefit. Despite there being no evidence of any direct commercial relationship between games publishers and the illegal gambling facilities, it is reasonable to infer that there is an indirect benefit derived from these activities given they drive engagement with the game and it is the games publishers who are the ultimate source of in-game items acting as a de-facto central bank.<sup>183</sup>

In oral evidence, Neil McArthur told us that games platforms and manufacturers need to be proactive and “make it as difficult as possible for people to create parasitic offerings based on their game platform that encourage people into gambling.”<sup>184</sup>

**97. We agree with the Gambling Commission that games companies should be doing more to prevent in-game items from being traded for real-world money, or being used in unlicensed gambling. These uses are a direct result of how games are designed and monetised, and their prevalence undermines the argument that loot boxes are not a form of gambling. Moreover, we believe that the existing concept of ‘money’s worth’ in the context of gambling legislation does not adequately reflect people’s real-world experiences of spending in games.**

**98. We consider loot boxes that can be bought with real-world money and do not reveal their contents in advance to be games of chance played for money’s worth. *The Government should bring forward regulations under section 6 of the Gambling Act 2005 in the next parliamentary session to specify that loot boxes are a game of chance. If it determines not to regulate loot boxes under the Act at this time, the Government should produce a paper clearly stating the reasons why it does not consider loot boxes paid for with real-world currency to be a game of chance played for money’s worth.***

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183 Gambling Commission ([IMM0025](#))

184 Q1566

## 4 The role of data, design and business models

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99. The data practices, design strategies and monetisation models employed by companies play a significant role in exacerbating the potential harms that we have outlined. Colin Anderson from games company Earthbound Games recognised that a fundamental issue across digital media is that the business model “incentivises businesses to capture the maximum amount of attention”.<sup>185</sup> He went on to say:

If there is a direct relationship between the amount of time that people spend in an application, be that a game or something else, and the rate at which they will monetise, then you do not have to be Adam Smith to figure out that that is going to incentivise behaviour within companies to create products that do that sort of thing.<sup>186</sup>

Likewise, the Information Commissioner’s Office observes that business models in the technology industries have:

led to the situation where keeping users ‘hooked’ on a given website underpins the entire business model of a great many technology companies, even when that process creates or fosters the harmful outcomes.<sup>187</sup>

100. In the digital economy, data, design and monetisation are inextricably tied. The 5Rights Foundation observed in written evidence that the design strategies of online platforms “are based on the science of persuasive and behavioural design, and nudge users to prolong their engagement or harvest more of their data.”<sup>188</sup> UK Research and Innovation’s written evidence outlines the interplay of data, design and business models in the gaming industry specifically, stating:

The introduction of internet-connected games has significantly improved the design and gameplay of games. Developers can better understand their users and their behaviour when playing a game. However, it also allows designers to build better compulsion loops into their games to make them more addictive. If a publisher is working on a freemium model, then it directly benefits them to try and keep the player on the platform for as long as possible.<sup>189</sup> They can also use user data to maximise and target in-game purchases, or vary gameplay to correspond to the likelihood of a consumer making a purchase. The issue is compounded if the user is playing on a mobile device, which can provide notifications that give the company more opportunities to pull the user back into a game.<sup>190</sup>

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185 Q799

186 Q799

187 The Information Commissioner’s Office ([IMM0095](#))

188 5Rights Foundation ([IMM0126](#))

189 ‘Freemium’ refers to a business model where initial or basic access is provided free of charge, but additional features are paid for.

190 UK Research and Innovation ([IMM0079](#))

## Collection and use of user data

101. Immersive technologies create and rely upon large volumes of user data, some of which will be highly particular to how the technology operates. For example, the Department’s written evidence describes how virtual reality devices can track eye movements and may also record “a person’s location and physical movements”.<sup>191</sup> The Information Commissioner, Elizabeth Denham, described her organisation’s work on the rapidly evolving ways in which immersive technologies collect data as “an arms race” and said that:

We have been pulled into the modern world, but only recently, and we have to work really hard to stay up on these issues.<sup>192</sup>

She also told us that the online games industry specifically “has some maturation to do in understanding what their obligations are in data protection law.”<sup>193</sup>

### Gaming telemetry

102. Internet-connected games enable companies to gather huge amounts of data on how players interact with, experience and behave in their products. This might include how long people play for, when they lose interest and when they spend money in the game.<sup>194</sup> The remote collection of data by games companies, for the purpose of conducting analytics, is known as ‘telemetry’.

### Use in game design

103. Games companies told us that data on how people behave in their games helps to refine their design and performance to improve the user experience. Kerry Hopkins explained that Electronic Arts “collects information on how features are used, how often they are used and whether users are facing frustration in the features.”<sup>195</sup> For example, in EA’s game *Battlefield*:

People go to different maps of the game to play, and we had one map where folks just kept failing in the game. We were able to use the data we collected from the game to visualise what was happening. We found that a lot of people kept going down this one road in the map, clogging it up and failing. Through that data, we were able to say, “Let’s change the look of that. Let’s add some trees to this road. Let’s make some changes so that we don’t have thousands of players going down this road and failing at this mode.”<sup>196</sup>

Similarly, King’s Alex Dale explained that they use information about how people are playing games such as *Candy Crush Saga*, “to make them fun and challenging in the right mix”.<sup>197</sup>

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191 Department for Digital, Culture, Media and Sport ([IMM0038](#))

192 Q1490

193 Q1464

194 Q757

195 Q1058

196 Q1058

197 Q1265

104. Moreover, despite concerns around gaming disorder, some parts of the games industry use data collected about players to modify their experience and keep them playing for longer. Alex Dale told us that King does not use player data to change the experience for individual users—a practice known as ‘dynamic difficulty adjustment’—however, other companies do. For example, Electronic Arts has patented systems that mean “the difficulty level of the video game may be automatically adjusted” to “keep a user engaged for a longer period of time.”<sup>198</sup>

105. Other ways that games companies use data to shape the in-game experience include online multiplayer ‘matchmaking’—the process of connecting players to compete against each other in a player-versus-player online game. For example, if someone is identified of being at risk of quitting a game, an algorithm might pair them with a less-skilled player to boost their confidence and keep them playing, or match them with another player whose in-game resources will incentivise their opponent to buy a microtransaction.<sup>199</sup> In written evidence, Dr Stephen Kaar and Dr Sachin Shah told us that it is:

critical that games companies behave in a responsible and transparent manner and are discouraged from exploiting information asymmetry i.e. using knowledge of a person’s personal or financial information or in-game habits and items to manipulate the player’s in-game experience to encourage spending, without the player’s prior knowledge. This issue has been raised in particular with matchmaking algorithms within certain on-line sports games, however the prevalence and effectiveness of such elements is not known.<sup>200</sup>

### *Use in marketing*

106. The data that companies collect on players is also used to market to them. Neil McClarty from Jagex explained that the company uses game data to target players who may not have played for a while:

It may be that for someone who has not paid or played before, we may make them an offer if they wish to engage and make a payment, but no different to something where we would also prompt them by saying, “Try a piece of content” that they have not done in the past. We use our data responsibly but, of course, what we are ultimately trying to do is make them, like any medium, play and engage with the content.<sup>201</sup>

He also told us that it is “standard” for games companies to categorise players into “cohorts” for the purposes of design and marketing:

One of the key founding principles of game design is that you are almost creating for a particular type of player. We have cohorts of four or five archetypes, basically, of players in our minds when we are designing for games. It could be someone who loves quests or someone who is a bit of a free-for-all, they like to do everything, or it could be someone who is a bit of a social butterfly, who basically does not really engage in the game content but is very much chatting and online and talking to people and so on.<sup>202</sup>

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198 Google Patents, “[Dynamic difficulty adjustment](#)”, accessed 11 July 2019

199 Gergely Cziraki ([IMM0138](#))

200 Gaming the Mind ([IMM0099](#))

201 Q481

202 Q569

He acknowledged that “you could cut the player base into genuinely hundreds of different, small cohorts based on their geolocation, their length of play,” and other characteristics.<sup>203</sup> The company then targets its marketing messages at those cohorts, “so that we are engaging the right group of individuals with the right piece of content.”<sup>204</sup>

107. At King, gaming telemetry is combined with other sources of behavioural insight in the design and marketing of its games. Alex Dale told us that the company has about 50 or 60 data scientists analysing behavioural data on players, including phone and email surveys.<sup>205</sup> The company told us that this work is to help “the designers imagine who they are building a game for”.<sup>206</sup> However, as we have found through our work on companies such as Cambridge Analytica, the real value of such surveys is when they are combined with data on people’s online behaviours to gain psychological insights about them. Therefore, it would make sense for King to be combining that survey data with gameplay data. We asked whether the survey responses could be linked back to individual players, producing research on someone’s gaming habits alongside insights about them as a person, Alex Dale responded: “Yes, we can do that and we would do that for gaming habits in particular.”<sup>207</sup> However, Adam Mitton later stated: “If you mean doing that on an individualised basis, I do not think we do that”<sup>208</sup> and in supplementary written evidence King stated: “There is never any linking from an individual’s survey results to an individual’s gameplay.”<sup>209</sup>

### *Identifying normal and harmful patterns of play*

108. Despite the vast amounts of granular data being collected, many of the companies we spoke to were not able to answer questions on average levels of engagement with their games. This frustrated our attempts to understand fully what normal and healthy engagement with games looks like, and to determine whether the experiences of people like James Good and Matus Mikuš are indeed the exception or are in fact more prevalent than the industry acknowledges.

109. Epic Games’s director of marketing was unable to give us any detail on what would be considered normal engagement for a “frequent player” of *Fortnite*.<sup>210</sup> This is despite the company gathering data on how long people play for, which it told us it makes available to players, or their parents, through a “weekly play usage report”.<sup>211</sup> EA’s Kerry Hopkins was unable to answer our question on length of play within *FIFA*, claiming “we don’t actually record play time.”<sup>212</sup> Again, as the company told us it does record how long a player is connected to the game, and telemetry from in-game behaviour over that period could give an indication of play, we reject the assertion that the company does not know how long its users play for.

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203 Q570  
 204 Q572  
 205 Q1347  
 206 Q1355  
 207 Q1354  
 208 Q1358  
 209 King ([IMM0146](#))  
 210 Qq1046, Q1117  
 211 Q1117  
 212 Q1057

110. **Data on how long people play games for is essential to understand what normal and healthy—and, conversely, abnormal and potentially unhealthy—engagement with gaming looks like. Games companies collect this information for their own marketing and design purposes; however, in evidence to us, representatives from the games industry were wilfully obtuse in answering our questions about typical patterns of play.**

### ***Data sharing and integration between games and social media***

111. Most social media platforms provide a feature to allow users to login to other online services, including games, using their social media account. For the user, this delivers convenience, with one less set of login credentials to remember. It can also enhance gameplay, by enabling a player to compare their score to those of their friends.<sup>213</sup> For the social media platform and the provider of the other online service, it enables a free flow data exchange between both parties. By implementing a Facebook login, developers can access a range of data points on a Facebook user, and the principle of data reciprocity means those companies will also supply data back to Facebook in exchange.

112. All of the games companies we took evidence from allow people to login with their Facebook accounts, but again it proved difficult to get clear and upfront information about what data is shared between platforms.<sup>214</sup> However, we do know that some games feature enhanced integration, such as the ability to play *Candy Crush* directly through the Facebook site, which in turn gives Facebook information about any spending behaviours.<sup>215</sup>

### ***Effective age verification***

113. The General Data Protection Regulation (GDPR) applies specific protections to children’s personal data and introduced new requirements for the online processing of it. Despite all companies that offer online services to individuals in the EU being subject to these laws, the evidence we received highlighted challenges with age verification and suggested that some companies are not enforcing age restrictions effectively.

114. There was consensus among the social media and games companies we spoke to that they are unable to operate robust systems to verify a user’s age. Snapchat’s Stephen Collins told us, “there is no foolproof verification system”, and Instagram’s Vishal Shah admitted “that a young person can get around” the registration systems the platform has in place to attempt to restrict use to those aged 13 or over.<sup>216</sup> We challenged Instagram on why the platform did not ensure these systems were adequate before rolling out their products globally, to which Shah responded:

I would not characterise that as reactive versus proactive but more that in general when we let people sign up for Instagram we are trying to collect as little information upfront from them as possible.<sup>217</sup>

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213 Q1373

214 See Appendix 2 for categories of data that may be shared between Facebook and applications that use the login tool.

215 Q1381

216 Qq263, 965

217 Q1008

115. The games companies Electronic Arts and Epic Games similarly expressed a tension between operating robust age verification, for example by requesting hard identifiers of age, and adhering to the principle of data minimisation, where the least amount of personal data is collected from a user as possible.<sup>218</sup> Canon Pence from Epic Games explained that the company does not request a date of birth from people signing up directly to play *Fortnite: Battle Royale* through the company's website because:

At a high level, it is our view that we intend to collect the minimal amount. We don't believe, in terms of servicing Epic accounts, that we need age in order to deliver what has been requested by the account holder.<sup>219</sup>

When we asked whether the company considers it necessary to comply with data laws by understanding the age of the people who play *Fortnite*, Pence replied: "We don't."<sup>220</sup>

116. Deputy Information Commissioner Steve Wood acknowledged some of these tensions and said the ICO "would be concerned if there was wide-spread age verification collecting hard identifiers from people, like scans of passports."<sup>221</sup> However, he pointed to more sophisticated technological solutions, such as age estimation, which uses "algorithms running behind the scenes using different types of data linked to the self-declaration of the age to work out whether this person is the age they say they are when they are on the platform."<sup>222</sup> Will Scougal from Snapchat told us that the platform is able to monitor user signals to ensure users are the appropriate age:

For example, it might be flagged that someone is connected to people who behave in a certain way, look at certain content and are in certain locations, which might infer that they are of a certain age. That would put them into a group of people who, for example, would not receive advertising at any point. It would put them into a group of people who would be flagged as potentially underage.<sup>223</sup>

117. There are consequences of the lack of effective age verification in the light of the potential harms we outlined in Chapter 2. For example, identity verification platform Yoti told us in written evidence that:

At present, companies such as Snap are not ensuring that very young people with smartphones are not exposed to inappropriate material, or grooming.<sup>224</sup>

Brad Enright also cited age verification in gaming and social media as one of the real divides between those industries and the gambling sector, which he described as "a sector that does this, has always done this and more recently is moving with technology to make it a slicker process." He told us:

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218 Q1103  
 219 Q1101  
 220 Q1102  
 221 Q1477  
 222 Q1477  
 223 Q328  
 224 Yoti ([IMM0107](#))

That just seems like such a major flaw in so many different things that this Committee and the Government are seeking to do in terms of online harms. That is the elephant in the room, that if you cannot verify that someone is or is not 18, you are relying on a tick box, how are you ever going to have robust controls?<sup>225</sup>

**118. It is of serious concern that there is simply no effective system in place to keep children off age-restricted platforms and games. The reactive way in which platforms are dealing with this problem further highlights the problems of online industries rolling out products without considering, or mitigating against, their potential adverse effects on users.**

## Design mechanics

119. Many games, as well as social media platforms, are explicitly designed with the aim of maximising what the industry terms “engagement”, but which, as Tristan Harris outlined, translates as time or money spent.<sup>226</sup> He told us that the reality of digital platforms is that:

behind the screen are 100 engineers who know a lot more about how your mind works than you do. They play all these different tricks every single day and update those tricks to keep people hooked.<sup>227</sup>

As there is a lack of evidence on the full effects of all design features, we have also heard the recommendation that:

The potentially addictive mechanics employed by some game and platform developers should be indexed and regulated by a governmental body or through some form of transparent scientific collaboration.<sup>228</sup>

120. The drive to make a compelling product that people want to keep playing is inherent to the creative process, as Tony Gowland of Edinburgh-based games company Ant Workshop told us:

You want people to love what you are making and I do not think there is anything inherently dirty or wrong about that. It is an artistic drive.<sup>229</sup>

Yet we believe that given the concerns of people who feel that they have lost control over how much time or money they spend on gaming, there may be a case for balancing that artistic and commercial ambition with a greater sense of duty of care in the way products are designed.

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225 Q1599

226 Oral evidence taken on 22 May 2018, HC (2017–19) 363, [Q3167](#)

227 Oral evidence taken on 22 May 2018, HC (2017–19) 363, [Q3147](#)

228 Professor Andrew Przybylski, Netta Weinstein, Pete Etchells and Amy Orben ([IMM0014](#))

229 Q785

### Random rewards

121. Evidence demonstrates how some games, as well as social media platforms, use psychologically powerful design principles similar to those used in the gambling industry. Dr Mark Griffiths’s written evidence highlights how the structural characteristics of video games—the features that induce someone to start or keep playing—resemble those employed to keep people using gambling products, such as “high event frequencies, near misses, variable ratio reinforcement schedules, and use of light, colour, and sound effects.”<sup>230</sup> Match-three puzzle games such as King’s *Candy Crush Saga* demonstrate reward mechanics in action: for example, the game rewards players with incentives, such as pop-up motivational slogans or free ‘spins’ that offer another random chance to win ‘boosters’ to enhance game-play, at random intervals.

122. Similarly, design mechanics that encourage people to stay on, or return to, social media platforms include pop-up notifications delivered at random intervals; a lack of “stopping cues” to prevent people from reflecting on how long they have been using an application; and deliberately structuring menus or pages to nudge people into making choices that the platform favours.<sup>231</sup> Dr Jacob Johanssen told us in written evidence that:

Social media have highly addictive tendencies because of the kind of ‘withhold—reward’ dynamics that are immanent to them. They constantly suggest that by quickly checking, taking a brief look, refreshing the app, I may be rewarded: a new message, interesting news, a new friend request, etc.<sup>232</sup>

123. The randomised nature by which players are psychologically rewarded in their use of games and social media mimics the design of slot machines. Tristan Harris told us:

A slot machine handles addictive qualities by playing to a specific kind of pattern in a human mind. It offers a reward when a person pulls a lever. There is a delay, which is a variable—it might be quick or long. The reward might be big or small. It is the randomness that creates the addiction.<sup>233</sup>

This principle was established by B. F. Skinner in the mid-20th century, who found that “random rewards reinforcements are stronger at maintaining behaviours” than continuous reinforcements. In short, as psychology student Pritpal Kalsi told us:

Skinner confirmed that we are neurologically hardwired to pull that metaphorical lever of chance much more when there’s only a chance of reward rather than guarantee of reward.<sup>234</sup>

### Other design features in games

124. Although the evidence base is, again, limited, we have heard that certain types of games are particularly problematic for people with disordered use. Dr Daria Kuss told us, for example, that massively multiplayer online role-playing games:

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230 International Gaming Research Unit, Nottingham Trent University ([IMM0003](#))

231 Oral evidence taken on 22 May 2018, HC (2017–19) 363, [Qq3147, 3172](#)

232 Dr Jacob Johanssen ([IMM0122](#))

233 Oral evidence taken on 22 May 2018, HC (2017–19) 363, [Q3147](#)

234 Pritpal Kalsi ([IMM0108](#))

appear to have a higher addictive potential in comparison to other games, including offline games. Players spend increasing amounts of time playing those games, up to 48 hours without an end. Those games are extremely immersive. They give the player all sorts of rewards in terms of social rewards, recognition and achievement-related rewards that they may not be able to get in a real-life offline setting.<sup>235</sup>

One of the key features of massively multiplayer online games is that the in-game environment is a ‘persistent world’, with things going on even when a player is not interacting with it. The Royal College of Psychiatrists identifies that:

Multiplayer online games can make it difficult for people to stop gaming as the recent games developed ensure the game continues when the player stops playing. In so doing, the pull towards continuing long sessions of play is maximised.<sup>236</sup>

125. The principle of “dark game design patterns” offers another framework to understanding the ethics of how game mechanics are deployed. These are defined as game design patterns that are “used intentionally by a game creator to cause negative experiences for players which are against their best interests and likely to happen without their consent.”<sup>237</sup> For example, it is argued that requiring players to play at specific times or dates (referred to as “playing by appointment”) is a “temporal dark pattern” because:

players are forced to orient their real-world activities to meet the obligations of the game, rather than the other way around.<sup>238</sup>

This was echoed by Matus Mikuš who told us that the time-limited reward structures in games kept him playing even when he did not feel he wanted to:

Some games, modern games specifically, tend to create additional layers of rewards and progression on top of the actual game. That is where the trouble really begins because you have rewards just for logging in that day and rewards for completing a game. It gets the ball rolling and gets people spending time when they do not want to. I am guilty of this myself. The game *League of Legends* has a system where if you win a game that day you get some extra points to buy a new character. There were days when I would come home from my practice, it would be 11 at night and I did not want to play a game, I wanted to go to bed but I was like, “There is this reward. If I play just one game and win it I get these extra points.” I would lose that game but, “I need those points now, I will play another game”. Sometimes you would be three or four games into that final one, it would be 2 in the morning and I am sitting there, “I didn’t want to do this”.<sup>239</sup>

126. Representatives of the games industry have emphasised that in such a diverse entertainment market, players have choice over what and how long they play. Dr Jo Twist, CEO of Ukie, told us:

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235 Q57

236 Royal College of Psychiatrists ([IMM0098](#))

237 José P. Zagal, Staffan Björk, Chris Lewis, “[Dark Patterns in the Design of Games](#)”, Foundations of Digital Games Conference (14–17 May 2013)

238 Ibid

239 Q162

I have choice in what games I can play. It is the same as I have a choice of what documentaries or what Netflix series I want to watch. I want to do something that is enjoyable. As soon as it stops being interesting, I will go to something else.<sup>240</sup>

Dr Richard Wilson the chief executive of TIGA, another trade body representing the games industry, told us:

we have seen from evidence to this Committee that there clearly are some people who play games excessively. I was particularly struck by the two individuals who turned up who said they contacted Game Quitters. They were clearly playing games to excess and were addicted. I am also struck by the WHO's definition of gaming addiction, which is very tightly drawn. I think we have to recognise the WHO's decision on gaming disorder. It is important to recognise it because it has been drawn in a very reasonable and conservative way. I think we need to take steps as an industry, and obviously working with Government, to make sure we can minimise the potential for gaming disorder.<sup>241</sup>

**127. The games industry's emphasis on player choice does not acknowledge the way in which many games use random reward mechanisms that have been scientifically proven to create repetitive behaviours, and the effect that this might have on the meaningful exercise of choice. Moreover, the reluctance to discuss engagement metrics or to acknowledge the psychological impact of core design principles in evidence to us suggests that highly-skilled designers either do not know the data and psychological studies and strategies that underpin their industry or, what is more likely, do not feel comfortable admitting it in a public forum. For an industry generating such high revenues from so many millions of players worldwide, that lack of transparency is unacceptable.**

## The free-to-play games market

128. The desire to keep players engaged in games also stems from the business models in the industry. As we have already explored, there are different ways in which games make money, including the 'premium' model where players pay a clear upfront price for a game; a subscription-based model, where players pay on a monthly or annual basis to access games; and the 'freemium' model, where a game is essentially free-to-play, but contains the facility for players to make in-game purchases.<sup>242</sup>

129. These models are becoming increasingly blurred, with more features from the free-to-play market being seen alongside premium pricing models. For example, "avid gamer" Cameron Graham explained that premium games can also contain in-game monetisation:

The typical game released by large gaming companies such as Electronic Arts or Activision will have a purchase cost of around £50, however once the game is bought, these companies attempt (and largely succeed) to sell in-game purchases for extra money.<sup>243</sup>

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240 Q1406

241 Q1392

242 Anonymous ([IMM0002](#))

243 Cameron Graham ([IMM0058](#))

Such purchases may enable players to download extra content, or to purchase in-game items such as skins or loot boxes. James Good from Game Quitters told us that:

Every single game now seems to follow what is called a free-to-play model. In the past you would buy a game for £20 and get everything. Now you do not pay anything, you just download it and the only way you can progress is by buying loot boxes and downloadable content or DLC to buy new characters and maps. It does not seem like much but eventually you start paying dozens and dozens more pounds than you would have done if you just bought the game. Every single game now seems to be preying on this model that is really quite addictive.<sup>244</sup>

Colin Anderson of Earthbound Games likewise told us that “free-to-play is definitely where the market is trending towards”.<sup>245</sup>

130. The revenues generated by in-game monetisation demonstrate why it has become so popular. Dr Jo Twist told us that last year, 43% of revenue from games released in Europe came from in-game transactions.<sup>246</sup> In 2017, US company Activision Blizzard reported that it made more than \$4 billion, or more than half its annual income, from microtransactions in both paid-for console games, such as the *Call of Duty* series, and free-to-play games such as *Candy Crush*.<sup>247</sup> As Colin Anderson explained, it is not hard to understand why there is a trend towards higher monetisation in this business model:

There is no upper limit to what you can purchase, so you are essentially enabling people to spend what they like. You are taking the cap off, whereas on a premium title where there is a fixed price, one set price has been paid. There is then little or no additional revenue.<sup>248</sup>

131. Despite the revenues generated, only a minority of players make in-game purchases. King’s Alex Dale told us that in the free-to-play mobile games market between 3% and 5% of all players will pay.<sup>249</sup> Likewise, Outplay’s Senior Designer Keeley Bunting told us that in the games she works on:

less than 5% of our user base who choose to make purchases and even within them over the course of a month—and this is quite standard for the casual game genre—it may be less than \$1 on average for players, depending on how long somebody plays your game for.<sup>250</sup>

Mobile games are just one part of the diverse free-to-play market in which spending patterns can vary greatly based on the nature of a game and its user base. For example, the makers of the free-to-play game *RuneScape* told us that “only about 10%” of the company’s players spend on microtransactions, and that all players spend on average “about £50 or £60” annually.<sup>251</sup>

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244 [Q166](#)

245 [Q736](#)

246 [Q1438](#)

247 Activision Blizzard, Inc. “[Activision Blizzard announces fourth quarter and 2017 financial results](#)”, (8 February 2018), accessed 20 February 2019

248 [Q737](#)

249 [Q1257](#)

250 [Q737](#)

251 [Q434](#)

132. The figures we were told evidence the widely held principle that the vast majority of revenue in the free-to-play games market is being derived from a small number of high-spending players. For example, Jagex also told us that it makes one-third of its revenue from that 10% who spend on microtransactions.<sup>252</sup> The Gambling Commission acknowledges that this creates a situation of “extremes of behaviour at the margins accounting for a substantial proportion of revenues”.<sup>253</sup> The potential for such a model to exploit a minority of potentially vulnerable players should be of concern, but again the games companies we spoke to emphasised that spending comes down to player choice. King’s Alex Dale told us, for example, that:

The level of spend they want to make in the game is very much player driven.<sup>254</sup>

Yet this position further downplays the role that marketing behaviours and game design plays in influencing player behaviour and incentivising spending.

### ***How games incentivise spending in free-to-play***

#### ***Design***

133. There are a range of design features that incentivise spending. We were told that it is “very common” for games to use in-game currencies, such as gold bars, which players buy for real money and then use to buy additional in-game items.<sup>255</sup> UK Research and Innovation explains that:

The argument for this methodology is that the player can also generate in-game currency through gameplay. However, one of the consequences of this is that it loosens the connection to real-world currency, and makes it harder for the consumer to recognise how much money each asset is worth. This is particularly significant for children who may not fully understand the value of money, let alone money converted into in-game currency.<sup>256</sup>

For example, in *FIFA* players can make purchases using two in-game currencies: ‘coins’ that are earned in the game, and ‘points’ that are purchased for real-world money. However, the currencies have different conversion rates—for example, a gold pack of players might cost either 5,000 Coins or 100 FIFA Points—making it a challenge to work out what the real-world value is.

134. King’s Alex Dale rejected the idea that in-game currencies are used to disguise how much players are spending and instead said that they give players “good value”.<sup>257</sup> None the less, Dr David Zendle identified that it is yet another design mechanic borrowed from the gambling industry:

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252 Q451

253 Gambling Commission, [“Virtual currencies, eSports and social casino gaming – position paper”](#), (March 2017), p 14

254 Q1321

255 Q1340

256 UK Research and Innovation ([IMM0079](#))

257 Q1340

That is a very similar technology to financial access technologies in casinos, for instance, or forms of scrip, where the actual money you are spending disappears behind a middle currency.<sup>258</sup>

Furthermore, he argued that the similarities between game mechanics, including loot boxes, and practices in the gambling industry are too close to be coincidental. He told us:

I would be astonished if this was convergent evolution with no crossover from experts. I would find it very hard to believe that at some point someone has not consulted an expert on how to best monetise this random chance-based technology.<sup>259</sup>

## Marketing

135. Similarly, marketing plays a role in encouraging people to spend. Alex Dale told us that it can be difficult to predict if, or when, a player might spend in a free-to-play game:

It could happen in the first week, after a year, after five years. It is very unpredictable.<sup>260</sup>

However, when it comes to player acquisition, games companies are able to target advertising at people who are identified as being likely to spend. He also said:

Facebook and Google and our other partners will have identified devices that they believe are highly engaged gamers, although it is not certain because it is statistically based. Obviously those are people in the casual space that are of interest to us.<sup>261</sup>

136. Building on the concept of cohorts, marketing can also be directed at players who are identified as likely to spend. Professor Andrew Przybylski explained how a hypothetical games company might target someone in a high-spending cohort (referred to by some as ‘whales’—a term taken from the gambling industry to mean an above-average spender)<sup>262</sup> He told us:

They found that half of the revenue comes from 0.5% of players. You know what they do? They assign secretaries to manage the whales, so when you do not play for a little while the algorithm says, “Check in on this person” and then they have a human being e-mail and say, “You have not advanced to the next level”.<sup>263</sup>

## Advertising-funded social media

137. The business incentives to keep someone using a platform apply as strongly to social media as they do to games. As we explored in our previous inquiry on disinformation and ‘fake news’, social media companies’ business models are founded on serving data-driven advertising to their users. The Information Commissioner’s Office notes:

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258 Q83

259 Q89

260 Q1324

261 Q1325

262 Dr Charles Kriel, “Dictionary of Free-to-Play Game Design”, 2014, p 61

263 Q21

For better or worse, the advertising model of revenue is now firmly embedded in the technology industry. This model is heavily reliant on personal data as both fuel and engine. There is a strong financial incentive for websites and apps to keep an individual engaged as long as possible and to serve personalised adverts to that individual throughout.<sup>264</sup>

138. There is a clear link between time spent and monetisation potential on digital platforms. YouTube’s Marketing Director, Rich Waterworth, told us that “the amount of money made is not linked to the time that you spent watching something” and that “ads being served is not linked to time spent on the site”.<sup>265</sup> While this implies that there may be no direct causal link between the time someone spends viewing videos on YouTube and the platform serving adverts to them, it masks the underlying principle that the longer someone spends on YouTube, the more opportunities YouTube has to target them with an advert and make money in the process.

139. YouTube uses sophisticated algorithms and machine learning, combined with basic default user settings, to maximise the amount of time people spend watching videos on its platform. For example, it will monitor what a user is watching or searching for and combine that with machine learning to recommend videos it thinks the user will be interested in. This is then combined with a default auto-play function, which automatically queues up another video before the one you are currently watching has ended. The power of these systems to keep people viewing content is attested to by the fact, as we have already explored, that 70% of time spent on the platform is spent watching videos it recommends. Marco Pancini told us that a core design principle for YouTube’s parent company Google is “to make sure that technology is there when we need the technology, not to become a slave of technology”; however, it is unclear to us how this fits with a product that uses algorithms to determine how users spend the majority of their time.<sup>266</sup>

### *Usage monitoring tools*

140. In recent months, social media platforms have followed smartphone providers in introducing tools to help people to monitor or control their usage. For example, YouTube enables people to track how long they have spent watching videos on the site in the previous seven days, set an automatic reminder to alert them after a defined period of viewing and reduce the number of notifications they get.<sup>267</sup> Instagram’s Vishal Shah articulated that his platform’s similar wellbeing tools are intended to enable people to set their own limits for usage:

I do think there is a limit for how long people should be spending on the platform. I just do not think it is the same number for everybody, and I do think that having these controls gives people the tools to make those decisions for themselves.<sup>268</sup>

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264 The Information Commissioner’s Office ([IMM0095](#))

265 Q842 ff.

266 Q835

267 Q815

268 Q983

141. Such measures may result in decreased engagement. We heard that users who enable Android’s ‘Wind Down’ feature, setting a time period for sleep where they do not get notifications, have seen a 27% decrease in usage.<sup>269</sup> However, it could also be argued that these tools have been introduced by platforms without clear research into their efficacy or strategies for monitoring their effectiveness. YouTube was not able to tell us how many users have enabled its wellbeing features.<sup>270</sup> Vishal Shah said that as well as Instagram’s research into the tools being “anecdotal” the platform does not “have any specific goals against usage, nor do we have any specific numbers to share against them.”<sup>271</sup>

## Role of distribution platforms and app stores

142. Throughout the inquiry we have heard about the role that large games distributors or app stores play as gatekeepers to these technologies and services. For example, representatives from Epic Games and Electronic Arts told us that if their games are played through Sony’s PlayStation, for example, Sony’s systems are responsible for providing initial age verification and therefore ultimately “own the relationship with users.”<sup>272</sup> The digital storefronts may also offer device-level parental or spending controls, and are evidently trusted by consumers—one parent told us that a 4+ rating on Apple’s app store meant that “as a parent I should not have any cause for concern” about the game’s content.<sup>273</sup>

143. Such platforms are in a strong position to promote responsible design and distribution among the games and apps that they make available. For example, since late 2017, Apple’s developer guidelines for its app store has required that:

Apps offering “loot boxes” or other mechanisms that provide randomized virtual items for purchase must disclose the odds of receiving each type of item to customers prior to purchase.<sup>274</sup>

Likewise, Ian Rice from the Video Standards Council explained the leading console storefronts “mandate the use of PEGI ratings so you cannot upload a game to those storefronts if it has not been classified by PEGI.”<sup>275</sup>

144. Yet it is important to remember that these distribution platforms also benefit financially from the business models outlined earlier in this chapter, including by taking a cut of revenue from microtransactions. When Epic Games launched *Fortnite* for Android mobile devices, it chose to do so without using Android’s app store Google Play, and the company’s CEO admitted that this was to bypass the 30% cut that the app stores took from in-game revenue.<sup>276</sup> We also heard that analytics tools provided by the platforms themselves facilitate granular data collection to maximise engagement. Michael Veale from University College London told us that Google’s PlayerStats API:

will provide you with predictions for, “What is the probability this person is in the highest 95th percentile of spenders? What is the probability this person is going to spend on your app within 24 hours?” They buy an add-on or something within your app, “What is the likelihood this person is

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269 Q832

270 Q831

271 Q985

272 Q1174

273 Scott Rooney ([IMM0129](#))

274 Apple, [App Store Review Guidelines](#), accessed 16 July 2019

275 Q1410

276 Tom’s Guide, [Why Installing Fortnite on Android Will Be a Security Nightmare](#), (3 August 2018)

going to spend this amount over a longer period of time?” This is being provided as a service by platforms, which are the co-ordinating platforms, to individual companies designing apps to market on these platforms.<sup>277</sup>

**145. During this inquiry we have heard that online games and social media are both data-driven industries that use asymmetrical information and deliberate design practices to manipulate users into spending more time or money on their platforms. The argument that engagement is purely a user’s free choice is undermined by the amount of data collected about them and the use of that data alongside design features, such as random reward mechanics, that have been proven to have powerful psychological effects.**

***146. To provide clarity for policy-makers and the public, the Government should outline in its response to this report how it intends to support independent research into the application, extent and effect of design mechanics used in digital technologies to extend user engagement. Such research should then inform the development of a behavioural design code of practice for online services. This should be developed within an adequate timeframe to inform the future online harms regulator’s work around “designed addiction” and “excessive screen time”.***

## 5 Supporting responsible design and industry initiatives

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147. Given the rapid growth and market dominance of the attention-maximising business models we have outlined in this report, Earthbound Games’s Colin Anderson told us that “we, as a society, need to understand what we expect our digital interactive media to deliver, what that environment is that we are trying to create.”<sup>278</sup> This inquiry arises from the belief that we as legislators have a role to play in facilitating that public debate, setting those standards and getting ahead of the technology.

### Online Harms legislation

148. The Online Harms White Paper articulates the Government’s vision for a “new statutory duty of care to make companies take more responsibility for the safety of their users and tackle harm caused by content or activity on their services.”<sup>279</sup> It outlines the responsibilities that companies will have to address many of the challenges we have already outlined, including bullying, harassment and harmful content.

### User-generated content and interaction

149. The White Paper envisages that this new regulatory framework will apply “to companies that provide services or tools that allow, enable or facilitate users to share or discover user-generated content, or interact with each other online.”<sup>280</sup> When we asked how this would specifically apply to immersive technology companies, such as those developing games and virtual reality, the then Secretary of State, Rt Hon Jeremy Wright MP, responded that “when we are talking about the video games industry we are not talking about user-generated content.”<sup>281</sup> However, he stated that “there will doubtless come a time where users can indeed generate that kind of content.”<sup>282</sup> The evidence outlined in Chapter 2 demonstrates that this time has already arrived.

150. Not only do gaming platforms such as Roblox, popular among children, host user-generated games for others to play, but the chat features in internet-connected games and social VR are clear examples of services that allow people to interact online. Therefore, any immersive technology that facilitates player interaction will clearly come under the proposed regulatory framework, with the NSPCC stating that it “would consider gaming sites such as Twitch and Steam to be in the scope of any proposed social media regulator.”<sup>283</sup> The former Secretary of State acknowledged this when he said:

I see absolutely no reason why the same principles that we have set out in the White Paper should not apply to them too. We should be saying to platforms, “It remains your responsibility to keep your users as safe as you reasonably can from harms”.<sup>284</sup>

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278 Q805

279 HM Government, Online Harms White Paper, [CP 57](#), April 2019, p 7

280 HM Government, Online Harms White Paper, [CP 57](#), April 2019, p 49

281 Oral evidence taken on 8 May 2019, HC (2017–19) 361, [Q403](#)

282 Oral evidence taken on 8 May 2019, HC (2017–19) 361, [Q403](#)

283 NSPCC ([IMM0012](#))

284 Oral evidence taken on 8 May 2019, HC (2017–19) 361, [Q403](#)

Moreover, the then Minister for Digital and the Creative Industries articulated the broader responsibilities that companies have to mitigate against the potential impacts of their products:

It is not good enough just to create a game and wash their hands of the potential consequences. I must say [...] that that is certainly not the attitude of many of the gaming companies that cross my path, but there is a problem with some of them.<sup>285</sup>

### **Excessive screen-time**

151. A key area of contention around the Government’s forthcoming online harms legislation is likely to be how the regulator tackles “emerging challenges about designed addiction to some digital services and excessive screen time.”<sup>286</sup> As we have explored, evidence on what constitutes “excessive screen time” is highly contested and companies are extremely reluctant to acknowledge their role in designing what might be considered “addictive” properties in games.

152. The 5Rights Foundation told us that although Government has shown leadership in questioning the impact of digital technologies on individuals and society:

all stakeholders, including government have shown a reluctance to tackle the relationship between design and compulsion, compulsion and addiction, and—crucially—the business model that drives the design of service.<sup>287</sup>

Although the 5Rights Foundation states that “compulsion or addiction by design” are not explicitly listed as harms in scope of the Government’s proposed online harms regulatory regime,<sup>288</sup> the White Paper does identify “designed addiction” to be an emerging challenge that requires further research and that the regulator will need to consider. Moreover, the former Secretary of State told us that in his view:

we should be saying to the industry, “You have a responsibility to make sure you are not designing in a kind of addictive property to a game that should not be addictive”.<sup>289</sup>

153. This issue is also under consideration by the Information Commissioner’s Office in its development of the ‘age-appropriate design code’—a code of conduct for the design standards that providers of online services and apps used by children will be required to meet when they process their data. It will apply to any online services “likely to be accessed by children in the UK”, including games, social media and streaming services, and at its heart is the principle that “the best interests of the child should be a primary consideration” when designing and developing online services that will be used by them.<sup>290</sup>

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285 Q1535

286 HM Government, Online Harms White Paper, [CP 57](#), April 2019, p 6

287 5Rights Foundation ([IMM0126](#))

288 5Rights Foundation ([IMM0126](#))

289 Oral evidence taken on 8 May 2019, HC (2017–19) 361, [Q402](#)

290 Information Commissioner’s Office, [“Age Appropriate Design Code Consultation Document”](#) (15 April 2019). p 3,

154. The code states that technologies should not use “nudge techniques to lead or encourage children to [...] extend their use”, arguing that:

Using techniques based upon the exploitation of human psychological bias [...] goes against the ‘fairness’ and ‘transparency’ provisions of the GDPR as well as the child specific considerations set out in Recital 38. So does the use of reward loops or other techniques aimed at exploiting human susceptibility to reward seeking behaviours in order to keep users online. They may also run contrary to UNCRC right to be protected from economic exploitation.<sup>291</sup>

155. The Information Commissioner told us that the games industry:

is quite concerned about our code because it feels that it will undermine or impact the business model of those games through nudges and reward loops and the way that those techniques are built into games.<sup>292</sup>

However, Dr Richard Wilson from trade body TIGA explained what games companies might do in practice to demonstrate that they proactively prioritise user wellbeing:

game developers might want to consider ways to minimise the amount of time people were spending on games. They can build some of the features into the games, so you can have idle rest periods whereby a player would stop playing because his character cannot earn any points, for example.<sup>293</sup>

**156. We believe that the ICO’s age-appropriate design code is a positive step in addressing the potential impact on children of design mechanics within digital technologies that are aimed at extending user engagement; however, it will not apply to technologies exclusively designed for, or age-gated to, adults. Yet we have heard that disordered technology use or spending can be experienced at any stage in life. We therefore welcome the Government’s intention for “excessive screen time” and “designed addiction” to be monitored by the future online harms regulator. However, we believe greater clarity about the Government’s intention in those areas, and a clear plan for understanding and dealing with those harms from the outset, are needed for the regulator to be immediately effective in this area.**

### ***Challenges for legislators and regulators***

157. It is important to recognise that the games sector makes a significant economic and cultural contribution in the UK: in 2016, it directly employed 20,430 people and contributed £1.52bn in GVA.<sup>294</sup> Yet it is both a young and an uneven industry: two-thirds of the UK’s 2,260 games companies were founded after 2010, and three quarters of those companies employ 50 people or fewer.<sup>295</sup> The ICO told us that it is already thinking about how to work with smaller games companies, which will be important in managing the industry’s concerns and compliance.<sup>296</sup> Deputy Commissioner Steve Wood went on to say:

291 Information Commissioner’s Office, [Age Appropriate Design Code Consultation Document](#), (15 April 2019), p 69

292 Q1464

293 Q1409

294 BFI, [“Screen Business: How tax incentives help power economic growth across the UK”](#), (October 2018)

295 Ukie ([IMM0023](#))

296 Q1468

There is particularly an opportunity for new businesses setting up to get this right the first time, to perhaps try to build in the innovation and even sell themselves on the basis of caring about data and putting the interests of privacy by design in at the same time.<sup>297</sup>

Indeed, as Professor Lorna Woods and William Perrin stated in written evidence, the size or age of a company does not impact on its responsibilities to its users:

Some groups are sufficiently vulnerable (e.g. children) that any business aiming a service at them should take an appropriate level of care no matter what its size or newness to market. Or, to put it another way, even the smallest sandwich shop has to comply with basic food hygiene rules from the day it opens for business.<sup>298</sup>

158. As legislators we also need to be sensitive to the potential unintended consequences of regulation. Outplay’s Keeley Bunting highlighted that their digital output means games companies “are not tied to physical resources” and can therefore be “quite mobile”, moving location to respond to external pressures such as tax or regulatory regimes.<sup>299</sup> Furthermore, Dr Matthew McCaffrey from the University of Manchester argues that regulation of loot boxes, for example, “is likely to have the ironic effect of helping large firms in the industry like EA, while hurting smaller, independent developers.”<sup>300</sup>

159. To date, the technology industry has been innovating quicker than research or regulation can respond. As the British Esports Association states: “*Fortnite*—the biggest game on the planet right now—barely existed a year and a half ago. This industry moves at lightning pace and we all need to be on our toes to keep up with it.”<sup>301</sup> Professor Przybylski told us that regulation of the online sphere has therefore been reactive rather than proactive:

There is a vacuum here and many of the companies that we have in mind—gaming companies and social media companies—have filled that vacuum with a notion of self-regulation. This has meant that from a policy perspective or a stakeholder perspective, from parents all the way up to lawmakers, fundamentally we are in a reactive mode; it is fundamentally a game of “Whac-a-Mole”.<sup>302</sup>

160. We have been told that the design mechanics our inquiry has considered will soon be replaced by others, and that the potential harms of these technologies will likewise evolve and new ones emerge. For example, Dr Zendle stressed that funding into research on loot boxes was needed urgently because games change “very quickly”, while Dr Jo Twist told us that loot box mechanics are already on the decline and that “next year there will be fewer games that have loot boxes, just because we innovate in our business model so quickly.”<sup>303</sup> Given that loot boxes have been featured in games for many years—as have regulatory concerns about them—we would question to what extent that is true, especially in the

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297 Q1468

298 Carnegie UK Trust ([IMM0009](#))

299 Q762

300 Dr Matthew McCaffrey ([IMM0007](#))

301 British Esports Association ([IMM0006](#))

302 Q6

303 Qq81 1421

light of the fact that the speculative spending they generate leads to such high revenues for companies. Yet the need for regulation to anticipate future trends in fast-paced immersive technologies is clear.

161. In advocating for a statutory ‘duty of care’ approach built on a principle of ‘safety by design’, Professor Lorna Woods and William Perrin state that “in considering structural regulatory options, weight should be giving to doing things quickly”.<sup>304</sup> They recognise that this can impact the interplay between regulation and research, yet they argue that:

in innovative areas, there is often no long-term scientific research; or such evidence arrives too late to provide an effective measure against harms. Rapidly-propagating services, such as gaming platforms—which often combine live-streaming with user-interaction akin to that on a social media platform—are subject to waves of fashion amongst young people and are a particular challenge for long-term objective evidence.<sup>305</sup>

162. The former Secretary of State anticipated this problem when he called for companies, rather than regulators, to take a lead in proactively identifying potential harms associated with their platforms and exercising a duty of care towards their users. He told us that:

We should not be waiting for us, as legislators, or the regulator to spot the harm. We should be asking the online platform to spot it as it arises and do something about it.<sup>306</sup>

## Esports

163. Esports—the competitive playing of video games for an audience of spectators who watch either online or in person—has been presented to us as an area of growth and innovation where the UK can play a leading role in promoting responsible design and practices. The Government told us it sees “significant potential for [esports] to develop as an area of real national strength” but recognises that more evidence is needed on its “potential social impacts, both positive and negative, and any implications for current or future regulation.”<sup>307</sup> The ‘Audience of the Future’ project has seen £4 million of Government funding go to support the development of Weavr, a new esports broadcasting platform. UK Research and Innovation told us that Weavr’s:

use of AI & data learning to create highly personalised viewing experiences will allow for fully interactive and individualised insights for the audience, which will permit this project to demonstrate insight into how audiences of the future engage in immersive experiences and the pathways to future commercialisation.<sup>308</sup>

164. It is also interesting to consider the esports sector’s approach to promoting healthy levels of gaming among its professional and amateur players. The head of commercial for esports team Fnatic told us that the team’s focus on the physical and mental health of its professional players includes taking breaks from gaming:

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304 Carnegie UK Trust ([IMM0009](#))

305 Carnegie UK Trust ([IMM0009](#))

306 Oral evidence taken on 8 May 2019, HC (2017–19) 361, [Q403](#)

307 Department for Digital, Culture, Media and Sport ([IMM0038](#))

308 UK Research and Innovation ([IMM0079](#))

we lost a big tournament at the end of last year that, with hindsight, we put down to the fact that we did not get the guys out and about as much as we might have done to break up the actual playing. Therefore, we focus on that very, very heavily. [...] The lesson we have learned from that is we should [be] getting them out doing physical activity and worrying about their physical wellbeing more than we did at that time.<sup>309</sup>

Similarly, the British Esports Association, which runs esports competitions at a grassroots level in schools, told us that it is “working with schools and teachers and parents to educate what the benefits are when played as part of a healthy balanced lifestyle including physical exercise.”<sup>310</sup>

165. Yet there are no common standards for the duty of care that esports teams have to their players, as exist for other sports such as football. Chester King of the British Esports Association told us that while some publishers “have very clear codes of conduct” for players, the “huge variety” of games that comprise esports means that those codes are not necessarily consistent across the industry.<sup>311</sup> When we asked ESL, which organises esports competitions globally, if it has a written code for what obligations teams that play in its leagues have towards players, Managing Director James Dean replied:

Not exactly. There is a lot of natural perception in terms of what is currently correct, but it is very much an evolving area.<sup>312</sup>

In its written evidence, ESL UK acknowledges that “as the industry grows, there will be a need for increasing professionalisation and regulation” and argues that the formation of an esports professional players association “could act as a mechanism to prevent exploitation in a young and growing industry.”<sup>313</sup>

166. We believe that with more and more young people aspiring to a career in professional esports, these industries must also acknowledge their duty of care to aspiring players. After he came second in the *Fortnite* World Cup, 15-year-old Jaden Ashman and his mother told the BBC’s Today that playing the game for eight to ten hours a day prior to the competition had caused tensions at home and situations where he had fallen asleep at school.<sup>314</sup> While Jaden’s message to aspiring esports players was not to spend excessive amounts of time pursuing their goal, that is a message that the games and esports industries have a responsibility to take the lead on and create structures to prevent the next generation of esports players from engaging in excessive levels of play. Jaden’s story is consistent with other reports about the amount of time that leading esports players spend in training. Teams in South Korea, which is one of the leading esports nations, can spend up to 15 hours per day playing video games in order to prepare for competitions.<sup>315</sup>

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309 Qq621–22

310 British Esports Association ([IMM0006](#))

311 Qq1459–1461

312 Q632

313 ESL UK ([IMM0016](#))

314 “Today”, BBC, 29 July 2019

315 [“Pro gamers in South Korea train for 15 hours a day – here’s what’s involved”](#), Techradar, 24 July 2019

167. Over the course of our inquiry we have heard about how esports is a rapidly maturing sector with clear Government support. There are significant opportunities for the development of esports in the UK to harness best practice in the use and monetisation of player data, which could serve as a model for other parts of the games industry. There is also scope for esports to go further in the promotion of player wellbeing and promotion of healthy gaming in schools. *We ask the Department for Digital, Culture, Media and Sport to lay out within the next six months how a similar framework to the duty of care practices enshrined and enforced by the governing bodies of other sports can best be applied within esports.*

## Virtual Reality

168. Virtual reality is also an area of rapid growth and innovation that offers opportunities for the UK to lead the way on setting best practice in design standards. StoryFutures, which researches immersive storytelling as part of the Arts and Humanities Research Council's Creative Industries Clusters Programme, told us in written evidence that:

By investing at the outset in VR/AR, the government can help ensure its development follows an informed, ethical path, helping to pre-empt and quickly respond to future issues.<sup>316</sup>

169. We have heard that there is currently a serious lack of understanding and guidance on best practice in the creation of immersive experiences using VR. Sarah Jones told us that in her experience there are “no guidelines” for “what you can do or should not do” with VR technology, and not enough data to “understand how it can impact people and what kind of length of experience there should be.”<sup>317</sup> Although such judgments are likely to depend on the nature of the experience, and there is no desire to stifle creativity, she said that those who “are looking for different ways to trick the mind into feeling a different way” need to understand the ethical and wider implications of the immersive technologies they use.<sup>318</sup>

170. The call for improved standards was echoed by the British Standards Institution, which notes that improved standardisation in the VR and AR sectors “could include guidelines for a safe set-up of the technology, recommend safe immersion periods, user age limits, and where required give content warnings.”<sup>319</sup> Similarly, immersive technology studio Inition told us that:

Advice should be given for the optimum length of a VR experience for the audience. This makes for more socially responsible output going forward.<sup>320</sup>

Yet we have also been told that before such standards are introduced, research will be needed on important ethical questions around the application of VR and its long-term effects.<sup>321</sup> The Centre for Immersive Technologies at the University of Leeds states there is a pressing need for such research because:

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316 StoryFutures and StoryFutures Academy ([IMM0017](#))

317 Qq12–13

318 Q12

319 British Standards Institution ([IMM0024](#))

320 Inition Ltd ([IMM0020](#))

321 Q6

Currently, immersive technology systems are becoming available to adults and children with no detailed understanding of their potential to create long term adverse consequences—despite unequivocal evidence showing that these systems can produce physiological change.<sup>322</sup>

## VR/AR and ‘fake news’

171. There is growing concern about the application of VR and AR technologies to create ‘deepfake’ films of people supposedly making statements they never actually gave. From electronically recorded samples of someone’s speaking voice, any words can be computer generated to sound as if they were delivered by that person. *The Times* newspaper demonstrated this by commissioning an Edinburgh company CereProc to create an audio version of the speech President John F Kennedy was due to give in Dallas on the day of his assassination. Sound engineers completing this using 116,777 sound units from 831 of his recorded speeches and radio addresses.<sup>323</sup> Researchers at the University of Washington in Seattle have also created an AI tool which they used to digitally create audio-visual film of another President, Barack Obama, supposedly delivering a speech he never made.<sup>324</sup> In May 2019, a fake video of the Speaker of the United States Congress, House of Representatives, Nancy Pelosi, was released, where her speech had been deliberately slowed to make her appear to be in some way incapacitated. This film was removed by YouTube from its platform, but Facebook refused to do the same, instead saying that they would down rank its distribution so that it didn’t appear at the top of the Newsfeed.<sup>325</sup> ZAO, a recently launched free app from China, uses AI to allow users to swap faces with celebrities in video clips. This is a further demonstration of the rapidly growing application of deepfake technology to cheaply and easily create false films.<sup>326</sup>

**172. The malicious creation and distribution of deepfake videos should be regarded as harmful content. The release of content like this could try to influence the outcome of elections and undermine people’s public reputation. Social media platforms should have clear policies in place for the removal of deepfakes. In the UK, the Government should include action against deepfakes as part of the duty of care social media companies should exercise in the interests of their users, as set out in the Online Harms White Paper.**

## Diversity in workforce and output

173. Across the technology industry, diversity is integral to ensuring immersive technologies are safe and relevant to all users. Flora Tasse from Selerio, a start-up working with augmented reality, told us that more diverse teams would help to tackle other problems of bias in product design. She said:

as a person of colour, if I was on that team and I tried that software and I realised that there is an issue and it does not work for me, that would become something that I might raise with the team and they might start thinking of maybe building in more diversity. If we get diverse teams we might get less biased software out there.<sup>327</sup>

322 The Centre for Immersive Technologies, University of Leeds (IMM0026)

323 “JFK video: hear Kennedy’s ‘lost’ Dallas speech in his own voice”, *The Times*, 15 March 2018

324 “TED 2018: Fake Obama video creator defends invention”, BBC, 13 April 2018

325 “Faked Pelosi videos, slowed to make her appear drunk, spread across social media”, *The Washington Post*, 24 May 2019

326 “Chinese face-swapping app goes viral, sparks privacy concerns”, Reuters, 2 September 2019

327 Q710

174. However, we have heard about an enduring gender imbalance in the games industry's workforce. Roughly the same number of women as men play games.<sup>328</sup> Yet that contrasts with research by TIGA indicating that just 12% of game developers are female.<sup>329</sup> Women also comprise 31% of the audience for esports.<sup>330</sup> However, Fnatic's Nick Fry told us that not one of the team's 60 professional players is female because:

frankly, at the level we are at, we have to pick the best players to do the best job for the teams.<sup>331</sup>

175. Marie-Claire Isaaman from Women in Games attributes the current gender imbalance in the games sector to the way in which the industry has historically targeted men in the design and marketing of its products.<sup>332</sup> Similarly, Timea Tabori acknowledged that this history "had a profound impact on the types of game that were developed, the types of talent that were allowed at the table to make the decisions for the types of story that games tell."<sup>333</sup> The British Esports Association's written evidence suggests that the gender inequality in esports might be attributed to similar causes:

Some argue that marketing for competitive games isn't as female-focused as it could be, others say we should have more female-only tournaments, and some say that harassment based on gender at a more casual online gaming level (separate to esports) is putting off females from progressing further in esports.<sup>334</sup>

Indeed, we were told by Isaaman that toxic environments can put people off engaging with games, especially in the light 2014's Gamergate controversy discussed in Chapter 2.<sup>335</sup>

176. Furthermore, a 2015 survey identified that only 4% of the UK games workforce was from BAME backgrounds, compared with roughly 14% of the working population as a whole.<sup>336</sup> Jodie Azhar from POC in Play told us of a perception among some that the games industry is not a viable career option.<sup>337</sup> She said:

We are seeing young women filtering out. We are seeing people from different ethnic backgrounds not consider that video-game development is for them, so they are not pursuing it as a career.<sup>338</sup>

Yet Outplay's Keeley Bunting articulated why such imbalances are harmful for the industry's creativity and long-term health:

You would not want all of your books, all of your music, all of your movies to be made by a homogenous group. Video games are really important as entertainment and as something that speaks to society and informs society. It is important that the authorship be inclusive of people from a variety of backgrounds.<sup>339</sup>

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328 Ukie ([IMM0023](#))

329 Q1452

330 Ukie, "[The games industry in numbers](#)", accessed 11 June 2019

331 Q639 ff.

332 Q693

333 Q750

334 British Esports Association ([IMM0006](#))

335 Q694

336 GOV.UK, "[Working age population](#)", accessed 30 July 2019

337 Ukie, "[10,300 now employed in games in UK; 19% are women](#)", (27 April 2016)

338 Q701

339 Q751

### *Industry initiatives to promote a more diverse workforce*

177. The games industry is clearly both aware of this issue and working to address it. Timea Tabori also told us that gender pay gap reporting has helped the industry to recognise the extent of the problem:

Even if before they would anecdotally believe that there is an issue and they would pay lip service that it is something that they are working on, I think actually seeing the numbers was a wake-up call for a lot of companies to go, “Okay, hang on, this is more than just a conceptual problem somewhere in the back of our heads. This is something that we can actually do something about. Let us sit down and think about what that is.” These little nudges to drive out the information and then inspire companies to action are a really good example of what Government can do.<sup>340</sup>

In design terms, we were told that more games are enabling players to choose the gender of their character, for example.<sup>341</sup>

178. Yet while efforts are under way to promote diversity across the sector, organisations working on this lack sufficient support. Kish Hirani, Chair of BAME in Games, which works to encourage more diverse talent in the industry, explained that the organisation is run on an entirely voluntary basis.<sup>342</sup> Similarly, Women in Games has “very little resource so it has been a grassroots organisation.”<sup>343</sup> This is disappointing when compared to diversity programmes in other sectors. For example, the Creative Diversity Network is funded by the UK’s major broadcasters, sharing best practice on diversity across the television industry and delivering ‘Diamond’—an online system used by the BBC, ITV, Channel 4, Channel 5 and Sky to obtain consistent workforce diversity data on programmes they commission. Similarly, in football, ‘Kick It Out’ is funded by the FA, Premier League, Professional Footballers’ Association, and English Football League and works to combat discrimination in the game.

179. We heard differing perspectives on what more the games industry itself could be doing to address this funding gap. Ukie’s Dr Jo Twist highlighted that the UK’s small companies do not necessarily have the resource to contribute more to such initiatives; however, TIGA’s Dr Richard Wilson told us that he has found it hard to encourage companies to fund research into this area, suggesting that “there is more that games companies can do, particularly the bigger ones”.<sup>344</sup>

**180. What we have heard about the games industry’s attempts to tackle the gender imbalance in the workforce echoes its approach to understanding and tackling the potential harms of its games on players: while some take their responsibilities seriously, others could be doing much more.**

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340 [Q808](#)

341 [Q1452](#)

342 [Q727](#)

343 [Q730](#)

344 [Q1462](#)

# Conclusions and Recommendations

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## Introduction

1. Having struggled to get clear answers and useful information from companies across the games industry in particular, we hope that our inquiry and this report serve to focus all in the industry—particularly large, multinational companies whose games are played all over the world—on their responsibilities to protect their players from potential harms and to observe the relevant legal and regulatory frameworks in all countries their products reach. (Paragraph 12)

## Psychosocial harms of immersive technologies

2. Although the vast majority of people who play games find it a positive experience, the minority who struggle to maintain control over how much they are playing experience serious consequences for them and their loved ones. At present, the games industry has not sufficiently accepted responsibility for either understanding or preventing this harm. Moreover, both policy-making and potential industry interventions are being hindered by a lack of robust evidence, which in part stems from companies' unwillingness to share data about patterns of play. (Paragraph 34)
3. *The Department should immediately update its areas of research interest to include gaming disorder, working with researchers to identify the key questions that need to be addressed and develop a strategy to support high-quality, independent research into the long-term effects of gaming.* (Paragraph 35)
4. *The Government should also require games companies to share aggregated player data with researchers and to contribute financially to independent research through a levy administered by an impartial body. We believe that the industry should pay a levy to fund an independent body formed of academics and representatives of the industry to oversee research into online gaming and to ensure that the relevant data is made available from the industry to enable it to be effective.* (Paragraph 36)
5. Immersive technologies including online games and virtual reality facilitate interaction between users and user-generated content. Given the technological sophistication of the games industry, and the popularity of its products among children, there is more that companies could be doing to safeguard players, and the future online harms regulator will need to pay due attention to monitoring the industry's efforts in this regard. (Paragraph 51)
6. There are inconsistencies in the games industry's self-regulation around the distribution of games. If companies hold that it is not their responsibility, but that of parents, to enforce age ratings, and parents themselves are not willing or able to do so, further legislation may be needed to protect children from playing games that are not appropriate for their age. This could include extending the statutory duties that apply to physical distribution to the online distribution of games. Likewise, games companies should not assume that the responsibility to enforce age-ratings applies exclusively to the main delivery platforms: all companies and platforms that are making games available online should uphold the highest standards of

enforcing age-ratings. *The Video Recordings Act should be amended to ensure that online games are covered by the same enforceable age restrictions as games sold on disks.* (Paragraph 57)

### Financial harms of immersive technologies

7. We believe that any gambling-related harms associated with gaming should be recognised under the online harms framework. *To inform this work, the Department for Digital, Culture, Media and Sport should immediately establish a scientific working group to collate the latest evidence relating to the effects of gambling-like mechanics in games. The group should produce an evidence-based review of the effects of gambling-like game mechanics, including loot boxes and other emerging trends, to provide clarity and advice. This should be done within a timescale that enables it to inform the Government's forthcoming online harms legislation.* (Paragraph 72)
8. *We recommend that loot boxes that contain the element of chance should not be sold to children playing games, and instead in-game credits should be earned through rewards won through playing the games.* In the absence of research which proves that no harm is being done by exposing children to gambling through the purchasing of loot boxes, then we believe the precautionary principle should apply and they are not permitted in games played by children until the evidence proves otherwise. (Paragraph 79)
9. Loot box mechanics are integral to major games companies' revenues and evidence that they facilitate profiting from problem gamblers should be of serious concern to the industry. *We recommend that working through the PEGI Council and all other relevant channels, the UK Government advises PEGI to apply the existing 'gambling' content labelling, and corresponding age limits, to games containing loot boxes that can be purchased for real-world money and do not reveal their contents before purchase.* (Paragraph 86)
10. We agree with the Gambling Commission that games companies should be doing more to prevent in-game items from being traded for real-world money, or being used in unlicensed gambling. These uses are a direct result of how games are designed and monetised, and their prevalence undermines the argument that loot boxes are not a form of gambling. Moreover, we believe that the existing concept of 'money's worth' in the context of gambling legislation does not adequately reflect people's real-world experiences of spending in games. (Paragraph 97)
11. We consider loot boxes that can be bought with real-world money and do not reveal their contents in advance to be games of chance played for money's worth. *The Government should bring forward regulations under section 6 of the Gambling Act 2005 in the next parliamentary session to specify that loot boxes are a game of chance. If it determines not to regulate loot boxes under the Act at this time, the Government should produce a paper clearly stating the reasons why it does not consider loot boxes paid for with real-world currency to be a game of chance played for money's worth.* (Paragraph 98)

## The role of data, design and business models

12. Data on how long people play games for is essential to understand what normal and healthy—and, conversely, abnormal and potentially unhealthy—engagement with gaming looks like. Games companies collect this information for their own marketing and design purposes; however, in evidence to us, representatives from the games industry were wilfully obtuse in answering our questions about typical patterns of play. (Paragraph 110)
13. It is of serious concern that there is simply no effective system in place to keep children off age-restricted platforms and games. The reactive way in which platforms are dealing with this problem further highlights the problems of online industries rolling out products without considering, or mitigating against, their potential adverse effects on users. (Paragraph 118)
14. The games industry’s emphasis on player choice does not acknowledge the way in which many games use random reward mechanisms that have been scientifically proven to create repetitive behaviours, and the effect that this might have on the meaningful exercise of choice. Moreover, the reluctance to discuss engagement metrics or to acknowledge the psychological impact of core design principles in evidence to us suggests that highly-skilled designers either do not know the data and psychological studies and strategies that underpin their industry or, what is more likely, do not feel comfortable admitting it in a public forum. For an industry generating such high revenues from so many millions of players worldwide, that lack of transparency is unacceptable. (Paragraph 127)
15. During this inquiry we have heard that online games and social media are both data-driven industries that use asymmetrical information and deliberate design practices to manipulate users into spending more time or money on their platforms. The argument that engagement is purely a user’s free choice is undermined by the amount of data collected about them and the use of that data alongside design features, such as random reward mechanics, that have been proven to have powerful psychological effects. (Paragraph 145)
16. *To provide clarity for policy-makers and the public, the Government should outline in its response to this report how it intends to support independent research into the application, extent and effect of design mechanics used in digital technologies to extend user engagement. Such research should then inform the development of a behavioural design code of practice for online services. This should be developed within an adequate timeframe to inform the future online harms regulator’s work around “designed addiction” and “excessive screen time”.* (Paragraph 146)

## Supporting responsible design and industry initiatives

17. We believe that the ICO’s age-appropriate design code is a positive step in addressing the potential impact on children of design mechanics within digital technologies that are aimed at extending user engagement; however, it will not apply to technologies exclusively designed for, or age-gated to, adults. Yet we have heard that disordered technology use or spending can be experienced at any stage in life. We therefore welcome the Government’s intention for “excessive screen time” and “designed

addiction” to be monitored by the future online harms regulator. However, we believe greater clarity about the Government’s intention in those areas, and a clear plan for understanding and dealing with those harms from the outset, are needed for the regulator to be immediately effective in this area. (Paragraph 156)

18. Over the course of our inquiry we have heard about how esports is a rapidly maturing sector with clear Government support. There are significant opportunities for the development of esports in the UK to harness best practice in the use and monetisation of player data, which could serve as a model for other parts of the games industry. There is also scope for esports to go further in the promotion of player wellbeing and promotion of healthy gaming in schools. *We ask the Department for Digital, Culture, Media and Sport to lay out within the next six months how a similar framework to the duty of care practices enshrined and enforced by the governing bodies of other sports can best be applied within esports.* (Paragraph 167)
19. The malicious creation and distribution of deepfake videos should be regarded as harmful content. The release of content like this could try to influence the outcome of elections and undermine people’s public reputation. Social media platforms should have clear policies in place for the removal of deepfakes. In the UK, the Government should include action against deepfakes as part of the duty of care social media companies should exercise in the interests of their users, as set out in the Online Harms White Paper. (Paragraph 172)
20. What we have heard about the games industry’s attempts to tackle the gender imbalance in the workforce echoes its approach to understanding and tackling the potential harms of its games on players: while some take their responsibilities seriously, others could be doing much more. (Paragraph 180)

## Appendix 1: Visits in support of the inquiry

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1. Before and during the inquiry, we undertook the following fact-finding visits to inform our understanding of the technologies and speak to people working on them.

### Victoria and Albert Museum, London and Dundee—Videogames: Design/Play/Disrupt

2. Curator Marie Foulston told us that this major exhibition aimed to do something “radically different”—to challenge expectations of the industry while advancing the conversation about the future of games design. The exhibition showcased different ways in which games have been designed from the mid-2000s to the present, so was rooted in the era of smartphones and social media. Divided into three sections, the exhibition enabled us to consider:

- a) The design process, including how player’s emotional responses and cinematic techniques are used by designers.
- b) ‘Disrupting’ conversations in the games industry, including around depictions of violence, sexual content and different cultures and genders. These conversations have factored into our discussions during the inquiry, and it was interesting to see how they are happening within the games industry itself, which is also coming up with solutions to them.
- c) How people are playing and designing games in collaborative ways, including through online communities.

### Inition studio, Shoreditch, London

3. Inition is an immersive technology agency that creates content utilising “new realities” for businesses and charities. The company’s futurist, Amelia Kallman, talked us through future trends and challenges in the sector, including the need for 5G to maximise the full potential of immersive technology, the current and potential uses of biodata, and the need for greater understanding of VR’s long-term effects and its interplay with game transfer phenomena.

4. We also heard from Jonathan Kaye, a disability, inclusion and access consultant, who stressed that immersive technologies can be profoundly life-enhancing for people with disabilities and made the case for the development of such technologies to be fully inclusive.

5. We experienced a range of immersive outputs, including VR films designed to raise awareness of social issues such as childhood trauma and road safety, and a mixed-reality experience simulating the effects of multiple sclerosis.

## Dundee, Scotland

6. Dundee is globally renowned as a hub for games companies and the home of Abertay University, which founded one of the world's first computer game design courses more than 20 years ago.

### Abertay University

7. We discovered the university's key role in training the talent pipeline for the city's games industry and met students on the MProf in Games Development, who demonstrated some of the games they are developing in teams. The university's courses offer a largely unique synthesis between the artistic and technical skills needed for game design, and have a graduate employment rate of approx. 95% for technical students, and approx. 60% for arts students. Local companies including Team Junkfish and Puny Astronaut discussed and demonstrated their games with us, and we heard about InGAME, a new research and development centre, which aims to increase the scale and value of Dundee's video games cluster by supporting companies in creative experimentation, technological innovation and business intensification.

### Games cluster

8. We visited a number of companies operating within the city's games cluster to find out more about the conditions for, and benefits of, such a concentration of developers. For example, Chris Van Der Kuyl from 4J Studios, which develops console versions of *Minecraft*, discussed the business models underpinning current trends in game design including in-game purchases and advertising. At Earthbound Games, we heard about how the company's new game for the esports market, *Axiom Soccer*, has integrated spectators into its design from the outset. We also discussed the monetisation of the game, and the potential for partnerships with traditional sports. We also visited Ninja Kiwi, which develops paid-for mobile games and is part of a larger New Zealand company.

### UK Games Fund

9. The UK Games Fund distributes Government funding to support early-career, independent games developers. We heard about how the funding received to date has been used to give grants directly to companies, run the Tranzfuser competition for development of new games and facilitate networking and knowledge-sharing between recipients.

## Riga, Latvia and Tallinn, Estonia

### Wider applications of immersive technologies

10. Our visit to Latvia and Estonia enabled us to find out more about virtual reality and other immersive technologies are used in training and across creative sectors. We visited Anatomy Next, which creates 3D simulation tools to help in the training of medical students. At Vividly, we saw how immersive technologies are used in urban planning and architecture and how VR can be used in educational tools and public and creative spaces to make experiences open and accessible. Similarly, we learnt about how MOTOR is creating interactive experiences for Estonia's museums.

### ***The development and ethics of VR***

11. We held a roundtable meeting at Tallinn Technical University, where the Re:Creation Virtual and Augmented Laboratory researches the physiological and psychological aspects, applications, and impacts of virtual reality. We heard that Estonia introduced robotics and computer science in schools ten years ago, which has created a generation of futurists and technologists to work in VR development.

12. We also discussed the centrality of data to VR experiences. The technologists we spoke to said that as the collection of data in VR is vital to create a better user experience, it is important to know the best and safest way to collect user data, while respecting users' privacy. In addition, they noted that there is a lack of academic studies exploring the long-term effects of excessive VR/AR use. We were told that as the makers of the headsets such as HTC, Sony and Oculus collect the most data, they would be well-placed to discuss these issues.

### ***e-Estonia briefing centre***

13. Estonia is a leader in digital innovation, internet freedom and cyber security, which in turn has enabled a thriving start-up and entrepreneurship culture. We heard about the principles of Estonian e-governance, including the importance of data transparency. The legal foundation for the Estonian system is that the data belongs to the private citizen, and the state is the guardian of that information. In practice, every citizen can log into their portal and see all the information related to them. They can also see who has attempted to access their information, with the time, date and name of company/individual.

### ***Games companies***

14. We visited Creative Mobile, an independent game developer and publisher, best-known for the Drag Racing series. We were told that more than 3 million people play their games, and the average daily play time is between 10–20 minutes. Most of their profits come from 5% of their top users and a player that plays 15 minutes per day might spend more than a user who plays for three hours in one sitting.

## Appendix 2: Data collected and shared between Facebook and other platforms

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### Facebook data apps can access

15. By implementing the Facebook login feature in a game or app, developers can access the following Facebook user data, as standard:<sup>345</sup>

- Name
- Profile photo
- Birthday
- All photos—including photos where the user is tagged—requires FB prior approval
- Likes—all the pages a user has liked
- Posts—all the posts a user has made, has been tagged in, or have been placed on their wall—requires FB prior approval
- Places—all places a person has been tagged at in photos, videos, statuses and links—requires FB prior approval
- Videos—all videos a person has posted or been tagged in—requires FB prior approval
- Email address
- Age range
- Events a user has hosted or RSVP'd—requires FB prior approval
- Friends who also use the app—requires FB prior approval
- Gender
- Hometown
- Current city
- User ID

### Data Facebook can collect from apps

16. The Facebook SDK also allows app and game makers to send data to Facebook, in exchange for data from Facebook, and the ability to offer users a streamlined login experience using their Facebook ID.<sup>346</sup> The following is an indicative list of the data that can be sent to Facebook via the SDK. Most of these items are called events. The data from these events includes:<sup>347</sup>

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345 Facebook for Developers, "[Facebook login](#)", accessed 27 August 2019

346 The Facebook SDK is a set of definitions, protocols and tools for delivering user experience and creating features within Facebook.

347 Facebook for Developers, "[Graph API](#)", accessed 27 August 2019

- Achievement level—the achievement of specific levels defined within an application, business or organisation
- Activate App—every time a user starts the app
- In-App Ad Click—every time a user clicks an ad
- In-App Ad Impression—every time a user sees an ad
- Add Payment Info—when a customer adds payment info at a checkout
- Add to Cart—the addition of an item to a shopping cart or basket
- Add to Wishlist—the addition of items to a wish list
- Complete Registration—a submission of information by a customer in exchange for a service provided by your business
- Complete Tutorial—a completion of a tutorial in an app
- Contact—a record of any contact through the app
- Customize Product—whenever a user customises a product in an app
- Donate—the donation of funds through an app
- Find Location—when a person finds a business location via web or app, with an intention to visit
- Initiate Checkout—the start of any checkout process
- Log Purchase—the completion of a purchase
- Rating Given—whenever a user rates something in an app
- Appointment Booking—the booking of any appointment in an app
- Searched—the completion of any search
- Spent Credits—the completion of a transaction where people spend credits specific to your business or application, such as in-app currency
- Start Trial—the start of a free trial of a product or service you offer, such as a trial subscription
- Submit Application—the submission of an application for a product, service or program, such as a credit card, educational program or job
- Subscription—the start of a paid subscription for a product or service
- Unlock Achievement—the completion of specific activities or actions the app rewards. For example, refer a friend, complete your profile, etc.
- View Content—any visit to a content page, such as a product page, landing page or article. Information about the page viewed can be passed to Facebook for use in dynamic ads

## Sign In with Apple

17. Apple recently announced ‘Sign In with Apple’, a new alternative to signing in with Facebook, Google, Twitter and other social media networks, scheduled to roll out before the end of the year. ‘Sign In with Apple’ will let users sign in to apps and websites using their Apple ID, and will place an emphasis on user privacy. Apple CEO Tim Cook said:

We focus on the user, and the user wants the ability to go across numerous properties on the web without being under surveillance. We’re moving privacy protections forward.<sup>348</sup>

New app guidelines provided to developers suggest ‘Sign In with Apple’ will be a mandatory feature for all apps offering third party (non-email based) sign in. The feature also lets users create a randomly-generated email address to cloak their real email address from developers.<sup>349</sup>

## Facebook data

18. Facebook’s GraphAPI—the programming language for Facebook’s ‘social graph’—allows for storage of several categories of user data.<sup>350</sup> These are collected in the following list. This is a comprehensive list, but updates are regular and should be expected:<sup>351</sup>

### *Data fields in the GraphAPI*

- Address
- Age range
- ID
- Birthday
- IOS or Android
- Email
- Employee number—used in Facebook Workplace
- Favorite athletes
- Favorite teams
- Full name
- Gender
- Hometown

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348 “CBS Evening News”, CBS, June 2019

349 Apple Developer, “[Sign In with Apple](#)”, accessed 27 August 2019

350 The term ‘social graph’ was popularised at the 2007 Facebook F8 conference, and referred to the virtual graph representing social relationships between entities on Facebook. ‘API’ stands for Application Programming Interface, and is a set of definitions, protocols and tools for building software. The GraphAPI defines a language set for third-party developers to allow them to connect their software with Facebook, and exchange data.

351 Facebook for Developers, “[User](#)”, accessed 27 August 2019

- Inspirational people
- Languages the person knows
- Location, as entered by the user on their profile
- Meeting for—what the person is interested in meeting for
- Favourite quotes
- Significant other
- Sports played by the person
- Timezone

### *“Edge” fields in the GraphAPI*

- Accounts—pages the user has a role on.
- ad\_studies—ad studies that the user can view.
- Adaccounts—the advertising accounts the user can access.
- assigned\_ad\_accounts—ad accounts that are assigned to this business scoped user
- assigned\_pages—pages that are assigned to this business scoped user
- Albums—the photo albums this person has created
- Apprequestformerrecipients—app requests
- Apprequests—this person’s pending requests from an app
- assigned\_product\_catalogs—product catalogs that are assigned to this business scoped user
- Books—the books listed on this person’s profile
- business\_users—business users corresponding to the user
- Businesses—businesses associated with the user
- Events—returns the events on a user.
- Family—this person’s family relationships
- Friends—a person’s friends
- Games—games this person likes
- Groups—the Facebook Groups for which the person has given any group level permission

- `ids_for_apps`—businesses can claim ownership of multiple apps using Business Manager. This edge returns the list of IDs that this user has in any of those other apps
- `ids_for_business`—businesses can claim ownership of multiple apps using Business Manager. This edge returns the list of IDs that this user has in any of those other apps
- `ids_for_pages`—businesses can claim ownership of apps and pages using Business Manager. This edge returns the list of IDs that this user has in any of the pages owned by this business
- `Likes`—all the Pages this person has liked
- `live_encoders`—live encoders owned by this person
- `live_videos`—live videos from this person
- `Movies`—movies this person likes
- `Music`—music this person likes
- `Permissions`—the permissions that the person has granted this app
- `personal_ad_accounts`—the advertising accounts to which this person has personal access
- `Photos`—photos the person is tagged in or has uploaded
- `Picture`—the person’s profile picture
- `promotable_domains`—all the domains user can promote
- `promotable_events`—all the events which user can promote
- `request_history`—Developers’ Graph API request history
- `taggable_friends`—friends that can be tagged in content published via the Graph API
- `Television`—TV shows this person likes
- `Threads`—a message conversation thread
- `Videos`—videos the person is tagged in or uploaded
- `Checkins`—the checkins this person has made
- `Feed`—the feed of posts (including status updates) and links published by this person
- `Friendrequests`—a person’s pending friend requests
- `Home`—a person’s Facebook homepage feed
- `Notifications`—the unread Facebook notifications that a person has

- Outbox—a person's Facebook Messages outbox
- Questions—the questions that a person has created
- Scores—the scores this person has received from Facebook Games that they've played
- Subscribers—the profiles that are following this person
- Subscribedto—the profile that this person is following

# Formal minutes

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**Monday 9 September 2019**

Damian Collins, in the Chair

Clive Efford	Ian C Lucas
Paul Farrelly	Jo Stevens
Julian Knight	

Draft Report (*Immersive and addictive technologies*), proposed by the Chair, brought up and read.

*Ordered*, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 180 read and agreed to.

Summary agreed to.

Appendices agreed to.

*Resolved*, That the Report be the Fifteenth Report of the Committee to the House.

*Ordered*, That the Chair make the Report to the House.

*Ordered*, That embargoed copies of the Report be made available, in accordance with the provisions of Standing Order No.134.

[Adjourned till Wednesday 16 October 2019 at 2.00 p.m.]

## Witnesses

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The following witnesses gave evidence. Transcripts can be viewed on the [inquiry publications page](#) of the Committee's website.

### Tuesday 12 February 2019

**Sarah Jones**, Head, School of Media, Birmingham City University, **Professor Andrew Przybylski**, Director of Research, Oxford Internet Institute, and **Michael Veale**, Researcher, University College London [Q1–54](#)

### Wednesday 27 February 2019

**Dr Henrietta Bowden-Jones**, Director, National Problem Gambling Clinic, **Dr Daria Kuss**, Nottingham Trent University, and **Dr David Zendle**, York St John University [Q55–128](#)

### Tuesday 5 March 2019

**Jack Edwards**, vlogger, lifestyle blogger, and BBC presenter, **James Good**, Game Quitters, and **Matúš Mikuš**, Game Quitters [Q129–251](#)

### Tuesday 19 March 2019

**Stephen Collins**, Senior Director, Public Policy International, and **Will Scougal**, International Director, Creative Strategy, Snapchat [Q252–414](#)

### Tuesday 2 April 2019

**Neil McClarty**, VP, Growth and Product Services, and **Kelvin Plomer**, Director of Player Experience, Jagex [Q415–598](#)

### Wednesday 24 April 2019

**James Dean**, Managing Director, and **Rob Black**, Chief Operating Officer, ESL, and **Nick Fry**, Head of Commercial and Board Adviser, Fnatic; **Kish Hirani**, Chair, BAME in Games, **Marie-Claire Isaaman**, Chief Executive, Women in Games, **Flora Tasse**, Chief Technology Officer, Selerio, and **Jodie Azhar**, Game Director, POC in Play [Q599–730](#)

### Tuesday 30 April 2019

**Colin Anderson**, Commercial Director, Earthbound Games, **Keeley Bunting**, Senior Designer, Outplay, **Tony Gowland**, Founder, Ant Workshop, and **Timea Tabori**, National Coordinator for Women in Games in Scotland and Engine Programmer at Rockstar North [Q731–808](#)

### Wednesday 15 May 2019

**Claire Lilley**, Child Safety Policy Manager, Google EMEA, **Marco Pancini**, Public Policy Director, and **Rich Waterworth**, Marketing Director, YouTube EMEA; **Karina Newton**, Head of Public Policy, and **Vishal Shah**, Head of Product, Instagram

[Q809–1014](#)

### Wednesday 19 June 2019

**Shaun Campbell**, UK Country Manager, and **Kerry Hopkins**, Vice President, Legal and Government Affairs, Electronic Arts, and **Matthew Weissinger**, Director of Marketing, and **Canon Pence**, General Counsel, Epic Games

[Q1015–1256](#)

### Wednesday 26 June 2019

**Alex Dale**, Senior Vice President, Head of Portfolio and New Games, and **Adam Mitton**, Vice President for Legal, King, **Chester King**, Chief Executive, British Esports Association, **Ian Rice**, Director General, Video Standards Council, **Dr Jo Twist OBE**, Chief Executive, Ukie, and **Dr Richard Wilson OBE**, Chief Executive, TIGA

[Q1257–1463](#)

### Tuesday 2 July 2019

**Elizabeth Denham**, Information Commissioner, and **Steve Wood**, Deputy Commissioner (Policy), Information Commissioner's Office; **Margot James** MP, Minister for Digital and the Creative Industries

[Q1464–1553](#)

### Monday 22 July 2019

**Neil McArthur**, Chief Executive, and **Brad Enright**, Programme Director, Gambling Commission

[Q1554–1617](#)

## Published written evidence

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The following written evidence was received and can be viewed on the [inquiry publications page](#) of the Committee's website.

IMM numbers are generated by the evidence processing system and so may not be complete.

- 1 5Rights Foundation ([IMM0126](#))
- 2 Adams, Jonathan ([IMM0131](#))
- 3 Andrew, Mr Craig ([IMM0082](#))
- 4 Anonymous ([IMM0002](#))
- 5 Anonymous ([IMM0049](#))
- 6 Anonymous ([IMM0105](#))
- 7 Anonymous ([IMM0118](#))
- 8 Anonymous ([IMM0119](#))
- 9 Arts Council England ([IMM0097](#))
- 10 Ash, Dr James ([IMM0140](#))
- 11 Aylott, Charles ([IMM0102](#))
- 12 Bacta ([IMM0036](#))
- 13 Bains, Greg ([IMM0052](#))
- 14 BCS, The Chartered Institute for IT ([IMM0094](#))
- 15 Beauchamp, Mr Ty ([IMM0110](#))
- 16 Beckett, Mr Patrick ([IMM0134](#))
- 17 Boorer, Mr Laurence ([IMM0076](#))
- 18 Bournemouth University ([IMM0008](#))
- 19 Boyle, Mr Lathan ([IMM0087](#))
- 20 British Esports Association ([IMM0006](#))
- 21 British Film Institute ([IMM0027](#))
- 22 British Standards Institution ([IMM0024](#))
- 23 Butler, Christopher ([IMM0057](#))
- 24 Cairns & Dr Christopher Power, Dr Paul ([IMM0004](#))
- 25 Cameron, Mr Ted ([IMM0086](#))
- 26 Campaign for Fairer Gambling ([IMM0010](#))
- 27 CARE ([IMM0033](#))
- 28 Carnegie UK Trust ([IMM0009](#))
- 29 Catterall, Martin ([IMM0075](#))
- 30 Centre for Immersive Technologies ([IMM0026](#))
- 31 Charities Aid Foundation ([IMM0123](#))
- 32 Chatfield, Stephen ([IMM0072](#))
- 33 Chrobot-Hudson, Stephen ([IMM0083](#))

- 34 Clarke, Matt ([IMM0127](#))
- 35 Croome, Steve ([IMM0046](#))
- 36 Cziraki, Mr Gergely ([IMM0138](#))
- 37 Davies, Tristan ([IMM0059](#))
- 38 Department for Digital, Culture, Media and Sport ([IMM0038](#))
- 39 Department for Digital, Culture, Media and Sport supplementary ([IMM0151](#))
- 40 The Design Museum ([IMM0100](#))
- 41 Dewhurst, Mr Alex ([IMM0066](#))
- 42 The Diana Award ([IMM0121](#))
- 43 Drummond & Dr James D. Sauer, Dr Aaron ([IMM0005](#))
- 44 Electronic Arts supplementary ([IMM0149](#))
- 45 Epic Games supplementary ([IMM0145](#))
- 46 ESL UK ([IMM0016](#))
- 47 Ferguson, Mr Josh ([IMM0116](#))
- 48 Ferguson, Professor Christopher ([IMM0021](#))
- 49 Fnatic ([IMM0029](#))
- 50 Foster, Mr Benjamin ([IMM0054](#))
- 51 Fovolab, Cardiff Metropolitan University ([IMM0034](#))
- 52 G, Andrew ([IMM0128](#))
- 53 GambleAware ([IMM0032](#))
- 54 Gaming the Mind ([IMM0099](#))
- 55 Gannon, Mr Dave ([IMM0044](#))
- 56 Google supplementary ([IMM0150](#))
- 57 Graham, Mr Cameron ([IMM0058](#))
- 58 Handford, James ([IMM0090](#))
- 59 Harrison, Joseph ([IMM0056](#))
- 60 Hart, Mr Kane ([IMM0111](#))
- 61 Hedges, Mr Alex ([IMM0055](#))
- 62 Hook, Mr Joel ([IMM0073](#))
- 63 Hunt-Maddax, Solomon ([IMM0070](#))
- 64 Information Commissioner's Office ([IMM0095](#))
- 65 Inition Limited ([IMM0020](#))
- 66 Instagram - supplementary evidence ([IMM0141](#))
- 67 International Gaming Research Unit, Nottingham Trent University ([IMM0003](#))
- 68 ISFE (Interactive Software Federation Europe) ([IMM0022](#))
- 69 Jagex - supplementary evidence ([IMM0125](#))
- 70 Jisc ([IMM0015](#))
- 71 Johanssen, Dr Jacob ([IMM0122](#))

- 72 Judge, Ms Alysia ([IMM0045](#))
- 73 Kalsi, Mr Pritpal ([IMM0108](#))
- 74 King supplementary ([IMM0146](#))
- 75 Lee, Edward ([IMM0136](#))
- 76 Lords and Commons Family and Child Protection Group (LCFCPG) ([IMM0041](#))
- 77 LVP ([IMM0031](#))
- 78 MacLaine, Matthew ([IMM0117](#))
- 79 Marshall, Nicholas ([IMM0078](#))
- 80 Martin-Rushworth, Mr Kieran ([IMM0061](#))
- 81 May, Mr Alexander ([IMM0084](#))
- 82 McCaffrey, Dr Matthew ([IMM0007](#))
- 83 McCarthy, Mr David ([IMM0103](#))
- 84 McDonnell, University of Glasgow, Dr Neil ([IMM0115](#))
- 85 medConfidential ([IMM0071](#))
- 86 Medlock, Mr Rob ([IMM0069](#))
- 87 Moran, Mr Bobby ([IMM0060](#))
- 88 Murphy, Pol ([IMM0120](#))
- 89 Myers, Mr Dylan ([IMM0109](#))
- 90 National Museum Directors' Council ([IMM0028](#))
- 91 Nottingham Trent University ([IMM0013](#))
- 92 NSPCC ([IMM0012](#))
- 93 Outplay Entertainment supplementary ([IMM0142](#))
- 94 Pact ([IMM0035](#))
- 95 Page, Mr Elliot ([IMM0137](#))
- 96 PayToWin.org ([IMM0096](#))
- 97 Przybylski, Netta Weinstein, Pete Etchells & Amy Orben, Professor Andrew ([IMM0014](#))
- 98 Pupils 2 Parliament ([IMM0139](#))
- 99 The Remote Gambling Association ([IMM0018](#))
- 100 The Reward Foundation ([IMM0077](#))
- 101 Richardson, Mr Tom ([IMM0042](#))
- 102 Rizvi, Mr Asad ([IMM0039](#))
- 103 Rooney, Scott ([IMM0129](#))
- 104 Royal College of Psychiatrists ([IMM0098](#))
- 105 Sanders, Mr Mike ([IMM0068](#))
- 106 ScreenSkills ([IMM0067](#))
- 107 Snap - supplementary evidence ([IMM0124](#))
- 108 Somerville, Alexis ([IMM0130](#))

- 109 Soos, Gabriel ([IMM0133](#))
- 110 Stammers, Mr John ([IMM0043](#))
- 111 Stormont, Andrew ([IMM0132](#))
- 112 StoryFutures and StoryFutures Academy ([IMM0017](#))
- 113 Swift, Dr Thomas ([IMM0048](#))
- 114 Taylor, Jayden ([IMM0113](#))
- 115 Taylor, Mr Daniel ([IMM0092](#))
- 116 techuk ([IMM0037](#))
- 117 TIGA ([IMM0040](#))
- 118 TIGA supplementary ([IMM0143](#))
- 119 UK Gambling Commission ([IMM0025](#))
- 120 UK Research and Innovation ([IMM0079](#))
- 121 ukactive ([IMM0011](#))
- 122 Ukie ([IMM0023](#))
- 123 Verso, Antonio ([IMM0062](#))
- 124 Walker, Mr Neil ([IMM0050](#))
- 125 Williams, Kevin ([IMM0001](#))
- 126 Wootton, Mr Christian ([IMM0065](#))
- 127 Working Party on the Family, Lords and Commons Family and Child Protection Group—Supplementary Submission ([IMM0080](#))
- 128 Yoti ([IMM0107](#))
- 129 Yoti supplementary ([IMM0147](#))
- 130 YouTube supplementary ([IMM0144](#))
- 131 Zendle & Dr Paul Cairns, Dr David ([IMM0019](#))

## List of Reports from the Committee during the current Parliament

All publications from the Committee are available on the [publications page](#) of the Committee's website. The reference number of the Government's response to each Report is printed in brackets after the HC printing number.

### Session 2017–19

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Second Report	The potential impact of Brexit on the creative industries, tourism and the digital single market	HC 365 (HC 1141)
Third Report	Appointment of the Chair of the Charity Commission	HC 509 (HC 908)
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Sixth Report	BBC Annual Report and Accounts 2017–18: Equal pay at the BBC	HC 993
Seventh Report	BBC Annual Report and Accounts 2017–18: Equal Pay at the BBC: BBC Response to the Committee's Sixth Report of Session 2017–19	HC 1875
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Second Special Report	Combatting doping in sport: Government Response to the Committee's Fourth Report of Session 2017–19	HC 1050
Third Special Report	Failure of a witness to answer an Order of the Committee: conduct of Mr Dominic Cummings	HC 1115

Fourth Special Report	The potential impact of Brexit on the creative industries, tourism and the digital single market: Government Response to the Committee's Second Report of Session 2017–19	HC 1141
Fifth Special Report	Disinformation and 'fake news': Government Response to the Committee's Fifth Report of Session 2017–19	HC 1630
Sixth Special Report	Mr Kramer's failure to comply with the Committee's Order of the 19 November 2018	
Seventh Special Report	Disinformation and 'fake news': Final Report: Government Response to the Committee's Eighth Report of Session 2017–19  Electoral Commission response to Disinformation Report	HC 2184
Eighth Special Report	Live Music: Government Response to the Committee's Ninth Report of Session 2017–19	HC 2555
Ninth Special Report	Changing Lives: the social impact of participation in culture and sport: Government Response to the Committee's Eleventh Report of Session 2017–19	HC 2597
Tenth Special Report	The Online Harms White Paper: Government Response to the Committee's Twelfth Report of Session 2017–19	HC 2501