

Oculus imaginaries: the promises and perils of Facebook's virtual reality

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Abstract

This article explores the Oculus suite of virtual reality (VR) technologies, with a specific focus on the period following from the company's 2014 acquisition by Facebook. Through a close reading of promotional material, we first describe and analyse the 'Oculus imaginary' – the narrative produced by Facebook about the Oculus as integrated into and enhancing the experience of Facebook's wider suite of social software. The purpose of this narrative, we suggest, is to construct and 'sell' a Facebook-specific vision of VR's potentials – one that is appealing both to end-users and platform complementors – and moreover, a vision that appears to be conducive to Facebook's current methods for accumulating profit and power. Following on, we develop via a study of YouTube user comments posted on promotional videos for the Oculus, an anticipatory account of how the Oculus imaginary is perceived to relate to the lives and values of everyday individuals

Introduction

This article explores Virtual Reality (VR) as an emerging and imagined technology, less instantiated in a clear and concrete trajectory of technological innovation and evolution, but one of promissory discourse (Ryan, 2015: 35). Often framed as a "transcendent technology of the near future" (Evans, 2019: 29), tech reportage, industry spokespeople, and academia frequently situate VR in terms of its affordance of immersion, solutionism and empathy. Shifting direction, we home in on one of the medium's most recent and significant, yet underexamined narratives: the 2014 acquisition of American VR start-up Oculus, and its subsequent imagination, by Facebook. Despite Oculus' initial framing of VR's potential in gaming, we find Facebook's aim with Oculus is to integrate VR features into its suite of social software via Facebook's 'Reality Labs' (FRL) development program.

Despite the high-profile nature of this acquisition, one anticipated to have significance for both the maturation of VR and for the growth of Facebook's platform empire (Helmond et al., 2019), we lack sustained, empirically informed and critical writing on 1) how Facebook imagines its VR future, and 2) the anticipated impacts of a Facebook-backed VR. To develop a critical response to this still nascent technology, we believe an anticipatory awareness of Facebook's VR future is an urgent one. To do so, this article has two main objectives.

Firstly, we examine what we refer to as the 'Oculus imaginary': how Facebook envisages the Oculus as integrated into its wider suite of social software. What are the dominant corporate narratives articulated by Facebook? What is promised and how is it envisaged? What gets left out in Facebook's framing of VR's possibilities? To answer such

questions, we proceed with an analysis of Facebook's self-presentation of VR at the developer conference ('devcon') Oculus Connect in 2018 and 2019, finding conceptual and methodological basis for this in a range of recent studies of the imaginaries of emerging technologies (Beer, 2017; Sadowski and Bendor, 2019), understanding the spread of technology in society not just in terms of large technological developments, acquisitions and so on, but rather shifts in the discourse about technology. Beyond research on the imaginaries of technologies more broadly, this research is also motivated by existing work focused on Facebook's construction of a public facing image, and how this discursive process accrues benefits to the company (see Hoffmann et al., 2018; Rider and Murakami Wood, 2019).

Our analysis highlights how VR is increasingly cast as a new frontier for social media. Facebook focuses on how the Oculus provides the capacity to connect end-users, affording intimacy and affectivity, through both the affordances of the Oculus itself and the Oculus' integration into Facebook's other software (e.g. Facebook, Messenger). In doing so, Facebook frames the Oculus as taking on a central role in everyday life. Here, we also address what's (strategically) left out of the Oculus imaginary – namely, any meaningful engagement with issues of data extraction and accumulation.

Secondly, we advance an anticipatory awareness of what Facebook's imagined VR future might look like and feel like. We do so by exploring how individuals articulate values in relation to Facebook's Oculus imaginary. To develop this anticipatory account of the implications of Facebook's VR imaginary, we follow Kudina and Verbeek's (2019) conceptual and methodological approach for studying how emerging technologies mediate human values. Following Kudina and Verbeek's suggestions, to study how people articulate values in relation to the anticipated mediating roles of emerging technology on their daily lives and practices, we looked at the comments posted by viewers on 2 promotional YouTube videos for Oculus hardware and software – a 2019 trailer for Facebook's social software 'Horizon' and Mark Zuckerberg's 2019 Oculus Connect keynote.

Our findings highlight areas of conflict between the Oculus imaginary and the ethics and values of users. We focus in particular on how users perceived the threat of data extraction and control to be a potential outcome of Facebook's VR future, as well as a discussion of platform moderation and the cultural politics of the VR medium, with questions about who uses VR and why.

Through this two-pronged approach, we present the first sustained analysis of how the Oculus suite of VR technologies are currently imagined (and how these imaginaries are embraced or contested by everyday individuals), arguing that they are positioned as an extension of Facebook's existing software and as an apparatus of Facebook's platform empire. In this way, we believe this research bears relevance to existing work on the discursive formation of the VR medium (e.g. Chesher, 1994; Evans, 2018), and more specifically, to studies of the corporate framing of Oculus' VR (see Foxman, 2018; Golding, 2019; Nagy and Turner, 2019). Further, such critical writing is especially germane in the context of recent scholarship on the politics of platforms (e.g. Srnicek, 2017), the ethical implications of emerging VR technologies (Carter & Eglinton, 2020), and wider public awareness of Facebook's unscrupulous business practices.

The acquisition of Oculus by Facebook

Facebook – much like other digital platforms – generates much of its profit through via corporate partnerships and acquisitions. In 2012, following Facebook's IPO (the then-highest technology IPO in US history), the company underwent a process of significantly expanding its "platform boundaries" (Nieborg and Helmond, 2018) in a series of high value corporate acquisitions (see Helmond et al., 2019). Beyond facilitating entry into new markets, the telos of Facebook's expansion is an integration of a range of different technologies into an already existing suite of social software – a dynamic of 'enclosure', or, as Helmond et al. (2019) put it, a way to "facilitate its rapid entry into new markets, thereby generating and solidifying asymmetrical platform growth and dependencies" (2019: 140).

Facebook's 2014 acquisition of Oculus fits neatly into this historical narrative. Oculus, in the years prior to acquisition, had only developed a prototype headset backed by community crowdfunding on the platform Kickstarter, and a later round of private equity funding. Oculus represented a significant step forward for VR since the medium's lull since the 1990s – stuck in what Lanier calls a "waiting room for Moore's Law" (Lanier, 2017 cited in Evans, 2018:31). Much of the potential was seen to be in the headset's applications for gaming – an area VR has promised to enhance since the 1990s (see Pike, 2019; Ryan, 2001). During an id Software presentation at the 2012 Electronic Entertainment Expo, the company's CEO John Carmack used the Oculus Rift prototype to demo the game *DOOM 3*. Notably, Carmack is one of the most significant figures in videogame development, pioneering the first-person shooter videogame genre through founding id Software and the release of games like *DOOM* and *Quake*. Carmack, as we discuss later, took on a senior role at Oculus. Pike writes that, at this time, "VR was hailed for its potential to deliver the 'dream' of fully immersive gaming", constructed by Oculus as the "ultimate goal" of game developers and players (2019: 1).

Since its 2014 acquisition by Facebook for US\$2bn, VR has become a central part of how Facebook publicly imagines its future, but does not see its value lying predominantly in gaming. As we show later in our analysis of Facebook's imagination of VR, Oculus has been framed by Facebook *as* social media. Further efforts to refine the social functionality of VR have been made in the last several years through additional corporate acquisitions and integrating them into FRL. These include Surreal Vision in 2015 (a UK based 'computer vision' developer, specifically interested in real-time 3D scene reconstruction, and 'presence and telepresence') and The Eye Tribe (an eye-tracking start-up) in 2016. As writers like Evans (2018) and Madary and Metzinger (2016) speculate, Facebook's acquisition of Oculus is likely motivated by a desire for data accumulation and extraction - consistent with other platforms like Google and Amazon and their branching into Internet of Things (IoT) technologies like smart home voice assistants such as Alexa (see Srnicek, 2017).¹ As such, to entice end users, Oculus has been positioned to be appealing for software developers, through

¹ Facebook is of course not the first of the 'Big Five' technology companies (Google, Amazon, Facebook, Apple, Microsoft) to invest in the development of mixed reality technologies. See for example Google Glass, Microsoft's current HoloLens, or Apple's anticipated development of augmented reality glasses.

a freely available software development kit compatible with popular game engines such as Unity.²

In short, and as we unpack in further detail later, VR for Facebook is way for the platform to expand its boundaries, embedding itself into markets of end-users but also to developers and businesses (and, as we speculate, a further method for data accumulation).

Approach

This research draws on a mixed-methods approach, involving two stages of data collection and analysis. The first part of our analysis involved looking at how Facebook discursively framed its use of VR, particularly focusing on the promises they project upon VR in promotional material. To look at Facebook's self-presentation of VR, we examined recent videos from the developer conference ('devcon') Oculus Connect (OC) in 2018 and 2019. This is an approach influenced by existing work, which has sought to explore the discursive positioning of media and media users by big tech companies at industry conferences (see e.g. Dalton, 2015; Liao, 2018). Devcons are a rich laboratory for examining the emergence and circulation of imaginaries about technology, particularly those about technological progress as exceedingly positive. As Gregg puts it, "these elite occasions for transferring insider knowledge operate as a flagpole running exercise for messages that will be sold to consumers later in the product cycle" (2015: 38). The goal, she suggests, is to create a pipeline of information that "continues into the press briefings, Twitter feeds, and column inches that construct the public's apparently insatiable appetite for new media devices, technologies, and apps" (Gregg, 2015: 43). Despite devcons only being attended by a few hundred in the 'physical' audience, events like OC are broadcast online, and as such have the power to shape discourse beyond the actual attendees of the event (e.g. total views for the video of Zuckerberg's keynote at OC6 exceeds 100,000). As such, while the conference is attended principally by developers – and is aimed at recruiting developers into creating software for the platform – its wide diffusion also allows it to tap into a broader audience of prospective end users.³ Developer conferences like OC are as such useful sites for thinking about how corporate actors create and attempt to normalise (commercially beneficial) discourses about their own technology.

Our main objects of study in looking at the OC devcon was the 'keynote address' and developer talks during the conference. The keynote address is a highly orchestrated talk, usually delivered by Oculus/Facebook senior leadership, typically about the future direction of the company in the VR/AR space. At OC, keynotes were delivered by Facebook and Oculus executives like Mark Zuckerberg and John Carmack. OC keynotes, as Nagy and Turner put it, "provide tangible evidence that a company's vision of an emerging technology is innovative and credible" (2019: 539). We also focus on the individual developer sessions

² Notably, the capacity for the Oculus SDK to integrate into popular game engines (that is, what platform studies scholars would call its 'programmability', see Helmond et al. 2019) is something that mutually benefits Oculus and Unity. Unity continue to accrue benefits from increased users, network effects, and the capture of user data (see Nicoll and Keogh, 2019: 23-43), and Facebook can channel VR developers from the most widely used game engine into developing for the Oculus.

³ As others writing about contemporary VR have suggested, Oculus Connect is a key event in which news about the Oculus is disseminated to public audiences (Nagy and Turner, 2019; Foxman, 2018).

throughout the conference. These are typically less orchestrated events which focus on more specific topics relevant to using and developing with Oculus technology. Given that these sessions are more focused and technical, they are often run by staff like software engineers. To understand the dominant imaginaries of Facebook's VR, both authors immersed themselves in video material from the two most recent events (OC5 in 2018 and OC6 in 2019⁴) – focusing on the dominant narratives and promises of VR, as well as taking stock of what narratives were left out in service of Facebook's corporate interests.

The second part of our analysis, like previous studies of devcon discourses (Dalton, 2015; Liao 2018) explores how individuals perceived these discourses about the Oculus. Moreover, it looks to provide an empirically informed anticipation of the impact of Facebook's vision for VR. We analysed YouTube user comments on two videos of Facebook's promotional material for the Oculus. Following Kudina and Verbeek (2019), doing so allows us to think about the relationship between existing value frameworks and emerging technologies. We drew from a total sample of 1380 YouTube comments from two videos. We manually copied into Word 850 user comments from Facebook's announcement of 'Facebook Horizon' (uploaded to the Oculus YouTube channel) and 530 user comments on Zuckerberg's Oculus Connect 6 keynote. We discarded comments that were irrelevant to the study, such as those 'hyping' the Oculus, or negative comments to do with pricing. We were not interested in what comments were best informed, or most 'correct', in their anticipation of a future in which the Oculus is widely used. Comments are necessarily speculative (cf. Bucher, 2017), but in being so provide insight into how users perceive the Oculus imaginary in relation to their own lives and values. Following Highfield and Leaver (2015), comments are paraphrased or shortened to reduce searchability and maintain user privacy. Like the first stage of analysis, both authors immersed themselves in the data, coding it into key themes.

Sociotechnical imaginaries, human values and emerging technologies

In this section we identify and unpack approaches for studying the interplay between human values and emerging technologies. By emerging technologies, we are referring to technologies that exist largely on a discursive register, possibly existing in the world, but not fully integrated into society (e.g. Facebook's vision of the Oculus). To think about the formation of dominant narratives about emerging technology, we adopt from STS the concept of the sociotechnical imaginary (Jasanoff and Kim, 2009). Following on, we identify and explain Kudina and Verbeek's (2019) 'mediation' focused approach that we mobilise to understand human values in relation to emerging technology in our analysis.

The sociotechnical imaginary

As a theoretical framework for analysing the Oculus' discursive framing, borrowing from STS, we adopt the concept of the 'sociotechnical imaginary'. As theorised by Jasanoff and Kim (2009), sociotechnical imaginaries refer to the way that collective perceptions of science and technology are shaped by non-scientific institutions (such as the state or

⁴ The playlist of 83 videos we examined can be found at <https://bit.ly/3a2eubz> (OC5, 36 videos) and <https://bit.ly/2QrILZy> (OC6, 47 videos).

corporate actors). As Jasanoff writes elsewhere, such a perspective is useful within the scope of STS research, particularly in understanding technology as assemblage of material, social, and symbolic things (2015: 4). While offering complementary insights to other constructivist approaches to studying technology in STS, like social construction of technology theory, we find two qualities of Jasanoff and Kim's theorisation directly pertinent to our research questions.

First, the concept of the sociotechnical imaginary after Jasanoff and Kim is specifically orientated around discourse or narratives of the future.⁵ Such visions typically privilege a 'desirable' future (e.g. social progress associated with the adoption of a technology). But, while future oriented, as Jasanoff notes the proliferation and success of new sociotechnical imaginaries is reliant on

“their fit with existing cultural norms and moral values, social structures and material infrastructure, political institutions and economic systems, and hopes and aspirations. Importantly, this process often takes place through the use of narratives, which help render imaginaries as intuitively recognizable, understandable, digestible, and relatable” (2015: 544).

Second, the concept of sociotechnical imaginaries is one with an explicitly political valence, attuned to questions of power. The cultivation and proliferation of imaginaries often serves the interest of particular individuals or groups, and particular aims and logics (e.g. corporate interests in technology, see Jasanoff, 2015).

In focusing on the sociotechnical imaginary of a post-Facebook acquisition Oculus, we situate our work within wider studies of media imaginaries of emerging technology – such as those on data analytics (Beer, 2018), videogames (Kirkpatrick, 2014), haptic technology (Jewitt et al., 2020), and smart cities (Sadowski and Bendor, 2019). But importantly, our work must also be understood within a tradition of research about the VR imaginary – such as that addressing the discursive formation of VR as a consumer technology in the 1980s and 1990s (see Chesher, 1994; Ryan, 2011). It also bears relevance to work that has emerged on contemporary VR technology in recent years. Focusing on the Oculus Rift, Golding (2019) situates VR as a medium largely experienced through watching the mediated representations of (other people's) bodies (often awkwardly) coming into contact with VR hardware (a point he substantiates through analysis of examples like the now-famous and widely parodied *Time* magazine cover of Oculus CEO Palmer Luckey suspended in mid-air using the device). Elsewhere, Foxman (2018) suggests that the way we use and understand contemporary VR technologies is always framed within a wider media ecosystem about VR (e.g. journalistic writing, promotional media, blogs and social media, and trade shows and conferences) – media forms, that he suggests, often frame VR as emerging not in the present, but in the future. Perhaps most similar to the present study is Nagy and Turner's (2019) account of the 'selling' of (contemporary) VR (with attention to the Oculus) via its imagination by corporate stakeholders. Nagy and Turner focus on how narratives about the Oculus – which appeal to

⁵ Notably, SCOT theory approaches have been adapted to study how technological futures are negotiated by social groups. See, for instance Liao (2018), which connects SCOT with literatures in the sociology of futures.

end users and developers, both of whom are key to the viability of the platform – are constructed through a relation of VR's present and future to the technology's long history of innovations that failed to materialise, a technique to point to a more viable future trajectory for the Oculus.

Taken together, while this literature provides a useful and relatively current account of how the Oculus is imagined, there is a surprising lack of attention by the authors to the Oculus' imagination as a part of Facebook. While writers like Evans (2018) have mapped out the industry of big-tech sponsored VR (namely, offerings by HTC, Google, Facebook and Microsoft), questions about how VR is imagined in relation to Facebook's own software, business models and political economy remain unanswered in depth. Filling this gap, our analysis is orientated around the Oculus as a specifically Facebook-owned technology.

Mediation, emerging technology and human values

As we show in what follows, the vision that Facebook presents of the Oculus is largely one grounded in the technology's potential. Even though the technology is nascent, it is imagined as having a strongly felt impact *when* its adopted. But, because the technology is yet to be widely adopted, evaluating its impacts on the lives of users – through approaches like observation methods – is impossible.⁶

Instead, we adopt Kudina and Verbeek's (2019) 'mediation' focused approach to thinking about human values in relation to emerging technologies. As Verbeek (2006) writes elsewhere, mediation can be understood as how the material properties of technology variously shape human thought and action. Drawing in part from Heidegger's (2008) well known tool analysis, Verbeek writes that we ought to take seriously technology not just as encountered in a 'zuhanden' (ready-to-hand) mode, of being intuitive, embodied and withdrawn from attention, but also in a detached or analytical 'vorhanden' (present-at-hand) mode (giving the example of a traffic sign. See Verbeek, 2006: 367). Vorhanden encounters with technology are particularly important in thinking the design and proliferation of new technologies. As Verbeek argues, a large part of design lies in attempting to "imagine what mediating role the technology they are designing might play" (2006: 372) – something which increasingly happens through the presence-at-hand of things like advertising or promotional material (Kudina and Verbeek, 2019).

The question for Verbeek, then, becomes one of how people envisage these anticipated forms of mediation in their lives, and moreover, how human values might be understood in relation to these imagined visions of what technology offers. Kudina and Verbeek (2019) frame a response to this question as part of their work in developing ethical principles around technological advancement in light of the Collingridge problem – that is, the methodological problem where if a technology is not yet widely adopted, we run the risk

⁶ As such, studying Facebook's use of VR necessitates taking a different approach to existing research on emerging technologies – such as those in anthropology of the future – which focus, often from ethnographic, phenomenological perspectives, on current habitual engagements with new technologies in light of prevailing dystopian or utopian visions of technological advancement (for example, Pink et al.'s (2018) study of people's perceptions of autonomous driving technologies).

of being too speculative in anticipating its impacts. But, if we wait until it is widely adopted in society, it becomes difficult to challenge its entrenchment and power. Offering a potential way out of this double bind, they suggest paying further attention to mediation, and specifically to how individuals come to envision emerging technologies, as imagined and discursively framed by corporations, within their own lives.

Kudina and Verbeek demonstrate this approach through a case study of the Google Glass, an augmented reality technology that famously failed to reach (its intended) market, despite much corporate hype, due to fears of violating privacy. Kudina and Verbeek suggest that by looking at human practices and experiences we can learn something about emerging technologies and how they might conflict or fit in within existing value frameworks. Such an approach allows us to think the interplay between speculative futures and people's perception of the present. Moreover, it provides a sense of where the technology might conflict with human values, thus positioning us better to challenge the credibility and authority of corporate imaginaries, and moreover to critically engage – and potentially resist – the rollout of this technology in future. Consequently, we examine how people anticipate the mediating role of Facebook's VR in their daily lives and practices. Recognising points of conflict between people's values and the imaginary is helpful in problematising these futures and thinking of how these futures might be made more ethical.

Towards VR as a 'social computing platform': Imagining VR as social media

In our analysis of Facebook's imagination of the Oculus, the most notable theme was of the Oculus *as* social media. While the idea of social VR has existed in the public consciousness for some time, Facebook's framing presents a VR future as imminent, powered through Facebook's existing platform infrastructure. The main discourses we found relating to this theme were 1) the Oculus as facilitating intimacy, affectivity, and connection between end users, 2) the Oculus as connecting end users and content creators, 3) the Oculus as seamlessly incorporated into everyday life, and 4) an Oculus/Facebook future as militant against privacy threats (avoiding addressing questions of corporate data accumulation).

Connecting end users with other end users

VR was imagined as connecting end users with other end users, enabling intimacy and affectivity through the specific affordances of the combination of the Oculus and Facebook's existing social suite. This resonates with Bucher and Helmond's (2018) claims about specific social media affordances facilitating specific ways of doing, being, and feeling. As Oculus' Head of Product Marketing, Meaghan Fitzgerald notes, VR offers the capacity to make "meaningful connections" with other users, through the integration of Facebook friends (and Messenger functionality), and the ability to view (and create) Facebook content from VR (e.g. viewing and posting to one's Facebook feed using the Oculus).

As Zuckerberg puts it in his OC6 keynote, Facebook's entry into VR represents a pathway to a new kind of "social computing platform", part of a wider move on the company's part to aim to use computers for "human", "social rituals" facilitated through giving an enhanced feeling of "presence". These claims are consistent with Zuckerberg's framing of Facebook more broadly (cf. Rider and Murakami Wood, 2019; Hoffmann et al.,

2018), and claims about Facebook as 'social infrastructure'. Elsewhere, in a presentation by Facebook's vice president of virtual and augmented reality Andrew Bosworth at OC6, the Oculus is imagined as enhancing the social capacity of Facebook through increasing feelings of proximity at a distance. It is perhaps fitting that Bosworth – who heads FRL – is making this comment about the platform's VR transition, having previously headed the company during another transition from the desktop to mobile. Looking to the future, an advertisement for FRL plays during Bosworth's talk – signalling the company's ambition to develop mixed reality interfaces – visually augmenting the world with interactive digital interfaces as to make it feel “more immediate, more intuitive, more natural, more human”. Oculus Chief Scientist Michael Abrash describes Oculus as offering the capacity for “high bandwidth” computing, framed as letting “us do more of what makes us human, especially socially”.

These talks by Zuckerberg, Bosworth, Fitzgerald and Abrash tie these developments in communication to an enhanced version of Facebook's proprietary software. This presents an interesting twist on how VR is typically imagined as a kind of posthuman extension of human capacities for action through assemblage of body and technology. For Zuckerberg and others, VR is framed not as simply a simple extension of some essential human condition of community or sociality. Instead, it is framed as enhancing, specifically, a Facebook-mediated form of communication, one that has become pervasive through the platform's dominance over the last decade. It is also presented as enhanced *by* Facebook's widely used social network and range of social software (as we see with the example of consuming content on one's Facebook feed).

Appealing to and connecting end users and content creators

The “meaningful connections” between users Fitzgerald describes as afforded by the Oculus are not only between end users. Zuckerberg discusses VR as a “platform” for the creation and distribution of content, connecting end users and content creators. As a range of researchers studying the business models and political economy of platforms have suggested, most large social media companies are reliant upon facilitating direct interactions between end-users and content creators (see Srnicek, 2017). Platform owners benefit variously from this – from a stream of content being outsourced to content creators, to an influx of users drawn in by this content.

The appeal to users is underlined in claims about the breadth of content available on the platform, but also through Facebook's attention to the price and mobility afforded by new mobile versions of the Oculus – specifically, the Oculus Quest and the Oculus Go. As Oculus product manager Stephanie Lue puts it at OC6, “you simply can't beat this [the Quest's] combination of content, form factor and price”. Imagining Oculus as not only relatively cheap, but untethered from the often-expensive PC hardware needed to operate VR, situates it as an accessible, everyday consumer technology rather than limited to the domain of technological enthusiasts.

But beyond end-users, at OC the Oculus is imagined as something with direct appeal to developers in creating platform content (who, ostensibly, can capitalise on the anticipated growth of VR's popularity). We see this at OC5 during a developer session about the Oculus

Software Development Kit – software development utilities that are directly integrated into popular game engines Unity and Unreal. Discussing the SDK, software engineer Volga Aksoy notes that the Oculus' success is reliant upon a “healthy VR ecosystem”, and that “we need healthy and productive app developers that are creating the high-quality content...in shorter amounts of dev time”. Through a robust SDK compatible with popular technologies and techniques of game design, the Oculus is normalised as *the* platform for VR development, with this control of the VR content pipeline very obviously accruing benefits to Facebook. There are indeed strong parallels here to Facebook's wider approach to profitably mobilising platform complementors (see Plantin et al., 2018. See also Dalton, 2015). Beyond this, developing for the Oculus is made to appear financially appealing. Underlining the potential for profit, as Zuckerberg puts it at OC6, touting the financial success of the Oculus, “I am proud to share the news that as of today, people have bought more than \$100M of content in the Oculus store”.

Thus, when Zuckerberg and others invoke the term ‘platform’ to describe the Oculus as a technology with various affordances to both end-users and developers, it is not one that signifies a neutral intermediary facilitating the distribution of cultural content (cf. Gillespie, 2014). Such a framing obscures Facebook's clear profit motive. What it actually describes is how the Oculus is situated between users and developers, operating as the means through which these parties interact – a relationship Facebook looks to facilitate by making VR technology more accessible and appealing for both users and developers.

Everyday VR

Another key aspect of the Oculus imaginary was in situating it as a normalised part of people's everyday lives, receding into the background of everyday life, and used for ‘essential tasks’ (like communicating rather than entertainment), chiming with how Facebook has been framed in public facing discourse by Zuckerberg (see Hoffmann et al., 2018). Framing the Oculus in this way focused particularly closely on how it could be incorporated into domestic spaces.

We see this rhetoric strongly during Oculus' then-CTO John Carmack's 2018 keynote at OC5. Carmack suggests that we alter our expectations of the VR medium, particularly around narratives of full body immersion (invoking the gestural excess at play common in many, including Facebook's own, advertisements of VR). As he puts it, “when you have people swinging around wildly and ducking and bending with VR...that's not going to be the reality of the way people are using this product.... it's going to be a niche thing.” Carmack goes on, “the classic VR thing is the bending, diving and chucking things.... it's exciting, but you don't necessarily want to be doing that every day or even every week”. At OC5, Carmack – one of Oculus' most credible game developers – instead imagines VR as occupying a more mundane role, situated in everyday domestic spaces, used for purposes beyond gaming.

While social and everyday VR was presented as something imminent at OC6 (specifically, Facebook Horizons), this discourse around everyday, social computing was presented as something emerging further in the more distant future. As Zuckerberg puts it,

“now sure, we have a lot of work to do...but you can already see glimpses today of how the devices that we’re all working on are helping to deliver a feeling where we are more present with the people we are interacting with”. As Bosworth notes, “while we can maybe just glimpse it today, I am convinced that in the future this kind of profound presence with the people we care most about should be possible in VR”. Abrash likewise claims that “VR hasn’t changed the world yet, but it will... VR and AR is going to be the most significant technology of the next 50 years”, commensurate with the transformative impacts of personal and mobile computing. These claims are deliberately uncertain about *when* everyday VR will be realised (perhaps to protect against faults in the present, or to not be held accountable to shareholders and investors for failing to deliver on their promise by a certain point in time). But while futuristic, they hold a common assumption that *once* normalised and incorporated into people’s everyday routines, Facebook’s VR will find success.

Data and privacy

Social media are increasingly understood as sites for the accumulation of data about individuals tastes, habits, and so on (Zuboff, 2019). Conspicuously, something left out of Facebook’s discussions was any meaningful engagement with questions of data and privacy – a particularly glaring omission considering Facebook’s unscrupulous data practices in recent years. One developer session on Facebook’s upcoming social software ‘Horizons’ addressed questions of data and privacy, yet framed discussion around the individual privacy of the user. As the presenters Yanjin Long (a Facebook user experience researcher) and Maheen Sohail (a product designer for Facebook’s AI and VR) put it, the goal with Horizons is to “balance safety and self-expression”. While the question of surveillance is broached, it is framed solely around strategies for mitigating against forms of ‘social surveillance’ (Marwick, 2012) – the often-undesirable surveillance of users by others via digital traces on the internet.

While this is important in helping individuals protect their own social boundaries, what is absent here is a serious consideration of Facebook’s inevitable use of granular, VR data. Notably, Facebook have recently revealed that VR data will provide recommended software to users with their Oculus/VR accounts linked (something, which come 2023, will be required rather than optional, as it is at present. See Robertson, 2020). Moreover, the Oculus terms of service reads that data will shared amongst Facebook subsidiaries. In this way, much like with other emerging technology (see Gekker and Hind, 2019 on connected and autonomous vehicles), and indeed Facebook’s other social software, surveillance is simply a price of entry for Oculus users.

Facebook’s skirting of a meaningful discussion about data (especially in light of their historic and well documented data accumulation practices) is a move that appears to keep the veneer of ‘ethical technology’ without actually addressing the more pernicious aspects associated with it (cf. Green, 2019). Given that Facebook have profited immensely from technological innovations (such as harnessing locative, mobile technology, see Goggin, 2014), powering a highly profitable advertising apparatus (from which it reportedly makes 98% of its revenue), it’s not hard to imagine where the granular and intimate data collected via the use of VR could benefit the company’s bottom line. Framing questions around

surveillance in terms of individual privacy is discursively advantageous to a company such as Facebook, who has a poor track record when it comes to ethical use of data. 'Privacy', frames data as an issue of personal responsibility, and personal choice (who we want to give our information to) rather than how data is extracted from our uses of the platform, and used in unknown ways.

Values and perceptions in relation to social VR and the Oculus imaginary

To study how corporate imaginaries of the Oculus are received by users and to anticipate potential ethical issues, next we present our analysis of YouTube comments in relation to two videos – 'Welcome to Facebook Horizon' and 'Day 1 Keynote – Oculus Connect 6'.

Drawing from Kudina and Verbeek's (2019) mediation approach, we focus specifically on how the Oculus imaginary relates to people's existing value frameworks. We focus on two themes – first, anxieties surrounding the possibility of data extraction, and second, concerns surrounding expression, platform moderation, and the cultural politics of VR.

Extractive anxieties

As we noted in the previous section, Facebook's relationship with the data accumulated through the Oculus is presented in opaque terms. The ends to which Facebook will utilise the data that VR invariably produces are uncertain. This uncertainty was, seemingly, a key part of how users felt about and responded to the Oculus. Responses variously articulated anxieties about data privacy and the accumulation and expropriation of their data by Facebook. These included anxieties around the perceived harms caused by data accumulation as a kind of surveillance – particularly in how it might create asymmetries of power, as well as how the potential for data extraction breaks expectations of individual privacy.

Referencing the Cambridge Analytica scandal – in which the data of Facebook users was non-consensually harvested for political advertising purposes – one user emphatically remarks in response to Zuckerberg's keynote address at Oculus Connect 6: "Cambridge Analytica needs more data! Moreeeee!". Another says "And now we have more cameras going into our houses...like 6 more with this device. What a way to help spy on your families Right Mark?". In this way, the commenter addresses wider concerns with the growing power of IoT technologies in the home – with the Oculus simply another part of this surveillant assemblage.

Elsewhere, there is attention to the specifically biometric nature of surveillance imagined to be afforded by VR. While some users embraced Facebook's booster narratives of enhancing the technology's capacity to register and track bodily inputs (e.g., around the prospect of advances in Oculus hand tracking technology, "who needs a valve index when you gotta quest with hand tracking", "hand tracking! We in the future now boys"), there were also concerns about data and privacy specifically to do with the potential of VR for gathering biometric data. As we see in the following comment

"Guy [Zuckerberg] studies psych and computer science. Launches facebook and starts selling really cheap VR sets with body/motion/everything tracking devices to place them in as many homes as possible. I'm not sure how I feel about this... No lessons have been learned except how to mine data more effectively."

As this user points out, there are concerns here about Facebook abusing the richer data accumulated through VR, much as they have done in the past through Cambridge Analytica, or Facebook's noncompliance with privacy laws surrounding facial recognition.

Beyond threats to privacy, there was also a general unease about the technology's use to advance Facebook's platform empire, and the way that VR is simply another extractive digital sensor technology that will impose upon and extract from our everyday lives. As one user notes, "my impression is Zuckerberg is more into pleasing his company (\$\$\$\$\$) and dominating the social networks". Another user writes "If only Zuckerberg wasn't syphoning all of our data so that he can build a fortune telling AI system". In this second statement, as the commenter articulates, through their speculative claim about how Facebook might mobilise their personal information there is a concern of data being used for *something*, yet a lack of certainty about what that thing is. This chimes with existing work by Bucher (2017) on the algorithmic imaginary, where nonexpert users of Facebook articulate their feelings (such as anxiety or annoyance) about the power of 'black boxed' algorithms.

In essence, the anxiety articulated here – about Facebook's accumulation of power and profit via the extraction of data about users – maps onto recent critiques of digital capitalism in the moment of digital platforms (see e.g. Monahan and Murakami Wood, 2019; Sadowski, 2020; Srnicek, 2017; Zuboff, 2019). Here, digital sensors are seen as apparatuses for value extraction. One common dimension of these forms of contemporary digital capitalism is targeted advertising based on platforms amassing large quantities of information about their users' tastes, habits, etc. Following the completion of our data collection process, Facebook announced it would be integrating targeted advertisements based on VR use history (Hamilton, 2019). One user suggests, presciently months before Facebook announced its plans to use VR data for targeted advertising, that the Oculus will likely serve as a mechanism for advancing Facebook's lucrative advertising programme. "This could have been really cool, like Ready Player One. But [...] ads, privacy, etc. I don't trust you to do the right thing. In fact, I expect you to sell my info, monetize my likes and abuse every piece of data you can scrape from me, willingly and unwillingly." In short, the range of different activities performed by the user on the platform – generating data – are perceived to be making Facebook rich.

Thus, for some users, Zuckerberg's boosterism was not able to mask the political economy of Facebook – one where power and profit derives largely from the accumulation and expropriation of our personal information. Unlike the imagined Oculus user presented in the Horizons advertisement⁷, who uncritically accepts the device as a sensor technology in her home, the comments we examined were attuned to issues of data, privacy and power. Of course, this practice of data extraction meant different things to different commenters – as we've laid out here. Some identified issues surrounding privacy, where others focused on the perceived use of VR to benefit digital capitalism.

⁷ See <https://www.youtube.com/watch?v=Is8eXZco46Q>. This vide was presented during the OC 2019 main stage talks.

Platform moderation and the cultural politics of VR

The second recurrent theme, in which there was conflict with existing value frameworks of everyday individuals, was to do with platform moderation and the cultural politics of VR. Mindful of the imaginary of the Oculus as social media, we noted users questioning how Facebook's current approaches to platform moderation impact (or potentially impede) the vision of a social VR future. There were two opposing positions we observed being played out in the comments. First, that Facebook would be too restrictive on the capacities for expression, stifling the expressive and communicative potential of VR. Second, that Facebook's VR would intensify many of the most toxic aspects of Facebook.

Across the material, we observed that Facebook was perceived as restrictive in their content moderation (by virtue of moderating the platform at all), and as such, perceived to be limiting the expressive potential of VR. As one user notes, "It will be interesting to see how Facebook censors this - the way they have their conventional social media. You can be sure that there will be no freedom of speech or ideas". Such a perspective – grounded in a desire for absolute autonomy, freedom and immersion – bears some resemblance to the way emerging technologies have historically been imagined. As Turner (2010) points out, emerging technologies have long been aligned with libertarian politics – a politics stressing individual autonomy and empowerment (and one often gendered, raced and classed, in that it favours those in society who are already positioned to become empowered, rather than those who are marginalised). Indeed, as Harley (2019) suggests, VR's emergence (and original imagination as gaming technology) can be situated within a milieu of misogynistic videogame culture and reactionary right political views – rhetoric famously espoused by Oculus founder Palmer Luckey.⁸

This desire for unrestricted autonomy was further emphasised by users who contrasted Facebook Horizon, to the existing Oculus Rift application VRChat (not developed by Facebook). VRChat – a chatroom-style application in the vein of games like Second Life – became famous after its broadcast by high profile streamers and YouTubers, particularly for the spectacle of its anarchic gameplay and the creation of racist memes. As one user writes, "VRCHAT WANTS THEIR IDEA BACK ZUCKERBERG. HAVE FUN WITH VRNORMIES". As another writes, "I'll take the chaos of VRChat over Facebook's SafeSpace version." We note the clear parallels here to the work of de Zeeuw and Tutters (2020), who note the contrasts between the personal, friend-oriented, private and filtered nature of Facebook to the Chan imageboard, and its vernaculars of dissimulative identity play, memes, and trolling.

What emerges from these comments on VRChat, and the prospect of Facebook Horizon, is a perception of ceding autonomy in expressing oneself, but also a sense of resentment over a perceived landgrab of the VR medium – of Facebook taking it and 'sanitising' it for wider audiences by integrating into its broader suite of social software.

⁸ Luckey left Facebook in 2017. Official details surrounding his departure are nebulous, however it is speculated that it was to do with the support of pro-Trump and alt-right politics. Luckey's politics have only been made clearer in recent years, with his post-Oculus venture, Anduril – a technology company which, amongst other things, develops sensor devices for the US Immigration and Customs Enforcement to police illegal border entry.

Certainly, as Chesher's (1994) account of VR discourse from 1984-1992 highlights, attempts to consolidate a particular, coherent 'vision' of VR is nothing new. The 1980s and 1990s, he writes, were a period fraught by attempts to discursively "colonise" the VR medium (across spheres like the computer industry, the military, science fiction and the arts, and counterculture). What is new here, however, are the sentiments of dispossession and marginalisation being invoked. There are certainly clear parallels to other moments of resistance in the 'normalisation' of once-niche technologies, cultures and practices for wider commercial audiences. A recent comparison is the 2014 GamerGate movement (documented in Massanari, 2017). Thus, riffing off Chesher and employing a different spatial description, from the perspective of these aggrieved users we might think of Facebook's entry into the VR space as *gentrification* – renovating the medium for a wider audience.

Beyond claims that the anarchic gameplay would be stifled, there was a recurrent theme to do with Facebook's perceived political bias and perceived discrimination against right wing views (particularly those espoused by online reactionary right movements such as the alt-right). As one user notes, "In before everyone with right-wing opinions gets booted out.". Chiming with the previous discussion of 'gentrification', another user writes "Facebook's safespace is for normie sjw types."⁹ Another touches on moderation, suggesting "Moderated social experiences are just not the same as a VRCHAT for example. Unmoderation is important for creativity and long life span". Given Harley's (2019) examination of the relationship between right wing political views (and online right-wing movements such as GamerGate and the alt-right), Palmer Luckey and the Oculus, this rhetoric is perhaps unsurprising – with this move representing once again a perceived annexing of the territory of VR (characterised initially as offering limitless capacities for action) by Facebook for a large commercial audience. While we have noted a conflict here between users' values and the Oculus imaginary, we believe this highlights an example of where this conflict is positive, challenging VR's potential use for channelling or mobilising exclusionary or hateful political sentiment. Of course, given how Facebook currently operates as a relatively free-flowing source of exclusionary discourse and political misinformation it is unclear whether the future that these users imagine will ever materialise as such.

In contrast to a view of Facebook as restrictive and interventionist, some users suggested that VR would simply extend many of the toxic and exclusionary behaviours and environments in the current version of the platform. As one user puts it "VRChat for my racist aunt!". Another notes, "I'm pretty sure it will turn cancerous and memetastic like any other Social VR platform." Another writes "I like to hang out in Rec Room when I feel like being verbally assaulted", "I fear Facebook Horizon is going to quickly turn into another platform for people to show just how horrible human kind is." Where the previous commenters were occupied with a concern with restrictions on expression, what is underlined here are questions about who platforms might be weaponised against. Indeed, in the future it will be key that Oculus thinks closely about not only which users the platforms benefits, but

⁹ It bears mentioning, as de Zeeuw and Tuters (2020) outline, that the kinds of reactionary right perspectives associated with movements like the alt right often dovetail with users of communities such as 4chan, 8chan etc.

which likely vulnerable and marginalised populations the platform will be weaponised against.

In sum, while the Oculus is imagined by Facebook as offering rich capacities for communication – or what Abrash calls “high bandwidth” communication – its detractors suggest that this will either be i) restricted (due to Facebook’s policies surrounding platform moderation), or ii) if not properly moderated, potentially weaponised.

Conclusion

This article has offered what we believe to be the first sustained account of a post-Facebook Oculus imaginary. We have examined some of the promises of Facebook’s VR future, who it might benefit, and how this vision might conflict with existing value frameworks.

The narrative we present shows how Facebook and Oculus depart from dominant and existing imaginaries of VR as a completely immersed experience, or of VR as gaming media. Instead, VR is imagined as part of an everyday repertoire of communication, something with a high capacity for affect and creating feelings of proximity at distance. Additionally, and in line with previous attempts to appeal to a market of developers, Oculus is imagined as a platform upon which users can create and distribute their own content. While we found that Facebook addressed mounting concerns with privacy, this was limited to the instance of privacy at the level of the individual user – rather than more broadly about the company’s treatment of data it will gain from VR.

Although imaginaries – such as the Oculus imaginary – are constructed to normalise a way of living with a particular kind of technology, these imaginaries are by no means uncontested. As we found in the second part of our analysis, many users articulated how Facebook’s vision of a VR future was expected to conflict with their own values, such as those regarding privacy or expression using the platform, or the potential for the platform’s weaponization. These findings usefully revealed some of the potentially problematic areas of an Oculus future. We also found that some areas of conflict might be taken as a positive change – particularly, the conflicts between Facebook’s imagination of a VR future and exclusionary and reactionary political viewpoints.

As work on imaginaries of emerging technologies tell us, technology companies’ discursive framings of ‘the future’ is a powerful technique for shaping how people think and feel about technology in the present. These imaginaries also reveal the aims, logics and biases of big tech companies and the futures they want, and crucially, the attendant inequalities of these futures. But crucially, these futures are still futures in the making, things in which we can actively intervene. Through identifying what the Oculus imaginary is, and by anticipating areas in which the technology may conflict with human values, we are better situated to critically engage, and potentially resist, a future in which Facebook’s VR operates as a site of inequality.

References

- Beer D (2017) The data analytics industry and the promises of real-time knowing: perpetuating and deploying a rationality of speed. *Journal of Cultural Economy* 10(1): 21-33.
- Bucher T (2017) The Algorithmic Imaginary: Exploring the ordinary affects of Facebook algorithms. *Information, Communication and Society* 20(1): 30-44.
- Carter, M and Egliston B (2020) Ethical Implications of Emerging Mixed Reality Technologies. *Socio-Tech Futures Lab: University of Sydney*.
<https://doi.org/10.25910/5ee2f9608ec4d>
- Chesher C (1994) Colonizing virtual reality: construction of the discourse of virtual reality. *Cultronix* 1(1): 1-27.
- Dalton C (2015) For fun and profit: the limits and possibilities of Google-Maps-based geoweb applications. *Environment and Planning A* 47(5): 1029-1046.
- De Zeeuw D and Tuters M (2020) Teh Internet is Serious Business: On the Deep Vernacular Web and Its Discontents. *Cultural Politics* 16(2): 214-232.
- Evans L (2018) *The Re-Emergence of Virtual Reality*. New York, NY: Routledge.
- Foxman M (2018) Playing with Virtual Reality: Early adopters of commercial immersive technology (unpublished doctoral thesis, Columbia University, USA). Retrieved from <https://pdfs.semanticscholar.org/287f/3d0a0e75e0c3dcffc2edfa34e3465e0ef837.pdf>
- Gekker A and Hind S (2019) Infrastructural surveillance. *New Media and Society*. Epub ahead of print. DOI: [10.1177/1461444819879426](https://doi.org/10.1177/1461444819879426)
- Gillespie T (2014) The politics of 'platforms'. *New Media and Society* 12(3): 347-364.
- Goggin G (2014) Facebook's mobile career. *New Media and Society* 16(7): 1068-1086.
- Golding D (2019) Far from paradise: The body, the apparatus and the image of contemporary virtual reality. *Convergence* 25(2): 340-353.
- Green B (2019) *The smart enough city: Putting technology in its place to reclaim our urban future*. Cambridge, MA: MIT Press.
- Gregg M (2015) Inside the data spectacle. *Television and new media* 16(1): 37-51.
- Hamilton I (2019) If logged into Facebook, Oculus VR data will now be used for ads. Retrieved from <https://uploadvr.com/facebook-ads-vr/>
- Harley D (2019) Palmer Luckey and the rise of contemporary virtual reality. *Convergence*. Epub head of print. DOI: [10.1177/1354856519860237](https://doi.org/10.1177/1354856519860237)
- Heidegger M (2008) *Being and Time*. New York, NY: Harper Perennial Modern Thought
- Helmond A, Nieborg D, and van der Vlist F (2019) Facebook's evolution: development of a platform-as-infrastructure. *Internet histories* 3(2): 123-146.
- Highfield T and Leaver T (2015) A methodology for mapping Instagram hashtags. *First Monday* 20(1-5). Retrieved from <https://firstmonday.org/article/view/5563/4195>

- Hoffmann A, Proferes N, and Zimmer M (2018) "Making the world more open and connected": Mark Zuckerberg and the discursive construction of Facebook and its users. *New Media and Society* 20(1): 199-218.
- Jasanoff S (2015) Future imperfect: Science, technology, and the imaginations of modernity. In: Jasanoff, S. and Kim, S. (eds), *Dreamscapes of modernity: Sociotechnical imaginaries and the fabrication of power*. Chicago, IL: University of Chicago Press, pp. 1-34.
- Jasanoff S and Kim S (2009) Containing the atom: Sociotechnical imaginaries and nuclear power in the United States and South Korea. *Minerva* 47(2): 119-146.
- Jewitt C, Leder K and Price S (2019) Digital touch for remote personal communication: An emergent sociotechnical imaginary. *New Media and Society*. Epub ahead of print. DOI: [10.1177/1461444819894304](https://doi.org/10.1177/1461444819894304)
- Kirkpatrick G (2016) Making computer games normal: Computer gaming discourse in the 1980s. *New Media and Society*, 18(8), 1439-1454.
- Kudina P and Verbeek P-P (2019) Ethics from within: Google Glass, the Collingridge Dilemma, and the mediated value of privacy. *Science, Technology, and Human Values* 44(2): 291-314.
- Madary M and Metzinger T (2016) Real virtuality: A code of ethical conduct. Recommendations for good scientific practice and the consumers of VR-technology. *Frontiers in robotics and AI* 3(3): 1-23
- Marwick A (2012) The Public Domain: Surveillance in Everyday Life. *Surveillance and Society* 9(4): 378-393.
- Nagy J and Turner F (2019) The selling of virtual reality: Novelty and continuity in the cultural integration of technology. *Communication, culture and critique* 12(4): 535-552.
- Nieborg D and Helmond A (2018) The political economy of Facebook's platformization in the mobile ecosystem: Facebook Messenger as platform instance. *Media, Culture and Society* 41(2): 196-218.
- Pike J (2019) 'Something that is ours': VR and the values of gaming's field. Proceedings of DiGRAA '19. Retrieved from http://digraa.org/wp-content/uploads/2019/01/DIGRAA_2019_paper_31.pdf
- Plantin J-C, Lagoze C, Edwards P and Sandvig C (2018) Infrastructure studies meet platform studies in the age of Google and Facebook. *New Media and Society* 20(1): 293-310.
- Rider K and Murakami Wood D (2019) Condemned to connection? Network communitarianism in Mark Zuckerberg's "Facebook Manifesto". *New Media and Society* 21(3): 639-654.
- Robertson A (2020) Facebook is making Oculus' worst feature unavoidable: Oculus owners will need a Facebook account, and many aren't happy. Retrieved from

<https://www.theverge.com/2020/8/19/21375118/oculus-facebook-account-login-data-privacy-controversy-developers-competition>

Ryan M-L (2001) *Narrative as virtual reality: Immersion and interactivity in literature and electronic media*. Baltimore, MD: Johns Hopkins University Press.

Sadowski J (2020) *Too smart: How digital capitalism is extracting data, controlling our lives, and taking over the world*. Cambridge, MA: MIT Press.

Sadowski J and Bendor R (2019) Selling smartness: Corporate narratives and the smart city as sociotechnical imaginary. *Science, technology and human values* 44(3): 540- 563.

Srnicek N (2017) *Platform capitalism*. London: Polity.

Turner F (2010) *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism*. Chicago, IL: University of Chicago Press.

Verbeek P-P (2006) Materializing morality: Design ethics and technological mediation. *Science, technology and human values* 31(3): 361-380

Zuboff S (2019) *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. London: Profile Books.