

ORIGINAL ARTICLE

# The Selling of Virtual Reality: Novelty and Continuity in the Cultural Integration of Technology

Jeff Nagy & Fred Turner

Department of Communication, Stanford University, CA 94305, USA

*Since the spring of 2014, the consumer virtual reality (VR) industry has once again been racing to reach the public, providing an opportunity to track an emerging medium's cultural integration in real time. We examined three sites on the sales chain that stretches from the laboratory to the living room: industry developer conferences, industrial prototypes, and end-user experiences. At each of these sites, marketers renegotiate VR's novelty in order to sell it to specific constituencies. Paradoxically, these negotiations reveal how VR, typically presented as a disruptive innovation, has been called upon to stabilize and ensure the continuity of the past: that is, of particular cultural forms and of the industrial and technological infrastructures that sustain them. We argue that the enculturation of VR demonstrates that the processes that summon new technologies and construct them as novel also reinforce existing—and often unspoken—agreements about the ways that culture should be organized.*

**Keywords:** Virtual Reality, enculturation, social construction, diffusion, innovation, technological disruption

doi:10.1093/ccc/tcz038

In the fall of 2014, if you walked into one of a dozen or so American bars, you would have been offered something a little different to go with your drink: an Oculus Rift virtual reality headset. When you put it on, you'd have found yourself in a luxuriously furnished pseudo-Mexican mansion. A young woman in elbow-length black gloves and a bustier would have flicked her eyelashes in your direction. Slightly older women, in elegant floor-length gowns, would have toasted you with a bottle of Dos Equis beer. And in the center of the room, a bearded, white-haired gentleman in a smoking jacket and bow tie would have announced that you were the party's guest of honor (Burns, 2014; Turner, 2015).

---

Corresponding author: Jeff Nagy; e-mail: jsnagy@stanford.edu.

Until you removed the goggles, you would have inhabited a carefully constructed universe in which you and a brand of beer—Dos Equis—were the center of the action. And though you might have thought your experience was one of a kind, the developers of the Oculus Rift and other virtual reality (VR) headsets that have lately come to market would have known better. Since at least the spring of 2014, when Facebook bought Oculus Rift for \$2 billion (Wingfield & Goel, 2014), the VR industry has been racing to reach the mass public. To marketers at firms like Oculus and Google and to journalists at *Wired* and *Fortune*, relatively inexpensive headsets that can produce three-dimensional (3D) images and localized sound effects have brought VR to an inflection point. It has been there before, of course: few in the industry can forget the VR craze of the early 1990s or, more recently, the vogue for 3D TV in the early 2000s. But over the last few years, technology developers, media firms, and any number of niche players have been working assiduously to help VR become our next mass medium.

This fact offers scholars an opportunity to track the enculturation of an emerging medium in real time. To date, historians and sociologists of technology have tended to use historical examples, centering questions of how a given technology came to assume a final, stabilized form (Abbate, 2000; Bijker, 1997; Bijker, Hughes, & Pinch, 1987; Fischer, 1992; Mackenzie & Wajcman, 1999; Marvin, 1988; for a perspective that de-emphasizes stabilization, see Manovich, 2013). Analysts more closely tied to the worlds of marketing and manufacturing have worked on contemporary technologies, especially computing, yet they have tended to assume the technological stability of artifacts and to foreground how users and marketers helped them “diffuse” through society (e.g., Rogers, 2003). In this paper, we blend these traditions in order to help explain how VR has become the medium of the moment. Like historians and sociologists of earlier technologies, we assume that a new medium must travel a long road from the laboratory to the end user. As it does, it must traverse a series of social worlds in which its form and uses will be renegotiated and its existence made practical and legitimate. Like industry analysts, however, we also acknowledge that promoters of the medium must, in fact, sell it to smaller, carefully defined communities if it is ever to reach an undifferentiated mass audience.

We examined three key moments in the sales chain of VR: developer conferences, industrial collaborations, and end-user experiences. We chose these because they represent passage points through which most every contemporary brand of VR technology has travelled on the way from laboratory to consumer. At these sites, we focused on corporately orchestrated demonstrations of VR technology, which have constructed VR’s novelty for specific, crucial constituencies, and which, as Elena Simakova (2010, p. 554) has argued, “create and defend *tellable* versions of possible relationships between the corporation, market-users, and [the] product.” We view these demos both as sales situations and as rituals for the cultural integration of VR. They are intersections where narratives of production and narratives of consumption meet, and where their reconciliation is negotiated. These events allow us to watch as technologists and marketers not only work to overcome VR’s past failures, but also

to link VR to a series of well-established cultural narratives and practices. Attending to them, we can bring questions that have long preoccupied scholars of new media, as well as science and technology, to bear on our contemporary situation. How is VR becoming enculturated? As it travels along the sales chain, how is it articulated to legible cultural forms? And how does that process of articulation tie technological innovation to cultural continuity?

### How should we think about contemporary virtual reality?

Corporate spokespersons have asserted that contemporary VR is not merely an improvement on its failed precursors, but constitutes a radically new platform or even, in the words of Oculus' Chief Scientist Michael Abrash, "the *final* platform" (quoted in [Velazco, 2014](#)). Arguments that VR represents an entirely new medium echo arguments made for any number of earlier technologies. In fact, revisiting earlier scholarship on the cultural integration of new technologies reminds us that "newness" must be socially constructed and carefully managed: to find a wide audience, manufacturers and marketers must render the new both stable and familiar. Scholars have looked at this process through at least four distinct lenses, each associated with a scholarly field: the history of technology, the social construction of technology, actor network theory, and diffusion theory. Each has stressed a particular aspect of the enculturation process; together, they represent a toolkit we can bring to the study of VR.

Historians of technology have pointed to the way in which rituals connect new technologies to established values and customs, attaching social meanings to technological objects that were, at least from the perspective of potential end users, otherwise outside any discourse they could relate to. In their articulation to elements of traditional culture, emerging technologies became both emblems of the new and, ironically, vehicles for the reproduction of cultural continuity ([Cowan, 1985](#); [Marvin, 1988](#); [Spigel, 1992](#); [Turner, 2006](#)). Where historians have sought to see how emerging technologies became entwined with existing social patterns, social constructivist scholars have shown how social negotiations may be settled by and reified within the material structures of "stabilized" technologies, which, in turn, reframe user actions (e.g. [Bijker, 1987](#); [Carlson, 1992](#)). In actor-network theory, scholars foreground networks of "actants," which can be people, things, or combinations of both. The line between thing and signification disappears as humans and machines mobilize one another, translate their behavior into mutually legible idioms, and struggle for legitimacy and domination, a process from which both technological novelty and new social orders emerge (e.g. [Latour, 1988, 1994](#)). Finally, in the diffusion theory associated with Everett [Rogers \(2003\)](#), technologies emerge fully stabilized in laboratories and then travel out through "diffusion networks" peopled by "early adopters" and "change agents" until they arrive in open-minded, change-oriented communities and organizations and, ultimately, achieve mass adoption.

Set against actor-network theory, and even against the social constructivist tradition or Marvin's strand of the history of technology, Rogers' diffusion model can look simplistic. His affection for linear causation and sequential patterns of diffusion, his faith in liberal individuals and innovative devices, and above all, his trust in the corporation as a source of benevolent social and technological change, have made him difficult for scholars of a critical bent to take up. Yet we believe that Rogers' diffusion model presents a useful reminder that, particularly in an era of "big tech" and industrial concentration, technologies often do emerge in laboratories and factories, and many interested parties seek to help them find their way to users. And diffusion theory usefully directs our attention to sites where interested parties press technologies on new converts, highlighting ritual sales situations where we can witness technological novelty, interwoven with existing cultural forms.<sup>1</sup>

In the cases that follow, we've sought to identify three key way stations along this road. At each of these, VR's proponents have demoed the emerging technology for specific constituencies, strategically managing its novelty in ways that spoke to each group's particular concerns. At the first way station, the developers conference, keynote speakers have sought to enlist developers in extending the range of VR's affordances and spreading tales of its mass utility. In the second, VR developers have collaborated with an advertising agency in ways that demonstrate the utility of VR in advertising and, at the same time, reinforce the legitimacy of the industry's traditional storytelling techniques. Finally, industries have brought genres developed for earlier media technologies to life using VR, creating end-user experiences with an eye to recruiting neophytes to the medium. We envision the sales chain from the laboratory to the living room as akin to the supply and manufacturing chains that produce finished products from raw materials. As VR traverses each site in the sales chain, it accumulates social meaning as its proponents articulate it to preexisting cultural forms that make it legible and desirable, revitalizing those older forms in turn. In other words, following the example first set by [Pinch and Clark \(1986\)](#), we take the work of selling seriously.

Although we intend our consideration of VR to be useful to scholars working on other emerging technologies, the enculturation of VR as discussed below is a specific, historical phenomenon with a number of particularities. First, we should point out here that we examined only contemporary, commercial VR, using Oculus as a case study.<sup>2</sup> In terms of the particularities of VR that Oculus must confront, some are technological in nature, such as the inherent difficulty of publicly demoing a technology cast as personally immersive. Others are historical, such as the relatively recent history of VR's spectacular failure to reach the market in the 1990s. In the case studies that follow, these particularities often have become sites of potential contestation between VR's corporate spokespersons and the constituencies they have endeavored to recruit. We follow the strategic management of VR's novelty as spokespersons have sought to transcend these particularities in order to present VR as an ideal mass medium.

## Developers conference demos

Developers conferences (devcons) are a mainstay of the contemporary tech industry. They bring together groups from across the development chain—from hardware engineers to content studios to marketing firms—for a few days each year in conference centers and hotels. In established tech sectors, they serve as sites for the construction and coordination of interrelated markets and social networks around commercial technologies and generate excitement around new and updated products.<sup>3</sup> For emerging sectors like VR, devcons perform additional functions that are central to transforming technological novelty into sustainable commercial success. The few VR-specific devcons that currently exist, like Oculus Connect and the Virtual Reality Developers Conference, build consensus around VR, serving as sites for the construction and circulation of narratives that transform conflicting visions of what VR is and how it should be used into settled, legitimated outcomes, a function that trade shows fulfil in other industries (McInerney, 2008). Simultaneously, they serve as a point on the sales chain where hardware platforms with uncertain commercial futures are marketed to the constituencies of those developers that manufacturers rely on to create a viable content ecosystem.

Keynote addresses are a perennial and closely watched feature of devcons. A 2-hour block of tightly orchestrated presentations by corporate spokespersons, keynotes present a company's vision of itself and its future. A genre of corporate theatre that recombines aspects of infomercials, daytime talk television, awards shows, and motivational seminars, keynotes also often feature live product demos that aim to provide tangible evidence that a company's vision of an emerging technology is innovative and credible.<sup>4</sup> These keynotes and demos are an important source of what Kaushik Sunder Rajan (2006, p. 267), in his study of the emerging biotech industry, analyzed as hype: a form of "promissory visionary articulation that allows the conjuration of certain types of futures, to create the conditions of possibility for presents that allow those futures to materialize." Hype shapes "the discursive grounds on which reality unfolds" (Rajan, 2006, 116), weaving together a projected, idealized future and the messier, present conditions in which new technologies vie for support. However, when we apply Rajan's insights about the role of hype to VR, we can see that hype in devcon demos isn't just about conjuring a future; it's also about renegotiating a past and reactivating older cultural forms.

The stakes for devcon demos are high and, for VR, they have often been a particularly fraught affair, as can be seen from the Oculus Connect and Facebook F8 conferences, where spokespersons touted the Oculus Rift. At early iterations of Oculus Connect, when the technology was relatively unfinished and far from the commercial market, demos risked disappointing developer audiences. Clunky headsets and haptic interfaces could call to mind the relatively recent failures of VR and augmented reality, from the PowerGlove of the 1990s to Google Glass earlier in the 2010s. Even with market-ready technology, available by Connect 3 in 2016, spokespersons faced the problem of demoing a headset intended to produce

intense personal immersion for an audience who could not directly experience its signature effect. At Connect 3, during a segment billed as “the first live demo in VR,” developers had to infer the promise of VR immersion from watching a helmeted Mark Zuckerberg awkwardly pilot a cartoon avatar on a large screen behind him (Rubin, 2016).

Spokespersons work hard to neutralize these potential sources of contestation. First, they often renegotiate the VR industry’s past failures in the keynotes that contain demos. Platforms and peripherals that were cutting-edge in the late 80s and early 90s are resurrected in PowerPoint decks, in order to be ritually denigrated as dead-ends against which current products can be constructed as novel and progressive. For a characteristic example, during a discussion at Connect 2 of Oculus’ forthcoming haptic controllers, Michael Abrash, Oculus’ Chief Scientist, posed the question of what future haptic controllers might look like. An image of a 90s-era PowerGlove filled the screen behind him, on which he commented, laconically, “I’m pretty sure this isn’t the answer.” Shortly thereafter, Abrash invoked Douglas Englebart’s original prototype for the mouse, and it appeared on his slides where the PowerGlove had been. In a reflexive move, Englebart’s famously successful “Mother of all Demos” was invoked to buttress Oculus’ own demos of VR technology for an audience of developers. Abrash constructed a strategic genealogy for the Rift’s haptic controllers, one that positioned them as a descendent of Englebart’s canonical mouse and not of Lanier’s more recent but unsuccessful glove. Oculus, 2015 contemporary prototypes were, thereby, presented as future museum pieces: a rhetorical frame that enabled Abrash to assert, as he did at Connect 2, that “these are the good old days” developers will look back fondly on, while, in implicit contrast, previous VR industries embody the bad old days one would do better to forget or repress.

Spokespersons have found different tactics to sidestep some of the difficulties with demoing immersion. Elena Simakova (2010, p. 549) has argued that scholars should attend to “practices that accomplish demonstration virtually—without the technical object being shown in actual operation.” Oculus’ spokespersons have engaged heavily in “virtual” VR demonstrations to create future-oriented hype around VR, especially in the earlier stages of the Rift’s development. At F8 and Connect 2 in 2015, instead of demoing VR directly, spokespersons deployed a suite of perceptual illusions on the onstage projection screen, along with a hand-out kit via which developers in the audience could try some of them out for themselves. These classic illusions—from the McGurk effect to the Ebbinghaus illusion—stood in for the experience of VR: instead of demoing technologically novel immersion, Oculus demoed human perception itself, and the point of the demo was that system’s failure. At F8 2015, Abrash used these demos to ground a claim for VR’s eventual success: since, as developers could see for themselves, perceptual systems can fail to accurately perceive an external reality, Abrash argued that VR’s novelty will be to “present experiences directly,” exploiting the gap between perception and the world.

In “virtual demos” like these, Oculus spokespersons have consistently cited VR researcher Jeremy Bailenson’s dictum that “all reality is virtual” (in Hirshorn, 2014).

In the context of this claim, the stakes of Oculus' vision for a Rift-driven future are correspondingly heightened: VR is not merely a novel consumer technology, but one potentially coterminous with the world itself. At the same time, the idea that "all reality is [already] virtual" makes that vision seem within reach for those developers willing to commit to it. In order to motivate that commitment, spokespersons have drawn on well-worn cultural forms that naturalize the grand stakes of VR in relation to a future in which all reality will be virtual, at the same time that they have framed enrollment for developers.

To see this in action, we need only revisit the opening of Connect 3 in 2016. There, following on the heels of a high-profile live demo, Abrash delivered a keynote structured around a recounting of his own recruitment to VR in the early 1990s. In our survey of keynotes, we found that they often have included episodes in which engineers and executives have detailed their own initial resistances to taking active roles in VR development, followed by a change of heart after a critical encounter with VR tech or pioneering figures, and, finally, an unreserved embrace of what has been revealed as their true vocation. At Connect 3, Abrash provided a paradigmatic example of this narrative, which unfolded over two meetings with John Carmack of id Software: the studio responsible for developing 3D personal computer first-person shooters like *Doom* and *Quake*. At the first of these meetings, Abrash, then a graphics team leader at Microsoft, rejected Carmack's attempts to recruit him to id, unwilling to abandon stable employment and "a lot of stock options" for a plunge into the unknown. Between that meeting and the next, he had a chance encounter with Neal Stephenson's *Snow Crash*, a 1992 cyberpunk novel that serves as a touchstone for the industry. At the second meeting, as Carmack laid out his vision for a VR cyberspace over a meal in an unassuming Thai restaurant, "[it] resonated with *Snow Crash* in my mind, and I could actually feel the shape of the future emerging." Abrash left Microsoft, lured by a once-in-a-lifetime "sense of purpose beyond just writing good code": a moral recompense that trumped even vested stock options.

Abrash's story serves as an economic testimonial for developers uncertain about VR's potential profitability. But it also draws on an age-old American literary genre: the conversion narrative. Much like Puritan authors of the 17<sup>th</sup> century, Abrash passed from a state of sin, held back from his true calling by an attachment to safe but lucrative work, through an unsettling encounter with a holy text, to a full-blown vision of the "shape of the future" that led him to renounce his past life and devote himself body and soul to changing the world. His slides helped tell this story, showing first the exterior of Microsoft HQ, then the cover of *Snow Crash*, and finally the casual interior of the restaurant. The trajectory of images implied that VR, as incarnated in Oculus' Rift, isn't a corporate endeavor at heart, but something born of dreams shared between enthusiasts in humble surroundings. That Abrash's conversion involved renouncing material wealth spoke directly to the concerns of developers who might have been aware that VR has not turned out to be a gold mine (Leif, 2016). It offered Abrash's own renunciation of his Microsoft stock as a justification for the fiscal self-sacrifice that Oculus needed studios to embrace in the course of populating their app

store. Abrash modelled enrollment and adoption for potentially hesitant developers, encouraging them to find their own road to Damascus.

VR's advocates in devcon demos have both strategically rearticulated a proximate history of technological development and packaged that more recent genealogy in age-old cultural narratives, reconfiguring the pursuit of VR's future as a revival of America's millenarian heritage. As research in the social construction of technology and diffusion of innovations tradition would have suggested, Abrash and Oculus had convened multiple stakeholders with the goal of developing a sellable technology. A Latourian might argue they had gone some way toward building a network of human and mechanical actants on which VR's success would ultimately depend. At the same time, however, they also did the deep work of cultural stabilization. To persuade developers and engineers to move toward the future, they drew on visions and rhetorical techniques long associated with American Protestantism. Their demoing tactics reframed VR's development as a crusade, as journalist Dean Takahashi (2016) of VentureBeat put it: one to which the audience of developers had been called as a quasi-divine vocation, unified with Oculus in a community of faith.

### Industrial collaborations

Just as technology developers alone cannot divine the range of uses to which their devices might be put, professionals in media-driven fields cannot know in advance how a new device may work in their areas. Devcons, journalism, and word of mouth may shape both groups' expectations. Yet before a new media technology can reach a mass audience, its possible uses must be prototyped and its mass potential made plausible. Accordingly, hardware manufacturers have developed VR experiences to use in demonstrations to other media firms. In other fields, firms have taken up VR devices and developed industry-specific proofs of concept. For instance, the *New York Times* has promoted NYT VR, a cell phone-based system for accessing VR news content. Disney has developed VR movies for the HTC Vive and Oculus. And the National Football League has produced VR training simulations. Taken together, these efforts constitute a rich layer of social and institutional interactions through which we can observe the mechanisms of enculturation.

The range of such activities is wider than we can tackle in a single paper. Here, we want to focus on VR's integration into one media industry—advertising—in order to develop analytical categories that can span the others. As a case, advertising offers several advantages. First, the industry has long been keen to adopt new media early on and has rushed toward VR since 2014. Second, the business of promotion is particularly good at promoting its own work. VR advertising campaigns have been well covered in the press, and so are easy to study and compare. Finally, advertisers have a financial stake in being able to show that a new medium increases their clients' sales. Advertisers are thus very sensitive to impact metrics and advertising agencies have tracked each stage of VR's performance with care.

Advertisers and VR companies also have strong incentives to collaborate. Pundits in the tech and advertising press have argued that VR “could be the holy grail for marketers and brand advertising” (Shimoni, 2016). Coca-Cola, McDonalds, and many other Fortune 500 firms clearly agree, and have made VR advertising of their own (Wasserman, 2017). As one director reported, advertisers are attracted to VR because it promises to deliver potential customers’ undivided attention (Diaz, 2015). Advertisers, in turn, offer the VR industry the potential for long-term financial support. As one *TechCrunch* correspondent put it, “free content, and . . . quality content, will be the driving force for mass consumer adoption of VR” (Shimoni, 2016; see also Harwell, 2016). To fund that content, many argue, VR will need advertising.

To see how advertisers engage VR technology, we now return to Dos Equis’ “Most Interesting Man in the World” campaign. It offers a particularly rich site for thinking about the differences VR makes, in part, because it was already 7 years old when Havas produced the masquerade party VR advertisement. In 2006, Dos Equis was one of 261 brands of beer advertised on television, and hardly one that stood out (Effie Worldwide, 2009, p. 1). That year, the advertising firm Euro RSCG, now called Havas Worldwide, discovered that Dos Equis drinkers wanted to seem “interesting” (Effie Worldwide, 2009, p. 1). To appeal to this predominantly male group, the firm developed the titular character and hired a handsome, 70-something actor to play him in a series of TV spots. Like a cross between James Bond and Hugh Hefner, the Most Interesting Man (MIM) did things like parachute from an airplane to land in a boat, while a narrator intoned litanies of his hyperbolic achievements. The company hoped that young men would see the Man’s tongue-in-cheek, testosterone-driven interestingness as something to aspire to (Schultz, 2012).

The campaign went national in 2009 and became an immediate cult hit. By 2011, Dos Equis had doubled its sales (Schultz, 2012). The campaign was still going full force in 2014, when Havas Worldwide created its first VR advertisement. To understand how VR’s affordances interacted with the campaign, we need to first acknowledge two dimensions of the campaign in its early years: it was designed to tell a story, and the story was designed to be told across multiple media platforms. When the campaign won an Effie award for advertising excellence in 2009, Havas staffers reported that “our target [audience] wanted to believe that the MIM [sic] really existed, so we treated him like a bona fide celebrity” (Effie Worldwide, 2009). Like a celebrity, the Man was meant to be perceived as a person who actually existed in some private sphere. And, again like a celebrity’s, his “life” was meant to be an instructive narrative for those who followed it.

Havas crafted his appearances across platforms in such a way as to break down distinctions between reality and fiction, and between advertising and biography. Encounters with the Man might be brief, but Havas and Dos Equis made sure they were also frequent. In 2009 alone, they created TV, radio, and billboard ads, placed stories on cell phones, on videos, and in podcasts, promoted viral MIM memes, solicited conversation about the Man on social media, and sent outreach teams to

bars. Individually, these “touches,” as Havas called them, may have had modest impact; together, they allowed users to imagine that they and the MIM inhabited the same world.

For Havas, the arrival of the Oculus Rift in early 2014 presented an opportunity to create a new touch point. Developers and journalists were lauding VR’s power to immerse users in imaginary spaces. For brand managers at Havas, this capacity signaled a way to revamp an advertising staple: the public relations event. Dos Equis had already begun planning Masquerade Balls in New Orleans and New York. Havas tied the deployment of VR to those events. First, it created a short VR narrative, described at the beginning of this article. Then, it distributed 21 Oculus headsets to bars in the American Southwest, the brand’s stronghold. Finally, it transformed the film into “an interactive online video” (Burns, 2014). While no more than several thousand bar-goers actually donned the VR headset, 16 million viewers saw the online video in its first 2 weeks alone (Lepitak, 2014).

It is impossible to know how these efforts changed individual viewers’ perceptions of VR. But from the perspective of Oculus, it was members of the advertising industry, and not these viewers, who were the primary audience for the VR portion of the MIM campaign. To the industry, Oculus and Dos Equis demonstrated that VR could not only immerse individual users in a fully branded world, but could also create occasions that would, in turn, generate new bits of media, new films, new commentaries, and new stories. These new performances would travel far and wide. Within them, the VR headset would become a symbol of all that was new and, well, interesting.

Havas’s developers were aware of this pattern. They believed that the actual experience of VR in bars would echo and promote the logic of the company’s 2014 Masquerade Balls. Dos Equis had already chosen to emphasize the concept that “things get more interesting when you put on a mask” (Lepitak, 2014). The Havas executives saw an opportunity in the Oculus headset to marry this theme to the most futuristic technology they could think of. In addition, as Jim Hord, then an executive creative director at Havas, explained, the fact that VR had been much covered in the press and that Oculus had just been bought by Facebook went a long way in “furthering the mythology of the Most Interesting Man and Dos Equis” (quoted in Perlberg, 2014).

In other words, with a headset on, drinkers would wear more than a costume; they would wear an emblem of the new. Here, we can begin to trace the multiple forces shaping the integration of VR into the advertising industry. According to developers and marketers, the technology’s ability to offer new, sensual experiences would drive user adoption. But it was less the affordances of the system or its ability to concentrate the user’s mind on the brand that drew Havas to VR. Rather, as a creative director at Havas put it, it was the desire to be on the “bleeding edge of technology” (quoted in Lepitak, 2014). With the Masquerade ad, Dos Equis, Havas, and Oculus were engaged in what Geoffrey Bowker (1993, p. 116) has called “legitimacy exchange.” Dos Equis and Havas were drawn to VR in no small part because they hoped to partake of a

cultural legitimacy that developers, marketers, and pundits had already established for the technology.

There is an irony here: that legitimacy had been grounded in claims for the newness of VR's affordances. Yet, as the Most Interesting Man case shows, it wasn't so much the actual newness of those capacities as it was the appearance of newness that mattered. Dos Equis deployed a mere 21 headsets, furnished with a narrative drawn from an existing campaign. They also carefully married the mask-like nature of the headset to the masks of the Masquerade Ball, deploying VR in a way that would result in a modest number of user experiences that hardly challenged long-established patterns of interaction in the ad campaign. Yet they made sure that the deployment was covered as if it were a major technological and cultural event. Finally, they retained an illusion of the VR experience online. Only there did the campaign attract mass attention.

"Without a great story . . . [VR] is just a thing," said one creative director at Havas (quoted in Lepitak, 2014). In developer and pundit accounts, VR matters because it will make new kinds of stories available. Yet across the advertising industry, we see that it is the story of newness that is being sold, with VR serving less as a medium than as a symbolic vehicle for that story. The actual stories into which VR is being integrated are themselves extremely conservative. In March 2016, for instance, McDonald's restaurants in Sweden put "Happy Goggles" in children's Happy Meals so they might play a McDonald's-themed skiing game (Harwell, 2016). A year earlier, Absolut Vodka hosted a concert in New York and sent out 5000 pairs of Google Cardboard goggles to fans, who could thereby imagine themselves in the front row (Harwell, 2016). In these and other cases, advertisers carefully integrated VR into existing patterns of sales events. They took whatever sensual newness the medium offered and attached it to familiar patterns of commercialized sensual experience. They have flown the banner of technological innovation, but that newness itself is simply an updated emblem of the old ad saying "new and improved." It is a reason for users to buy the product at hand and, thanks to the magic of legitimacy exchange, for advertisers to buy into VR.

### End-user experiences

Keynote demos might sell VR to developers and industrial prototypes may act as proofs of concept for established media industries, like advertising. But hardware companies know that crusading developers and clever commercial tie-ins aren't what will put the "mass" in "mass medium." For end users, a VR platform is only as good as the experiences it offers. Oculus, HTC, Samsung, and others have repeatedly confronted the problem of a lack of convincing content to sell users on adoption, and journalists and industry analysts have pointed to this as one key stumbling block holding back VR's diffusion (e.g., Durbin, 2016).

Where might a breakout hit come from? VR has long been associated with video game culture and has been actively promoted by gamers, and key industry figures

like Carmack and Abrash are legends of video game history. It should not surprise us, then, that resources have been poured into producing an adoption-driving VR game. Now, on Rift alone, consumers can choose between dozens of titles, from the innovative, time-bending *Superhot* to frontier zombie multiplayer *Arizona Sunshine* to over-the-top wave shooter *Serious Sam*, to name just three of the most popular options.

Epic Games' *Robo Recall* stands out from all of these, and from the hundreds of other experiences on offer in the Oculus store. Released in March of 2017, it has been praised by journalists (e.g., Gibbs, 2017) as Oculus' "killer game." Many earlier VR experiences often struck users as overblown gimmicks or half-baked demos, produced by unknown studios with little design experience (Tamborro, 2017). For some reviewers, this game—the project of a highly regarded legacy studio, featuring a variety and intensity of play unique in the contemporary market—is the first piece of content that has left users convinced that VR as a platform can live up to the hype (Gwaltney, 2017b).

These reactions were no surprise to Oculus and Epic, who carefully designed and marketed *Robo Recall* as a flagship prototype of the immersion and presence users should come to expect from VR, and of the kinds of content that will justify the cost of VR hardware. In the words of Epic's Technical Director, they set out to create "the ultimate technical demo" (quoted in Jagneaux, 2016). Accordingly, the Rift's marketing and the game's development and launch were thoroughly intertwined. Oculus funded development and, in return, *Robo Recall* is exclusive to the platform and comes bundled with the purchase of Rift and Touch controllers (Mitchell, 2017). The game featured in Oculus's displays and presentations at devcons like Connect and the Game Developers' Conference. At the 2017 iteration of the latter, in a throwback to arcade patrons' status-jockeying on high-score tables, Epic and Oculus jointly held a high-score contest that netted the winners a complimentary Rift and Touch. Oculus has also sponsored Let's Play videos for *Robo Recall* by professional streamers (e.g., TheCompletionist, 2017) who have considerable influence in the gaming community, with the resulting clips viewed hundreds of thousands of times on YouTube.

But if *Robo Recall* makes a case for the Rift platform at devcons, on YouTube, in physical electronics stores, and at online points of sale, what exactly is that case and how is it made? Imagine yourself a potential Rift buyer encountering this platform ambassador at a demo booth in a BestBuy or GameStop. Inside the headset, you would find yourself in a deserted, futuristic cityscape. A voice would greet you as Agent 34, "recall specialist" for RoboReady, a corporation whose domestic assistance robots have gone rogue and whose nascent rebellion must be quashed. Just as you were getting your bearings with the Rift headset and Touch controllers, anthropomorphic robots would drop from the skies and bound toward you, as armies of animatronic spiders scurried around blind corners. You're not totally helpless against these latter-day Terminators: your avatar is equipped with a number of virtual pistols and shotguns. You could also choose from among a number of less conventional options for disassembling these Roombas run amok, from grabbing

them with your hands and ripping them limb from limb, to plucking slow-motion bullets out of the air and hurling them back at the robots that fired them. Your score would mount with every enemy you blasted to what the game calls “robot heaven” in the course of chasing down an octopus-armed megatron of a final boss.

Epic and Oculus have coordinated wide-ranging efforts to present *Robo Recall* as a showcase of VR’s novelty, yet the game itself is deeply indebted to past video game platforms and genres, and the experience of playing it is freighted with nostalgia. At the level of narrative, the central theme of robots gone rogue places *Robo Recall* squarely in the tradition of megaplex franchises like *Terminator* and *Blade Runner*, and stretches back further to cyberpunk’s roots in novels like Isaac Asimov’s *I, Robot*. Atmospheric cues reinforce *Robo Recall*’s connection to its arcade and console forbears. The soundtrack—synthesized, guitar-driven arena rock—recalls classic Super Nintendo and Nintendo 64 racing games like *F-Zero X*. As reviewer Matthew Magee (2017) wrote, a user hearing the boxing announcer-like voiceover that accompanies the title screen “could be forgiven for thinking they had stepped into an alternate universe where Sega’s legendary arcade divisions were still churning out hits to this very day.” Even the scorekeeping system, with multipliers, weapons unlocked at different score levels, and a running leaderboard, are, in the words of Javy Gwaltney (2017a), “a smart callback to the scoreboard focus of arcade shooters.”

In VR’s “ultimate technical demo,” Oculus and Epic emphasized the game’s inheritances from its arcade predecessors when they presented it to consumers. As one of Epic’s designers enthused in the studio’s own promotional videos, it plays “like a classic arcade game” (Epic Games, 2017). The dream of immersive VR has a long history in Western technoculture, and consumers have been repeatedly promised the Matrix and the Holodeck, only to be delivered PowerGloves and ViewMasters. But it is only by connecting immersive user experiences to that long history, and to preexisting genres and franchises, that they become legible as novel. In turn, these long-established genres serve to naturalize unfamiliar interaction modes for consumers, constructing VR not only as legibly novel but as usable. We can see this, for example, in the way that *Robo Recall* grafts immersive gameplay onto an “on-rails” structure requiring teleportation to pre-set progress points, a common narrative device in *Robo Recall*’s arcade precursors.

VR hardware and software companies like Epic and Oculus have position VR as “what’s new” and “what’s next” in their demos to consumers: an inevitable disruption that sweeps away traditional platforms and genres. But *Robo Recall* reveals that the new and next of virtual reality can only be sold to end users in the form of a novelty deeply interwoven with the old and well-established forms of play, reactivating in turn a lineage that stretches back through 20-year-old arcade classics like *Virtua Cop* and *Time Crisis* to the shooting galleries that once lined boardwalks in Gilded Age amusement parks.

## Conclusion

*Robo Recall*, like the cases of the Dos Equis campaign and of devcon keynotes, shows us VR's enculturation in action. Neither new viewing devices nor the experiences of immersion and presence that marketers claim they deliver have emerged fully formed from the laboratory. On the contrary, in ways foreshadowed by Carolyn Marvin's account of the introduction of electricity, they have become enmeshed in a series of negotiations with earlier cultural forms. Corporate spokespersons and stakeholders have strategically invoked these forms as they demoed VR for critical constituencies, working to elide potential sources of contestation. In many ways, these negotiations belong to the process of the social construction of technology outlined by Wiebe Bijker and Trevor Pinch, and to the creation of actor-networks mapped by Bruno Latour. Eventually, these negotiations may lead to a time in which both VR technology and the organization of stakeholders take particular, stable forms for the foreseeable future.

Yet, the reverse is also true. These negotiations vividly reveal the ways in which VR has been called upon to stabilize and ensure the continuity of the past: that is, of particular cultural forms and of the industrial and technological infrastructures that sustain them. In Rogers' account, existing cultural norms and values form a backdrop on which the struggle for diffusion plays out, but, while they may serve as a catalyst or inhibitor for the adoption of an innovation, they are relatively unchanged by the process. But the case of VR makes clear that the relationship between diffusion and cultural continuity is far more symbiotic than Rogers may have imagined. Keynote speakers at devcons have constructed genealogies for VR that sidestep its recent failure as they marry VR's newness to one of the oldest American genres, the conversion narrative. The advertisers working with Dos Equis to legitimate VR for the advertising industry offered Oculus headsets to bar-goers in a way that would allow them to imagine their own biographies in terms set by the legends of James Bond and Ernest Hemingway. And *Robo Recall* brought VR technology's powers of sensual immersion to life within a pattern of action set by the 19th-century arcade. In each case, marketers' efforts to assert the newness of VR led them to use that claim to reinvigorate longstanding modes of storytelling and play.

In the now-canonical accounts of the social construction of technology tradition, the negotiations that surround the emergence of a new technology ultimately produce a consensus about how the technology should be designed and used. Although the case of VR is far from universal, it does provide a useful reminder that the same negotiations that summon new technologies may—and perhaps even must—act as a conservative force, reinforcing already existing and often unspoken agreements about the ways that culture should be organized. This extends well beyond questions of form, to questions of industrial and technological power. In each of the cases that we've outlined here, marketers have transformed VR technologies into elements of stories that travelled across multiple media platforms. As they have moved from ad campaigns to YouTube demos to breathless journalistic accounts, depictions of VR

devices and interactions have breathed new life into the already complex and robust global ecosystem of media industries and media machines.

In that sense, perhaps we ought to think about the selling of VR as the promotion of something more than individual, sensual immersion. Perhaps it is also a way of selling us once again on the value of a multi-platform, commercialized media system. And perhaps, as the rhetoric of devcon keynotes has suggested, it is also trying to link the persistence of that system to a centuries-old American dream that a conversion experience might grant one entry into a community of saints. If it is, then the introduction of VR may offer powerful evidence that to render a medium new, one must also transform it, at least in part, into an engine of cultural continuity.

### Acknowledgments

This research was supported by the Knut and Alice Wallenberg Foundation. J. N. is supported by an SAP Stanford Graduate Fellowship. The authors thank Raz Schwartz, Jeremy Bailenson, danah boyd, and the participants of Data & Society's 2017 "Lessons from the Field" workshop for their insights on earlier versions of this paper, and Sarah Banet-Weiser and the anonymous reviewers for their suggestions during the revision process.

### Notes

1. Scholars in other fields have, at times, pointed to continuities that persist in and undergird technological disruption. In innovation and management studies, Andrew Hargadon (2003) has described innovation as fundamentally recombinant, pulling together preexisting technological components and social worlds. In the history of technology, David Edgerton (2011) has shown that "old" technologies have longer global lifespans than disruption-focused frameworks expect. Our perspective differs, however, in that we emphasize not technological, but cultural continuity.
2. Other scholars have considered VR's enculturation in other domains, particularly in the context of military and therapeutic applications (Brandt, 2012; Suchman, 2016).
3. Aspers and Darr (2011) have examined trade shows' role in constructing the mid-1990s real-time computing market. We believe that devcons have been playing a similar role in the construction of the contemporary VR market and industry.
4. Although the in-person audiences for these events may number in the hundreds or thousands, as they are recirculated online by the hosting companies and by journalists, they shape public discussions far beyond the halls of the convention center. For instance, a video of one keynote has been viewed, at the time of writing, nearly 23,000 times (Oculus, 2016).

## References

- Abbate, J. (2000). *Inventing the Internet*. Cambridge, MA: MIT Press.
- Ames, M., Rosner, D., & Erickson, I. (2015). *Worship, faith, and evangelism: Religion as an ideological lens for engineering worlds. Paper presented at the 18<sup>th</sup> ACM Conference on Computer Supported Cooperative Work & Social Computing*. New York, NY: Association for Computing Machinery.
- Aspers, P., & Darr, A. (2011). Trade shows and the creation of market and industry. *The Sociological Review*, 59(4), 758–778. doi:10.1111/j.1467-954X.2011.02031.x
- Bijker, W. (1987). The social construction of bakelite: Toward a theory of invention. In W. Bijker & T. Pinch (Eds.), *The social construction of technological systems: New directions in the sociology and history of technology* (pp. 159–187). Cambridge, MA: MIT Press.
- Bijker, W. (1997). *Of bicycles, bakelites, and bulbs: Towards a theory of sociotechnical change*. Cambridge, MA: MIT Press.
- Bijker, W., Hughes, T., & Pinch, T. (Eds.) (1987). *The social construction of technological systems: New directions in the sociology and history of technology*. Cambridge, MA: MIT Press.
- Bowker, G. (1993). How to be universal: Some cybernetic strategies, 1943-1970. *Social Studies of Science*, 23, 107–127. doi:<https://doi.org/10.1177/030631293023001004>
- Brandt, M. (2012). From “the ultimate display” to “the ultimate Skinner box”: Virtual reality and the future of psychotherapy. In K. Gates & A. N. Valdivia (Eds.), *The international encyclopedia of media studies, volume VI: Media studies futures* (pp. 518–539). New York, NY: Blackwell.
- Burns, J. (2014). *The most interesting man in virtual reality*. Retrieved from <http://www.psfk.com/2014/10/most-interesting-man-virtual-reality-experience.html>
- Carlson, W. (1992). Artifacts and frames of meaning: Thomas A. Edison, his managers, and the cultural construction of motion pictures. In W. Bijker & J. Law (Eds.), *Shaping technology/building society: studies in sociotechnical change* (pp. 175–198). Cambridge, MA: MIT Press.
- Cowan, R. (1985). *More work for mother: The ironies of household technology from the open hearth to the microwave*. New York, NY: Basic Books.
- Diaz, A. (2015). Grab your headset: Producers plunge into virtual reality. *AdvertisingAge*. Retrieved from. <http://adage.com/article/digital/grab-headset-producers-plunge-virtual-reality/297039/>.
- Durbin, J. (2016). *VR/AR's biggest obstacle: Lack of content*. *VentureBeat*. Retrieved from. <https://venturebeat.com/2016/09/18/vrars-biggest-obstacle-lack-of-content/>.
- Edgerton, D. (2011). *The shock of the old: Technology and global history since 1900*. London, England: Profile Books.
- Effie Worldwide. (2009). *2009 Gold Effie Winner: “The most interesting man in the world.”* Retrieved from [http://s3.amazonaws.com/effie\\_assets/2009/3496/2009\\_3496\\_pdf\\_1.pdf](http://s3.amazonaws.com/effie_assets/2009/3496/2009_3496_pdf_1.pdf)
- Epic Games. (2017). *Robo Recall gameplay* [Video file]. Retrieved from: <https://www.epicgames.com/roborecall/en-US/home#gameplay>
- Fischer, C. (1992). *America calling: A social history of the telephone to 1940*. Berkeley, CA: University of California Press.
- Gibbs, S. (2017). Robo recall review: Oculus rift finally gets its killer game. *The Guardian*. Retrieved from. <https://www.theguardian.com/technology/2017/mar/09/robo-recall-virtual-reality-review-oculus-rift-touch>.

- Gwaltney, J. (2017a). Robo Recall: Frantic, innovative action. *GameInformer*. Retrieved from [https://www.gameinformer.com/games/robo\\_recall/b/oculusrift/archive/2017/03/10/frantic-innovative-action.aspx](https://www.gameinformer.com/games/robo_recall/b/oculusrift/archive/2017/03/10/frantic-innovative-action.aspx)
- Gwaltney, J. (2017b). Opinion: Robo recall captures virtual reality gaming's triumphs and failures. *GameInformer*. Retrieved from <http://www.gameinformer.com/b/features/archive/2017/03/18/opinion-robo-recall-captures-virtual-reality-gaming-s-triumphs-and-failures.aspx>.
- Hargadon, A. (2003). *How breakthroughs happen: The surprising truth about how companies innovate*. Cambridge, MA: Harvard Business Press.
- Harwell, D. (2016). *The creepy, inescapable advertisements that could define virtual reality*. *The Washington Post*. Retrieved from <https://www.washingtonpost.com/news/the-switch/wp/2016/03/10/the-creepy-inescapable-advertisements-that-could-define-virtual-reality/>
- Hirshorn, S. M. (2014). The intersection between reality and virtual reality: An interview with professor Jeremy Bailenson. *Intersect: The Stanford Journal of Science, Technology, and Society*, 7(2), 1–6.
- Jagneaux, D. (2016). Epic games technical director: We want 'Robo recall' to be the 'ultimate tech demo' for unreal engine. *UploadVR*. Retrieved from <https://uploadvr.com/epic-games-robo-recall-bullet-train-demo/>.
- Latour, B. (1988). *The pasteurization of France*. Cambridge, MA: Harvard University Press.
- Latour, B. (1994). On technical mediation: Philosophy, sociology, genealogy. *Common Knowledge*, 3, 29–64.
- Leif, J. (2016). It's really hard to make money with virtual reality games. *Motherboard*. Retrieved from [https://motherboard.vice.com/en\\_us/article/its-really-hard-to-make-money-with-virtual-reality-games](https://motherboard.vice.com/en_us/article/its-really-hard-to-make-money-with-virtual-reality-games).
- Lepitak, S. (2014). The most interesting man tackles oculus rift: Behind the scenes of Havas Worldwide's latest Dos Equis activity. *The Drum*. Retrieved from <http://www.thedrum.com/news/2014/11/21/most-interesting-man-tackles-oculus-rift-behind-scenes-havas-worldwides-latest-dos>.
- Mackenzie, D., & Wajcman, J. (Eds.) (1999). *The social shaping of technology*. Philadelphia, PA: Open University Press.
- Magee, M. (2017). Robo recall review. *RoadToVR*. Retrieved from <https://www.roadtovr.com/robo-recall-review/>.
- Manovich, L. (2013). *Software takes command*. New York, NY: Bloomsbury.
- Marvin, C. (1988). *When old technologies were new: Thinking about electric communication in the late nineteenth century*. Oxford, England: Oxford University Press.
- McInerney, P. B. (2008). Showdown at Kykuit: Field-configuring events as loci for conventionalizing accounts. *Journal of Management Studies*, 45(6), 1089–1116. doi:10.1111/j.1467-6486.2008.00784.x.
- Mitchell, N. (2017). Introducing rift + touch for \$598 – Plus 'Robo recall' is now available. *Oculus blog*. Retrieved from <https://www.oculus.com/blog/introducing-rift-touch-for-598plus-robo-recall-is-now-available/>.
- Oculus. (2015). *Oculus Connect 2 Keynote with Michael Abrash* [Video file]. Retrieved from <https://www.youtube.com/watch?v=tYwKZDpsjgg>
- Oculus. (2016). *Oculus Connect 3 opening keynote* [Video file]. Retrieved from <https://www.youtube.com/watch?v=hgz0hFokkVw>

- Perlberg, S. (2014). *Dos Equis will bring “the most interesting man in the world” to Oculus Rift*. *The Wall Street Journal*. Retrieved from <https://blogs.wsj.com/cmo/2014/10/28/dos-equis-oculus-rift/>
- Pinch, T., & Clark, C. (1986). The hard sell: “Patter merchanting” and the strategic (re)production and local management of economic reasoning in the sales routines of market pitchers. *Sociology*, **20**(2), 169–191. doi:10.1177/0038038586020002002
- Rajan, K. S. (2006). *Biocapital: The constitution of postgenomic life*. Durham, NC: Duke University Press.
- Rogers, E. (2003). *Diffusion of innovations* (5th ed.). New York, NY: Free Press.
- Rosental, C. (2013). Toward a sociology of public demonstrations. *Sociological Theory*, **31**(4), 343–365.
- Rubin, P. (2016). Mark Zuckerberg’s VR selfie is a bigger deal than you realize. *Wired*. Retrieved from <https://www.wired.com/2016/10/oculus-facebook-social-vr/>
- Schultz, E. J. (2012). How this man made Dos Equis a most interesting marketing story. *AdAge*. Retrieved from. <http://adage.com/article/behind-the-work/story-dos-equis-interesting-man-world/233112/>.
- Shimoni, A. (2016). Why VR is the next big thing for brands. *TechCrunch*. Retrieved from. <https://techcrunch.com/2016/06/13/why-vr-is-the-next-big-thing-for-brands/>.
- Simakova, E. (2010). RFID “theatre of the proof”: Product launch and technology demonstration as corporate practices. *Social Studies of Science*, **40**(4), 549–576. doi:10.1177/0306312710365587
- Spigel, L. (1992). *Make room for TV: Television and the family ideal in postwar America*. Chicago, IL: University of Chicago Press.
- Suchman, L. (2016). Configuring the other: Sensing war through immersive simulation. *Catalyst: Feminism, Theory, Technoscience*, **2**(1), 1–36. doi:10.28968/cftt.v2i1.28827
- Takahashi, D. (2016). The DeanBeat: How Oculus’ Mike Abrash took my mind off Palmer Luckey. *VentureBeat*. Retrieved from. <https://venturebeat.com/2016/10/07/the-deanbeat-how-oculus-mike-abrash-took-my-mind-off-palmer-luckey/>.
- Tamborro, P. (2017, February). The PlayStation VR was a waste of my money. *Crave Online*. Retrieved from. <http://www.craveonline.com/entertainment/1216311-the-psvr-was-a-waste-of-money>.
- TheCompletionist. (2017). *Oculus Rift: Robo Recall preview* [Video file]. Retrieved from [https://www.youtube.com/watch?v=-Cqh99nY7\\_I](https://www.youtube.com/watch?v=-Cqh99nY7_I)
- Turner, F. (2006). *From counterculture to cyberculture: Stewart Brand, the Whole Earth Network, and the rise of digital utopianism*. Chicago, IL: University of Chicago Press.
- Turner, F. (2015). The politics of virtual reality. *The American Prospect*, **26**(3), 25–29.
- Velazco, C. (2014). Valve’s VR guru jumps ship to become oculus’ chief scientist. *Engadget*. Retrieved from. <https://www.engadget.com/2014/03/28/oculus-michael-abrash-chief-scientist/>.
- Wasserman, T. (2017). Will virtual reality in advertising finally break out? *Videa*. Retrieved from <http://www.veida.tv/2017/03/will-virtual-reality-in-advertising-finally-break-out/>
- Wingfield, G., & Goel, V. (2014). Facebook in \$2 billion deal for virtual reality company. *The New York Times*. Retrieved from. <https://www.nytimes.com/2014/03/26/technology/facebook-to-buy-oculus-vr-maker-of-virtual-reality-headset.html>.