

Desire for Data:
PornHub and the Platformization of a Culture Industry

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Abstract

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That no one pays for their porn anymore has become something of an adage of internet culture, given that seemingly endless porn content now exists on free streaming tubesites. What's more, the type of pornography content being produced and promoted to users has shifted dramatically in the decade since tubesites first appeared online. In this thesis, I investigate the organizational tactics of one major player in the porn world through the website PornHub.com. As entities like MindGeek (the parent company of PornHub) consolidate media market control in an oligopolistic mode, they also gain influence over what types of pornography can be made profitable. A scarcity of data surrounding privately held porn companies further complicates the study of this supply chain. Using a blend of pornography and platform studies, and by way of a digital walkthrough method, I will overcome the opacity that surrounds PornHub to make their organizational choices clear. By analyzing the operations and strategic choices of the platform, this project will reveal ways in which the platform structures user attention and renders porn media productions contingent to its operations.

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Chapter 1: Introduction

i. The porn data drought

Laura Kipniss has said “pornography exists to pester and thwart the dominant” (Kipnis, 2003, p. 165), but what does it mean when pornography itself is a dominant market force? Frequently diagnosed as the ‘mainstreaming of pornography’, porn consumption as it actually exists today is inarguably technological, invoking issues of genre, industry and regulation while expressing capital and patriarchal values through its operations (Paasonen, Nikunen, & Saarenmaa, 2007). Yet, porn is consuming a huge proportion of traffic on the internet, provoking and disgusting us even as it attracts more attention than ever. Dominant and repugnant all at once, internet pornography is the site of this project, which explores online porn’s dominant freemium form through the website PornHub.com.

According to their 2018 year in review, the popular free streaming porn site PornHub.com averages over 94 million visitors *daily*, and, as a result, consumes more bandwidth than Twitter, Amazon, and Facebook combined (PornHub, 2018). The site is a major player in the world of internet pornography and takes up a staggering amount of the internet’s bandwidth, but remains relatively understudied despite its scope (Millard, 2015). Steven Brown has specifically called for more research into this complicated business model in “Porn piracy: an overlooked phenomenon in need of academic investigation” (2014). A close look at the operations of free streaming pornography tube-style sites (hereafter referred to simply as tubesites) can offer a

fresh opportunity to consider how creative industries are impacted when technology renders older systems of production and distribution increasingly irrelevant.

What's more, Pornhub's abundant content is now offered up for free, meaning the site is profiting not from subscription fees, but instead from a complex permutation of advertising, licensing and data collection. This means that PornHub found a way to monetize a freemium model being used by other large technology companies like YouTube and Facebook — one closely associated with a trend toward platform capitalism. Though this suggests a thriving new media model, PornHub's rise to success has been paved with allegations of financial fraud, piracy, and suspicion from others working in the porn industry.

One of the reasons that there is such a lack of clarity around PornHub is because its parent company, MindGeek, is a privately-held company. This means that it does not trade its stock openly and therefore has fewer reporting obligations, including no requirements to publish their financial statements or disclose details about their operations. Like all privately held-companies, MindGeek does not need to seek shareholder approval, and their operational decisions are not made available to the public or researchers. Closed corporations like MindGeek are less visible than their publicly traded counterparts, even when they control influential shares in a market. MindGeek owns all of the sites operating within the PornHub network, including *RedTube*, *XTube* and *YouPorn*. In addition, they own *PornMD*, *PornIQ*, *Peeperz*, *GayTube*, *Tube8*, *XTube*, *Babes.com*, *Digital Playground*, *Reality Kings*, *Twistys*, *Men.com*, *Mofos*, *Sextube*, *MyDirtyHobby*, *Webcams.com*, all of *Playboy's* online and TV operations, and considerably

more beyond what is listed here. It is in their best interests to closely network their web properties with one another, in order to encourage a flow of traffic across and between their sites. On top of distributors, they operate a number of pornographic production studios including *Brazzers*. Their holdings span mainstream production firms through to niche sites like *Big Wet Butts*, *Motor Tramps* and *Captain Stabbin*, to name a few.¹ This allows them control over all elements of production in their studio content, including casting decisions and the acts included in scripts, managing the types of sex acts represented on screen. This net effect is crucial to the logic of platforms like PornHub in maintaining a virtual monopoly on online pornography. A MindGeek spokesperson has claimed they are “one of the top five bandwidth consumers in the world” (Marshall, 2016). MindGeek attest to having over 1000 employees, and they have offices in Dublin, London, Hamburg, Bucharest, Nicosia, Miami, San Diego and Los Angeles. Many porn enthusiasts would likely be surprised to learn that the porn world no longer turns around the San Fernando Valley, California. Rather, porn today skews farther north, given MindGeek’s largest employee pool and technical base of operations sits in Montreal, Canada.²

Privately held companies’ interests may be served best by obfuscating their model in order to retain a strategic advantage over competing firms. Thus, companies like PornHub make their business operations opaque to consumers and researchers alike. To paraphrase porn scholar Susanna Paasonen, this company operates in a complex media nexus where the abundance and

¹ TheBestPorn.com, MindGeek - Company Profile. “sites owned or represented by MindGeek.” accessed 2018-09-20 17:28:18

² Bloomberg, “MindGeek S.A R.L.: Private Company Information.” accessed 2019-04-30 15:44:39. note: in finalizing this thesis and returning to the Bloomberg page, not only was this private company profile removed but there was literally no information on MindGeek to be found throughout the site, and searches for *MindGeek* returned zero articles.

accessibility of porn on these channels clashes with the company's limited visibility on social media or in app markets (Paasonen, 2011). In other words, the production of porn, working conditions for participants and cultural or regulatory policies and protections (or lack thereof) for pornographers are overshadowed entirely by speculation around effects these images and videos may have on society at large. Combining this data drought with the moral panic that troubles all things pornographic means that in conversations around porn, society persists in fixating almost exclusively on whether or not pornography is a perpetrator of bad things in the world. This framing forgets technologies, supply chains, or labour as serious considerations in porn production. Given that there is a gap in knowledge around the digital pornography supply chain, we are presented with a breeding ground for ill informed speculation and moral panic. Research that takes these elements of the pornography industry seriously could help bring clarity to a complicated media issue. Because these massive media ecosystems present a serious challenge to researchers, creative approaches are called for in examining them more closely.

How does a company like MindGeek simultaneously hold its users in thrall, producers in contempt, and copyright enforcers at bay? This thesis seeks to understand these dynamics through a digital methods approach, working with tools embedded in platforms to collect data on content “‘born’ in the new medium as well as content that has ‘migrated’ to it” (Rogers, 2013, p.19). The focus of this analysis will be the website *PornHub.com*, MindGeek's largest holding and one of the world's most popular free streaming porn tubesites. In the following chapters I will approach my chosen site in an attempt to shed some light on the practices that are currently dominating the streaming pornography industry, asking:

1. *how can publicly available data on PornHub reveal some logic behind MindGeek's opaque operations?*
2. *In what ways is this operating model exerting influence over cultural production in the porn industry?*

By investigating these questions, I seek to shed light on a set of larger concerns about the intersection of media and technology specific to the platformization of the cultural industries, and explore some ways digital methods may examine this ongoing process.

ii. Porn as a culture industry

In order to answer the above questions, this thesis argues that porn has to be considered seriously as a cultural industry. As many porn scholars remark, there are a great many expressions of pornography that adhere to various and intersecting feminist, queer, Marxist and anti-capitalistic values (Taormino, 2013). This project seeks not to address the multitudes of successful outliers within the porn industry, but is focused on the dominant commodity form currently thriving on tubesites. Streaming free porn is primarily a capitalist endeavor designed to seek profit. The ubiquity of free tubesite porn is also a phenomenon that envelops questions of privacy, labour rights and media policy, and one in which porn scholars have expressly singled out as requiring further investigation (S. C. Brown, 2014).

Following the success of YouTube, the rise of tubesites encompassed a shift in porn industry production dynamics. Given that 'free and streaming' translates to 'accessibility and ubiquity'

online, pornography remains significantly understudied when compared to parallel media streaming services like YouTube or Netflix (S. C. Brown, 2014; Raustiala & Sprigman, 2019). Shira Tarrant, professor of Women's, Gender, and Sexuality Studies at California State University, and author of *The Pornography Industry* suggests without the 'titillation factor' it would be easier to see porn for what it is: A thriving media business that should be studied in the same vein as social media or fake news, given "technology and sexually explicit material have always gone hand in hand." (Hassan, 2018, para. 17) Perhaps this is because, as Susanna Paasonen has identified, "Once the female performers become the locus of the disgusting, the nasty, and the excessive, it may become easier to ask "how can they do that?" rather than to inquire after the conditions of labor and production that have led to the acts being performed and recorded in the first place" (2011, p. 208). Antipornography activist Andrea Dworkin summarizes this tendency as "the woman who is invisible almost because one can see so much of her" (2002, p. 179).

Despite the exceptionalist attitudes that set porn media apart, it is not unlike other streaming services in form and function. Akin to video and music sites streaming online, tubesites have changed the landscape for cultural producers by leveraging "streaming data to not only organize and suggest content to consumers but even to shape creative decisions" (Raustiala & Sprigman, 2019, p. 1). This rise of data-driven creativity serves to reinforce the centralization of online markets toward dominance by a few major firms, with significant implications for competition and innovation. There has been considerable transformation of working conditions in the past decade, given that rapid technological developments have led to something of a pornographic

cambrian explosion online. Un-exceptionalizing pornography begins with understanding it to be a cultural industry like any other, enveloping technology and labour into the supply chain. A culture industry is not limited to a single organization but refers to power structures - the broad institutions and formations of cultural production concerned with specific artistic forms.

In defining culture industries, this project draws on Raymond Williams' *Sociology of Culture*. Theorizing that forms of social arrangement are deeply embodied in cultural production, Williams recognizes and names the specific economic conditions that enforce the ownership norms of reproductive technologies. A culture industry refers to all the institutions and formations of production concerned with manufacturing specific artistic forms for a large audience (R. Williams, 1995). It encompasses the relations of organization, which Williams has broadly defined to include the artists, ownership, patrons and markets, as well as material means of production like technologies. Further, it encompasses techniques of amplification, extension and reproduction, market freedoms and controls, and even the social effects that a cultural industry can have on a state or market. By these standards, pornography production should be understood as a culture industry. Williams calls his readers "to realize that, whatever purposes cultural practices may serve, its' means of production are inarguably material" (1995, p. 28). In other words, cultural production ought to consider the means of production, including the technologies and labour practices that go into the distributed media objects. Porn is no exception to this, and as a result it is important to consider the dynamics between technological resources, labour, and cultural expression. These considerations are important to studies of the culture

industries, but they are not new. Writing nearly a quarter of a century ago, Bernard Miège crystallized these concerns as follows:

“First, the line between culture and commerce is artificial and ignores the fact that culture has developed within industrial capitalism for the past 150 years. Second, referring to the industry or “system” “in the singular misleads one into thinking that we are faced with a unified field, where the various elements function within a single process ... The cultural industries are complex, and an analysis must bring out the reasons for this diversity” (Miège, 1989, p. 10).

In her writing on porn and labour, Heather Berg insists that “un-exceptionalizing the porn industry allows us to interpret it with more nuance and sense of context. A critical labour studies lens can enrich porn scholarship, taking porn work seriously as work” (Berg, 2014, p. 1). In this regard, approaching large pornography companies ought to be undertaken in the same way as researchers would survey culture firms in other sectors. However, the issue is complicated through the tremendous question of scale. In ‘Supply Chains and the Human Condition’, Anna Tsing makes the case for examining massive successful firms who “influence the organization of capital by shaping what counts as ‘big’” (2009, p. 157). Thinking through these core industry players may help researchers understand how large companies may “inspire but do not determine practice” (Tsing, 2009, p. 154) in shaping their respective industries. In the same spirit as Miège’s reminders of heterogeneity, Tsing calls for us to confront the ‘bigness’ of these corporate mechanisms in order to understand their scale and diversity, and then complicate the frequently homogenous narratives that are crafted around supply chains for these huge

transnational firms. David Nieborg and Thomas Poell have identified the political economy of platforms as a relationship of deep power asymmetries between a platform, and its users and partners (2018). Platforms envelop questions of market concentration, content moderation and copyright. They rely on discoverability, surveillance and data sharing, algorithms and training data, and social engineering, meaning they contribute to certain behavioural outcomes. In critically analyzing MindGeek's star property, PornHub.com as a platform that is transforming a culture industry, this project considers some concerns at the intersection of media, labour and technology. Regarding this, my aim in approaching PornHub's operations through digital methods is to shed light on some mechanisms of a media market oligopoly—to trace the successful tactics of a single provider in order to better understand their model within the present porn landscape.

iii. Approaching porn through political economy

Given that this project is concerned with the interleaved effects of the supply chain, wealth, labour, politics and technological developments, a political economy approach is beneficial to shed some light on PornHub. Vincent Mosco defines political economy as the “study of the social relations, particularly the power relations, that mutually constitute the production, distribution, and consumption of resources, including communication resources” (Mosco, 1996, p. 2). An approach to critical political economic studies may consider a company's horizontal integration, or industry diversification, vertical integration, which suggests extending control over production and circulation processes, and transnationalization, or moving seamlessly through international markets (Mosco, 1996). Adopting a critical political economy perspective

is also useful in attending to the “power and social relations that mutually constitute the production and circulation of media resources” (Mosco, 1996, p.1) within the PornHub/MindGeek network. A central question for political economy is how a society reproduces itself in ways that are constantly changing, which is especially apt when approaching an amorphous media network like the one orbiting PornHub. Conditions of dominance (ie: the massive success of tubesites) may present themselves as unconnected with the resulting media forms (ie: patriarchal, heteronormative, and white supremacist norms in pornography), but the efficiency of media production relies on their very integration in powering the system as a whole. This runs along the spectrum from political opinion to pure entertainment and spans economic, political, and social effects.

Paying attention to the business practices of pornography marks an important overlap between pornography studies and feminist political economy. Feminist scholarship, including the aforementioned work of Heather Berg and Anna Tsing has insisted that the relations of gender, race and class are also of central importance to this project. More specifically, a holistic feminist political economy approach to understanding porn centers social relations in a materialist perspective, and draws on the interplay of economic, political, and cultural factors that can be observed in an organizations articulations of itself. Study of all the above dimensions of cultural industries are of value in understanding the political economy of PornHub. As I will review in the porn studies literature, a long history of textual and representational analysis has mostly tended to overlook below-the-line contributions in favour of genre, producers and performers. This ignores the many hidden layers of media production, web design and advertising that are

essential to internet porn, including video editing, coding, copywriting and more. In an attempt to combat this, I will account for MindGeek's practices on PornHub in the walkthrough of the site by detailing elements including web design, advertising arrangements, corporate branding and recruitment, and community engagement efforts. The medium specificity of free tubesites have been transformative to the pornography industry, and any research engaging with the political economy of porn in this mode has to account for the material. Science and Technology Studies foundational to the walkthrough method will ground this project appropriately.

Modern communications systems mediate any patterns of communication between the market and the established social order, privileging certain dominant institutions. The tedious below-the-line technical work of maintaining porn website infrastructure is rendered intentionally invisible in production formats like this one (Irani, 2015; Mayer, Banks, & Caldwell, 2009). Over time, this asymmetry of market operations builds authority in the dominant form, making the successful system of production - in this case, free tubesites - seem indispensable and even natural. These cultural industries are anything but natural, however, and embedded in their mechanical reproduction are specific values that influence relations between consumers and social systems (Benjamin, 1935). Though study of all the above dimensions of the cultural industry are of value in understanding the porn industry, researchers have been plagued by a data drought as well as moral exceptionalism and public fixation on the social effects of pornography. This has left many gaps in the study of porn as a pillar of modern media. A hybrid of porn scholarship derived from culture studies that considers feminist political economy can more effectively address many of the transformations that have influenced

pornography as a culture industry. From this perspective it is first helpful to consider PornHub.com in the context of the body of work on porn studies and platform studies. From there it will be made clear how emergent digital methods can be helpful in examining the operating model of porn distribution.

Additionally, this project is informed by an enduring concern over media concentration under platforms. Centralization practices in media thrive under the influence of massive corporations like MindGeek, leaving producers with limited viable distribution options. As a result, content developers have to align their production philosophies and business strategies with those of the leading platforms; this means once-independent cultural producers are transformed into platform complementors beholden to the reigning model. While many porn performers, smaller studios and journalists have decried PornHub and MindGeek's influence on the porn industry, there remains alarmingly little research into their particular operations, or response from policymakers and the media (Chiang, 2010; Auerbach, 2014; Pearson, 2015; van der Linde, 2016). A lack of accurate empirical data also contributes greatly to this imbalance. Unique conditions and institutional challenges in the pornography industry are at the root of the data drought, including very limited work in the field of business studies considering porn work seriously. With existing data drawing on secondary or non-peer-reviewed sources, below-the-line workers are rarely represented in the literature, while managers and performers in the pornography industry are frequently characterized as cartoonishly sleazy or sinister, to-be-exploited or to-do-the-exploiting. Industry reports suggest that porn producers face stigma and precarity with nervous payment processors and editors, and as such "observe a strict code of silence when it

comes to discussing their [mainstream] customers in the media” (Voss, 2012, p. 395). Voss’ research also shows “one of the reasons why the pornography industry has repelled attention from business scholars is likely to be its controversial reputation, which has the potential to mirror back stigma onto the researcher and her or his organization” (2012, p. 402).

A political economy study of pornography contains potential to reveal dynamics between content producers and rapidly advancing technology, between audiences and entrepreneurs and between platforms and their end-users. Though porn performers in front of the camera are hyper-visible in the sector, web developers, marketers, and middle management remain underrepresented in industry literature and research. As such, the study of production and distribution dynamics still has much to offer in exploring norms of the pornography supply chain. That all studies of sexuality are gilded with an “excess of significance” (Rubin, 2012, p. 11) does not help to normalize the study of porn producers as that of ordinary business practice. In her writing on porn and labour, Heather Berg insists that “un-exceptionalizing the porn industry allows us to interpret it with more nuance and sense of context. A critical labour studies lens can enrich porn scholarship, taking porn work seriously as work” and that “A political economy analysis of porn necessarily brings us to questions about the classed ethics of the research encounter”(2014, p. 1). This considers both the work of porn production and the research encounter itself to be sites of work.

The site of this research encounter is obscured by the moral panic surrounding sex, as well as proprietary data problems that accompany the study of closed environments, given privately held

companies are under no obligation to share information on their supply chain or developer data. For this reason, I will approach PornHub.com through digital methods - a walkthrough illustrating the user experience, and examining the ways in which porn watching is mediated by and constitutive of technology. My focus is on the site's complex visual and technical affordances as a whole, rather than analysis of individual porn objects. This creates an account not of singular texts that appear on a site, but rather through how they are arranged against one another in the complex choreography of advertising, content recommendation and algorithmic curation that has made these free online porn aggregators massively successful.

v. Methodology: website walkthrough

As is the case with many other culture industries, porn content delivery has been dramatically transformed through platformization over the last decade. In writing on the materiality of internet porn, Susanna Saasonen has said: "Much more is going on than gazing at the screen - including the structures of search, the strategic uses of metadata and links, the JavaScript used to coin pop-ups or lock in users, and the user statistics gathered through cookies" (2011, p. 177). Porn watching is not a passive viewing experience, but is structured by these mechanisms and others.

This study is built around the walkthrough method, developed by Ben Light, Jean Burgess and Stefanie Duguay in 2018. Created for the study of apps, this method establishes a systemic and forensic recording of user experience in a system to develop "a foundational corpus of data upon which can be built a more detailed analysis of an app's intended purpose, embedded cultural

meanings and implied ideal users and uses” (Light, Burgess, & Duguay, 2018, p. 881). As summarized by the authors, “the walkthrough method is a way of engaging directly with an app interface to examine its technological mechanisms and embedded cultural references to understand how it guides users and shapes their experiences” (Light et al., 2018, p. 882).

This in-browser walkthrough³ is structured in two distinct components. The first is determining an ‘Environment of Expected Use’, which details how the platform envisions and enacts itself, identifying and describing its vision, operating model and modes of governance. This is followed by the ‘Technical Walkthrough’, which makes the interface explicit through an audit of the architectural concerns, design choices and systems considerations for everyday use of the site. Together, the two components “systematically and forensically” (Light et al., 2018, p. 881) map out a body of data on the site’s arrangements and technological deployment, from which a more detailed analysis can begin.

I have elected to conduct a walkthrough because, although PornHub.com is not an app⁴, I contend that it is a closed ecosystem as well as a “site of significant sociocultural and economic

³ While PornHub does have a dedicated free app available for Android users, there is no equivalent for Apple clients under the iOS ‘objectionable content’ clause, and the bulk of PornHub traffic comes from users accessing the site through browsers (PornHub Insights, 2018). Although mobile porn use is demonstrably on the rise and porn apps are deserving of significantly more scrutiny for their data collection practices, this project will be contained to examining the in-browser experience for reasons of scope (Maris, Libert, & Henrichsen, 2019; PornHub Insights, 2018).

⁴ ‘app’ refers to a mobile or desktop application, which are discrete computer programs or pieces of software designed to solve singular user needs. Apps are frequently hosted by proprietary distribution platforms including the Apple iOS and Google Play stores, but also may be developed directly for the web. PornHub.com is still accessed largely using web browsers, with 41.1% of mobile users browsing through Google Chrome, and Android browsers accounting for less than 1% as well as dropping by over 50% from 2017. (*PornHub Insights, 2018 Year in Review*)

transformations across many domains” (Light et al., 2018, p. 881). The documentation of even seemingly mundane elements of the site has much potential to reveal “technological mechanisms and embedded cultural references to understand how it guides users and shapes their experiences”(Light et al., 2018, p. 882). The walkthrough method was developed as a response to proprietary data problems, because researchers of apps are routinely met with the many data collection difficulties that accompany closed systems. The gated nature of these app interfaces restricts user access to information, both on data collection processes and the logic of programming that goes into building systems. Apps are painstakingly designed to be a seamless experience, meaning they are highly usable, but not highly hackable and often difficult to parse through from a research perspective. To combat this, the walkthrough method embraces the subjectivity of a user, and engages in a form of close reading to make plain any technocultural mechanisms and embedded cultural references. Walkthroughs have been popularized in many forms, from streamers speedrunning video games to unboxing videos on youtube. Like those, this walkthrough will not try to reveal unique user experiences but rather focuses on the broad framework that guides users through their interactions with the site. The walkthrough dispenses with any assumptions made about an imagined or ideal user experience by laying out the practical considerations and restrictions of the interface, making them plain for study.

The walkthrough method rests upon a theoretical framework of cultural studies and Science, Technology and Society studies (STS), particularly drawing on ideas of Actor Network Theory (ANT), which treats objects seriously as agents in the social world (Latour, 2005). The socio-technical assemblages of ANT include, broadly, two agents: the first of these are

Intermediaries who pass meaning along unchanged and act adjacent to the interaction at hand. The second are Mediators, who convey and transform meaning in an encounter (Latour, 2005). The successful operating mode of porn tubesites should not be considered inactive or neutral conduits for information; rather, this project considers PornHub and its very design as Mediators, shaping and controlling our encounters with the current forms assumed by pornography. In developing the walkthrough, the authors point out that being theoretically rooted in STS means that the method also works to consider actions an environment affords or constrains, the ways the technologies guide behavior, and the social and material influences on users' perceived available actions. In other words, it "allows the researcher to place oneself in the user's position and imagine the range of affordances the user perceives" (Light et al., 2018, p. 886). STS perspectives also consider both the visible mechanisms like menus or buttons and the invisible ones like operating systems, software and surveillance in the media environment. Cultural studies contributes to this method through considerations of beliefs, values, relationships and power relations in larger society. In concert with one another, this recognizes the mutual shaping of technology and society as well as that technology is always developed within a particular culture, and arises from that cultural framework leavened with correspondingly iterative values (Marwick, 2013).

vi. Thesis overview

I intend to make PornHub's operational model explicit using digital methods, but doing that first requires a few introductory things. The first of these is a short review of the body of work

pertaining to the study of pornography against which to compare PornHub's current mode of hosting content and which will offer foundations for the cultural studies element of my walkthrough analysis. Following that I will offer a cursory overview of literature on platforms that will demonstrate why approaching PornHub primarily as a platform is increasingly necessary for a robust STS analysis. I will approach these in the following two chapters, which will look to the field of porn and then platform studies, respectively.

Chapter 2 will account for a tradition of censorship as well as the textual and representational analysis that has populated the scholarship to account for the relative absence of analytical attention being paid to the supply chain of the porn industry. Pornography is steeped in controversy, and revisiting the interplay of social and political anxieties that have steered the reception of porn media can help account for this. Contextualization of early antiporn sentiment provides an important avenue to consider current pornography studies as heir to a long-established moralizing cultural climate. The field has been long assailed by questions of whether sexually explicit material is even worth considering under serious study (it is) and scholars routinely find themselves defending the merits of their work if it so much as brushes up against the pornographic (Segal, 1998). Cyberporn scholarship revealed many of internet porn's entanglements with commodification and production. From VHS to Blu-ray, pay-per-view to video-on-demand, 1-click ordering to crypto-currency, porn has long been a key player in driving technical developments by responding to the demands of porn viewers (Chun, 2008b). In the last decade porn scholars have become increasingly focused on the potential of porn to shape technological and economic development (Barss, 2010). There has been some exceptional

research in recent years on labour, the supply chain, surveillance and data in relation to free online pornography (Johnson, 2011; Paasonen, 2011; Berg & Penley, 2016; Maris, Libert, & Henrichsen, 2019). Beyond these investigations, porn is notably absent from the conversation on platforms more broadly, so I will next look to platform studies in order to reveal PornHub as a perfect case study for the platform economy.

Chapter 3 will review literature on platforms in order to synthesize the qualities that make up a platform, and make explicit that PornHub is a ripe example a successful one. Tube platforms are built on a wildly-successful free access model that relies on driving massive amounts of traffic in order to collect data and create advertising revenue. As aggregators and mediators of content, tubesites are “exerting significant control over institutional relationships with end users and complementors” (Nieborg & Poell, 2018, p. 18). Acting as the intermediary between a massive user base, and an inflated supply of content, PornHub makes for an exemplary case study on platforms. This will be followed by a detailed history of the rise of MindGeek and how the company came to dominate such a significant portion of the internet pornography market, setting the stage for a contemporary explanation of their operating model.

My fourth chapter will deploy the walkthrough method in order to analyze the closed interface of PornHub.com (Light et al., 2018). Though the method was originally developed to study apps and closed API's, it is a method equally well suited to consider PornHub's arrangement. Digital media sources tend to shift and rapidly change over time, and can also be heavily personalized to reflect user browsing interests. Optimization means there is no ultimate static version of their

pages, but advertising and recommendation systems that reflect the given user's interactions. This fluidity presents a challenge to studying algorithmic media like PornHub as a fixed object, which I hope that a walkthrough of the user interface at a given point in time may help to overcome. The first of two components, the Environment of Expected Use looks to paratextual and regulatory material like the Terms of Service in order to revealing how the site understands its function.

The second component, the Technical Walkthrough will account for design characteristics on the website to show what the user experiences and to reflect the values, hierarchies, and discursive patterns embedded in the chosen site. The cacophonous bundle of visual information that greets viewers on each page of PornHub.com has been called something of a "traditional design nightmare" (Arroyo, 2018) but users are embracing this as an immersive porn-browsing experience. Writing for *New York Magazine*, Benjamin Wallace tellingly describes it as if "you've dropped acid and been astrally projected into a triple-X pachinko parlor" (2011). It is overwhelming, inelegant and deeply distracting, but it is not a coincidence that PornHub attracts a massive influx of traffic that makes it a commercial success. The walkthrough will show how PornHub deploys surveillance technologies in new permutations of monitoring, measuring, and optimizing their user engagement appears to be at the core of PornHub's model. To establish this data driven means of operation, my study will also look to press releases, journalistic accounts and interviews. Paratextual resources beyond the main site will be subject to analysis in order to begin triangulating values, goals, and strategies of the PornHub model.

In the concluding chapter, I will review the findings of the walkthrough, and the methodological limitations of my project, as well as revisit some theoretical underpinnings of my reading of the site. This study can provide insight into one particular media locale with these chapters working to respond to the questions at the heart of this thesis project: *how does the operating model of PornHub.com manage attention, and in what ways does this structure norms for the pornography industry?*

Chapter 2: porn studies

“Pornography has many uses beyond the classic one handed one....

pornography exposes the culture to itself”

- Laura Kipniss, Bound and Gagged

i. Thinking about pornography

Porn was a driver of the sex wars of the 1970's, spurred a long tradition of feminist porn debates, and excited a moral panic in the population that endures today (Bronstein, 2011). As a result of the ongoing controversy of the topic, pornography is variously referred to as 'adult content', 'erotic entertainment' or 'sexual materials'. One of the largest app platforms, the Apple iOS store identifies porn simply as 'objectionable content', with the response to the objection being an outright ban (Helmond et al., 2018). Ongoing debates raging around censorship and the cause-and-effect of porn have lead Walter Kendrick to identify pornography as 'not a thing but an argument' (Kendrick, 1985). However, the subjective and controversial social, aesthetic, political, economic and legal attitudes toward pornography are what make study of the topic so uniquely fascinating, and this research will embrace the terms 'pornography' and 'porn' enthusiastically. Pornography has been defined as a genre, any provocation to arousal, or simply as visual materials containing any explicit display of sexual activity. These definitions have been variably grounded in texts, authorial intentions, and considered markers of taste and cultural

status (Paasonen et al., 2007). Susan Sontag (2002) considered pornography ‘singleminded’ in function, the antithesis of the complex functions of literature, or summarily, she asserted that the “job of pornography is to do one thing, and if it’s doing anything else, it’s not doing its job properly” (Paasonen, 2011, p. 51). In direct opposition to this, Joseph Slade has claimed that “pornography, an attempt at communication, conveys a host of messages, many of them contradictory” (2000, p. 6). Furthermore, negative values are routinely ascribed to porn material and he goes on to remind that “the meaning of the term pornographic constantly shifts along a vast continuum moving between two equally slippery concepts, the erotic and the obscene” (Slade, 2000, p. 7). Some authors have applauded pornography as a representative celebration of the body and human sexuality, others identified it as a marker of class, while a great many others suggest it denotes vulgarity and even violence or criminality (Dines, 2010; Dworkin, Fateman, & Scholder, 2019; Kipnis, 2003). Of the many qualities attributed to pornography and the field of porn studies, the singular condition universally agreed upon is porn’s heterodoxy. In other words, that it generates diverse and strong opinions, often in direct contradiction with one another.

This thesis recalls Laura Kipnis’ words on porn’s synechdocal function: “A culture’s pornography becomes, in effect, a very precise map of that culture’s borders: pornography begins at the edge of a culture’s decorum” (Kipnis, 2003, p. 164). This is to say that porn is considered vulgar and distasteful, we collectively pretend to abhor it while viewing it discreetly, and it is normally banished from the public sphere unless it’s right to exist is being debated. Others have pointed out that critiques of pornography frequently fall along high/low culture

divides, often reproducing that familiar cultural distinction between art and porn (Nead, 2015). In his iconic study of taste, Bourdieu argues that our disposition to media forms is based on an ability to perceive objects "as if the emphasis on form could only be achieved by a neutralization of any kind of affective or ethical interest in the object of representation" (Bourdieu, 2000, p. 44). In other words, art is considered disinterested in the project of functional representation, whereas pornography is specifically defined by its function as a means of exciting sexual arousal. However, as Bourdieu suggests, distinctions between art and pornography are not defined by the contents of these two categories but on the very particular ways in which the texts are consumed. The meaning of any text is not elemental to its form but changes in relation to how it is ingested according to different intentions and audiences. A picture may be read 'aesthetically' in terms of its form, or 'pornographically' as something that excites desire in the viewer. Such art/porn readings are not simple individual choices. On the contrary, Bourdieu argues they correspond to specific taste formations that are, in turn, tied to the situation of specific social classes. Debates over pornography therefore need to be understood not simply as political struggles over gender relations, but also as political struggles between these very different taste formations, or as class struggle. What's more, critiques of pornography are often the product of one class's visceral intolerance to the sexual taste of another class. As Laura Kipnis has pointed out, moral outrage at pornographic forms can often be seen as "the desire to distance [oneself] from and if possible banish from existence the cause of [one's] distress - the sexual expression of people unlike [oneself]" (Kipnis, 1993, p. 377).

ii. The evolution of porn studies

Pornography has been appearing in various art forms since pre-modern civilization. While the development of depictions of sex is a fascinating genealogy deserving attention, this review will be contained to pornography in the form of film and will consider only the porn scholarship emerging out of moving image porn and the digital iterations that followed.

Much early popular scholarly work on pornography was primarily focused on its political and moral consequences. Taking porn seriously as an object of study arguably entered the public eye beginning with feminist anti-porn scholarship. This work can be seen as a prominent feature of political campaigning by the American radical feminist professor Catherine A. MacKinnon and through writing by anti pornography feminist activist Andrea Dworkin, particularly her infamous 1981 text, *Pornography: Men Possessing Women* (Dworkin, 1974, 1999; MacKinnon, 1979, 1991). Dworkin, MacKinnon and other radical feminist scholars viewed porn as a representational tool for the oppression of women. At the expense of considering the actual production conditions, influences and norms in the industry, or allowing for any artistry “a great deal of feminist work was devoted to analysing [pornography] as an almost pure expression of patriarchal ideology and power” (Jancovich, 2001, p. 1). Organizations quickly emerged in this mode, decrying the effects of pornography and claiming that smut on film would serve to incite violence and transgression in its viewers. Groups like Women Against Pornography (WAP), rallied against the creation and sale of pornography in America. For these groups porn was “the undiluted essence of anti-female propaganda” (Bracewell, 2016, p. 30) and they claimed that pornography, “like rape, is a male

invention, designed to dehumanize women, to reduce the female to an object of sexual access” (S. Brown, 1981). Such criticisms of pornography tended to “present it as the cause, rather than an effect, of sexual inequality” (Jancovich, 2001, p. 1) as well as to create the notion that there is a perverseness or sexual deviation at play, both inspiring and being recreated in porn.

This antiporn sentiment echoes Gayle Rubin’s ‘charmed circle of sexuality’ theory, which posits an essentialization and polarization of ‘porn sex’ at odds with a stable, normal and healthy sexuality (Rubin, 2012). This stance is frequently remembered through the words of Robin Morgan, who declared “Pornography is the theory, rape is the practice” (Morgan, 1978, p. 2). This framing rather effectively vilified the activities of the industry entirely, with an antiporn perspective that remained popular amongst second-wave feminists for years and persists today in religious conservative and feminist circles. Put simply, antipornography feminists’ concern was a causal relationship between pornography and real world projects of power that oppress women. The magnitude and mainstreaming of porn has pushed questions about the industry further into the public eye, but residual attitudes held over from the culture wars of the 1970’s may help account for some of the squeamishness in the decades since.

In the ensuing decades, psychologists, sociologists and other social scientists have been conducting studies in an effort to establish the veracity of any link between porn consumption and violence against women (Dines, 2010; Dines, Jensen, & Russo, 1998; Maltz & Maltz, 2009). While occasional correlation has been noted in these studies, no reliable causation has been established to date, and more common is the revelation that sexual violence actually *decreases* in

regions with an increased level of access to pornography (Diamond, 2010; Kutchinsky, 1991). Results from this research are ambiguous: the only sure conclusion (one that has been drawn out and reaffirmed for decades) being that further research is needed. Because of this ambiguity, no proofs are offered for the superstitions levied at porn viewers, affirming Walter Kendrick's musing that the single verifiable thing porn really causes is masturbation (Kendrick, 1996).

Susan Sontag identified pornography as a "locus of moral concern", and by fixating on this for decades, consideration was not fairly given to its themes, aesthetics, or many dimensions of production and distribution (Sontag, 2002, p. 38). Nevermind that emotionally-based appeals for censorship suggest futilely, as Kendrick put it, that "society could be persuaded to ban the expression of its own favorite ideas" (1985, para. 6) but of course "it would be immensely simpler, of course, to burn a few magazines than to explore the economic, social, and psychological factors of which both rape and pornography are symptoms" (1985, para. 6). The effect on research was that a low cultural status was widely attributed to pornography early on that it has never entirely managed to shake, and consumers are routinely pathologized as filthy, risky and lacking self control (Paasonen et al., 2007; Webber & Sullivan, 2018). This causal approach shaped the formative years of considering porn as a serious form of media. Auteur and arthouse porn thrived throughout the 70's and 80's, and it was here pornography began to be recognized as a media artefact worthy of critical analysis. 'Porno chic' is the term often applied to this slow embrace of pornography by arthouse cinemas, movie critics, and the general public (Strub, 2016).

By the 1990s, research on porn had also extended somewhat beyond reception, into histories and questions about the cultural significance of making porn. Scholars began asking “how does porn work as a genre?” John Paul Stadler has remarked that it is no coincidence that porn studies came of age alongside queer studies, where both “took that indeterminate site of power—sexuality—as their primary object of study” (Stadler, 2018, p. 170). Work in this period often sought to disentangle and question the politics and construction of sexual identity in pornography (L. Williams, 1991; Sedgwick, 1991; Dyer, 1994; Waugh, 1996; Berlant & Warner, 1998; Rubin, 2012). These writers were instrumental in the ways they approached pornography, in relation to rising schools of feminist thought, cultural studies and other digital media scholarship.⁵ Throughout this period, study of the production of pornography was normally fixed on genre and representation, as well as the independent, niche, and subclutural. Here, porn was understood as an enclave of sexual and cultural expression.

The 1990s also brought the rise of the world wide web, and along with that came a flood of porn shared on message boards and early porn video websites. Cyberporn - or pornography that is accessible online - became focal to interactions with the early Internet as well as our home computers, and invited questions about public and private media consumption.⁶ Perhaps thanks

⁵ Linda Williams' early analysis of porn films played a pivotal role in taking pornography texts as valid genre work. By considering porn seriously, Williams and her contemporaries drew attention to the economic and social considerations that have been entangled with representations of sex on screen. Porn conventions - most notably the infamous 'Money Shot' - were appreciated through her writing as more than discrete stylistic approaches, but as manifestations of cultural and social value through media. (L. Williams, 1991, 1999, 2014)

⁶ This concern, often expressed over protecting children from internet pornography, is summed up nicely by a now-iconic 1995 TIME magazine cover depicting a young boy, face dramatically lit by a computer screen and mouth open in shock, sporting the text: “CYBERPORN EXCLUSIVE: A new study shows how pervasive and wild it really is. Can we protect our kids - and free speech?” see: Figure 1. “TIME Magazine Cover. Cyber Porn | July 3, 1995”

to the porn invasion into the heart of American households, or the growing ease by which it could be accessed online, attention to the content and scope of the porn industry was growing.

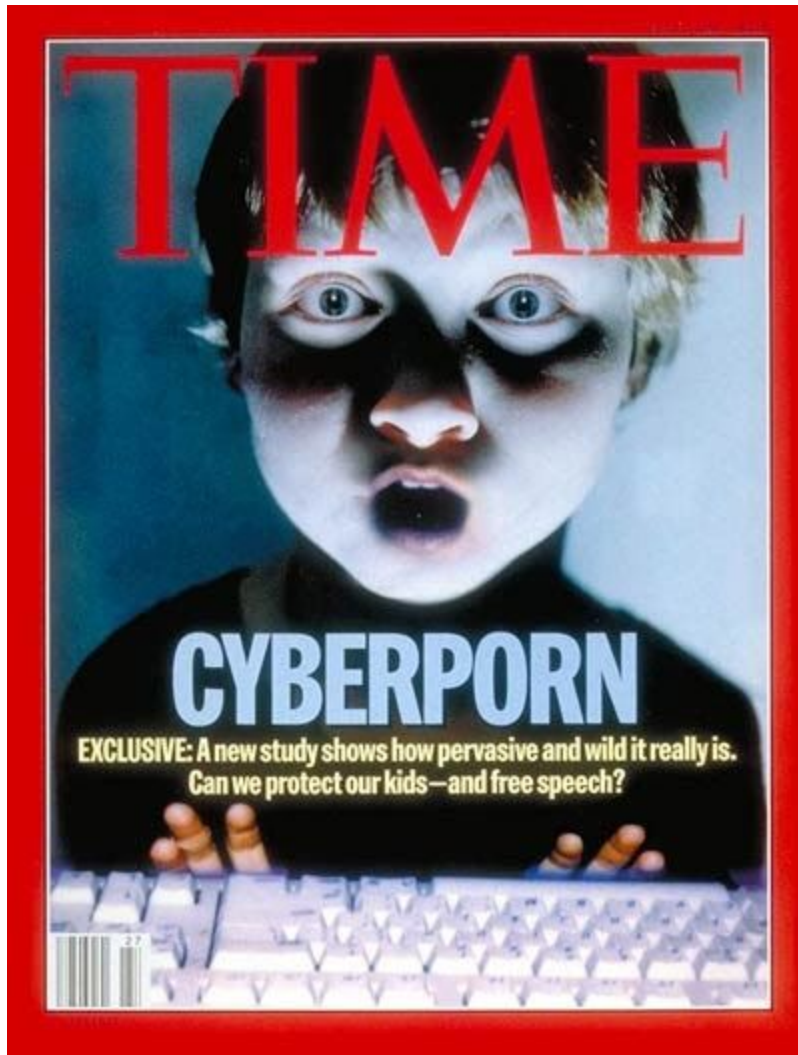


Fig. 1: TIME Magazine Cover. Cyber Porn, July 3, 1995

Following the popularization of the internet, porn scholars became increasingly focused on the potential to create space for sexual “others,” where kink, gender and sexuality could be expressed in novel ways (Senft, 2008). With all this attention being levied at porn subcultures,

mainstream pornography was considered loathsome, but also considered a realm “where nothing interesting ever happens”(Jancovich, 2001, p. 8) and therefore largely dismissed, unworthy of serious consideration for study. Hardcore and gonzo pornography produced by studios at this time grew increasingly saturated with extremes: more choking, slapping, anal sex, fisting and generally pushing physical limits of performers enveloped in an aesthetic of domination (Attwood, 2011; Forrester, 2016). Meanwhile, technologies and techniques of porn production were democratized so that amateur, kink, and the avant-garde were received as more ‘authentic’ while mainstream porn hardcore pornography bore the signifiers of artificiality; it was coded as scripted, formulaic and despite the extremes, mundane in its performance - at odds with the coding of raw, nonspectacular but authentic display witnessed in niche and amateur productions (Paasonen, 2011, p. 81). Digital imaging allowed for a sense of documentary realism to be applied to porn making practice, and a departure from scripted and well-lit productions led to the assumption that amateur porn makers were merely recording scenes rather than skillfully manufacturing them. Amateur porn was imbued with a sense of *cinéma vérité* - of a truth and authenticity denied to studio productions. Through the 1990s and early millennium, porn studies became fixated on the alternative, the independent and the niche. The effect of this is that massive studio producers were correspondingly left overlooked by scholars. These mainstream pornographers were largely received as working in a derivative reproductive mode, defined by a standardized and mass-produced logic of sameness (Adorno & Bernstein, 2001). Studying alternative or transgressive pornographies largely overshadowed a nascent interest in the business practices of how most ordinary porn was being made. Referencing this tradition of overlooking the more material elements of pornography, Susanna Paasonen writes:

“By providing a conceptual framework for addressing cultural phenomena, objects, spaces, and images as texts as representations, the textual turn brought forth a certain tyranny of the semantic at the cost of the sensory and the material.” (2011, p. 9)

Even though it was key to understanding the digital economy, mainstream porn scholarship was banished to the realm of the uninteresting for over a decade. There is minimal discussion of mainstream pornography in the positive sense and the only expression it is commonly presumed to carry is that of misogyny or social decay. That it might have complex social agendas, or that scholars of the genre might generate interesting insights about pornography in relation to this particular social and historical moment, remain underexplored thoughts. One reason for this absence is an intellectual prejudice against taking porn seriously at all. Laura Kipnis has explored this tendency at length, determining that “those who tend to take pornography seriously are its opponents, who have little interesting to say on the subject” (Kipnis, 2003, p. 163).

Furthermore, constructions of the mainstream tend to present it as a neutral or passive media object which is only ever associated with conservatism, and hence as a place where nothing interesting ever happens. This position also suggests a sense of over-familiarity in which the mainstream is supposedly not worthy of examination because it is presumed to be all too well known and obvious. In debates over pornography, as we have seen, interest is almost always in the transgressive, because mainstream pornography is assumed to be an essentially known entity which does not change. The porn landscape shifted to a model that rewarded specific themes (‘mature’ ‘interracial’ ‘gonzo’ etc.) as well as eye-catching content that

encouraged click-through. This pushed many niche kinks and sexual subcultures to a visibility that had not been experienced prior. Extreme, bizarre, shocking, and eccentric images became a way to make browsing audiences stop and explore the site - a consideration described as 'stickiness' in more detail in the following chapter on platforms.

Despite this seismic shift in consumption patterns, most media scholars continued to show an interest in porn content over production or distribution context. The problem with this tendency is that much scholarship seriously considering porn was based on a "highly problematic construction of, and opposition to, "ordinary" pornography" (Jancovich, 2001, p. 4). For example, Susan Sontag privileged only 'literary' pornography, and Linda Williams praised the theatrical and performative qualities of sadomasochistic porn as high art, while any mundane pornography was otherwise positioned as a stable but unexamined 'other' against which these exceptions are set (Sontag, 2002; L. Williams, 1999). Conventional pornographic texts continue to be disproportionately overlooked in this tradition despite the fact that the overwhelming majority of porn being encountered by users online is in this mainstream tradition. Susanna Paasonen has noted the general disinterest towards mainstream pornography by internet researchers has further contributed to a dearth of investigation into the topic (Paasonen, 2011). This seemingly 'ordinary' porn shares a host of production norms that are no less complex and fascinating under examination than their niche and alternative porn counterparts. In *Carnal Resonance*, Susanna Paasonen writes:

“studies of commercial porn are perhaps seen to pose few analytical and intellectual challenges... attending less to that deemed familiar, commercial, or predictable is a recognizable trait in studies of new media more generally.” (2011, p. 33)

The overwhelmingly successful streaming model is how an average user encounters pornography today, and the trend of banishing mainstream porn practices to the realm of the uninteresting deserved to be agitated.

In the last decade, the study of porn has begun to gradually and deservedly turn more towards the material, to production and political economy. One reason for this is that internet scholars quickly perceived that the porn industry played a crucial role in the development of the web. While specific numbers around the revenue generated by online porn remain difficult to ascertain, porn content was acknowledged by early web investors as a surefire way to generate profit (Paasonen, 2011, p. 33). Wendy Chun’s *Screening Pornography* has revealed some of internet porn’s entanglements with commodification and production. For example, she has compellingly mapped out how pornography’s turn to the digital worked, yet again, to make porn a driving force behind the monetization of new technology (Chun, 2008b). This conceptual move beyond the content and towards the organization of pornography was an important step for researchers agitating the way porn is produced and consumed today. Referring to the 1995 Communications Decency Act, Chun made the case for internet scholars to pay attention to the way porn has historically generated profit:

“The Internet’s privatization paved the way for cyberporn to the extent that it made digital pornography a hyper visible threat/phenomenon, and cyberporn paved the way for the “Information Superhighway” to the extent that it initiated the Internet gold rush and caused media, government, and commercial companies to debate seriously and publically the status of the Internet as a mass medium.” (2008b, p. 79)

Porn has an established history of driving technological adoption. Long before internet pornography, the demand for privately screened porn played a role in helping VHS triumph over Beta videotape and BlueRay win out over HD DVDs (Barss, 2010). Later, during the dotcom epoch, pornography paved the way in convincing audiences to go online and pay for content, influencing streaming, closed captioning and payment processors.(Eaton, n.d.; Perdue, 2002) Early web porn sites were small and independent, unlike the massive aggregates of streaming and peer-to-peer sites that overtook them in the early millennium. Rather than passing dirty magazines between friends or waking into a ‘Cinema l’amour’, users with a dial up or broadband connection could access their preferred saucy materials in relative privacy from the home. Porn watching in this era had transformed into a fundamentally homebound transactional experience between a user and their home computer - a place to evade public norms, but also connect to other users. While porn was also popular in pre-web bulletin board systems (BBS) and on Usenet, Chun has made the case that the navigability of the world wide web and the success of porn sites appearing on it was what convinced corporations that web users would be willing to pay for online content (2008b, p. 78). Further, regulatory attempts to prevent minors from accessing porn led to the popularization of credit card verification and age verification systems,

which did not completely eradicate the flow of free porn on more marginal channels, but certainly made commercial paywall porn the standard medium for online porn throughout the 1990's.

Certainly, much attention has been given to pornography's impact on consumers and the larger public, and much of it is popular speculation on topics such as socialization, violence, pedophilia, and rape. With few exceptions, however, media coverage has mostly ignored the networked effects of technology on the industry, surveillance, platformization, or porn's vast economic influence (Oeming, 2018; Webber & Sullivan, 2018). This has left a trail of research that has largely overlooked many of the contemporary issues hinted at by Tarrant and instead doggedly emphasised public and social effects at the expense of production conditions and analysis of digital delivery (S. C. Brown, 2014). The tendency within porn scholarship towards textual readings - to analyze the content of video or images and consider them as wholly representative of the larger functions of that media - mirrors porn scholarship's roots in a feminist tradition, situating porn content as (largely negatively) affecting cultural attitudes. This synecdochal approach results in work that focuses on issues of representation and tends to ignore the more technological aspects of online pornography. Alongside this, despite the public debates that endlessly swirl around online porn usage and its centrality to media technology and the digital economy, research concentrating on popular pornography websites is comparatively minimal considering their scale. Despite porn's massive influence over the media landscape and all the public scrutiny towards the social effects of porn, recent political economy of pornography particular to the internet remains dramatically understudied. What this means is that

there exists a relatively limited amount of work concerned with the makeup of media technologies, their logic of operations, architecture, and their programmability. These considerations combined make up what Paasonen et al. have identified as “material forces of culture” (2007, p. 25) in a Deleuzean framework. By re-situating pornographic objects within their digital circulation and their materiality, researchers may better account for cultures of production, histories and modern conventions. Paasonen has called for a ‘thinking beside’ approach that does not set aside the semiotic altogether but muddles porn histories, materialist thinking and affect theory while moving between multiple theoretical frameworks and modes of interpretation. This suggests that moving towards studying media techniques and technologies and further away from purely representational analysis would contribute to a more robust assemblage of pornography scholarship.

A brief history of porn scholarship works towards helping how study of porn evolved what we know about it as a result of this evolution. Porn scholars have encountered some serious methodological limitations that arise when researching the massive, amorphous systems of media distribution referred to as platforms. In her 2016 exploration of the pornography industry, Shira Tarrant touches on the business model of tubesites, cautioning readers that “finding reliable data on the industry is almost impossible” (2016, p. 7). What this means is that there exists a relatively limited amount of work within media studies that engages pornographic texts through their organizational logic. In the case of PornHub, for example, it has resulted in a lack of scholarship that analyzes porn within the frameworks of technological developments or considers it as a case study for the larger digital economy. This lack is especially unfortunate

because porn tubesites present a fantastic opportunity for the study of how platforms are engaging users in new economic models online. Jonathan Coopersmith helps knit porn scholarship back into these trailblazing business and operational practices by reminding us that porn “is an economist’s ideal free good: pornography is easily accessible, incurs minimum transaction costs and enjoys seemingly unlimited demand” (Coopersmith, 2006, p. 2).

Recent work on porn and data suggests this move is already underway. *Porn Studies*, a peer-reviewed academic journal dedicated to the field, was founded in 2014. In an early call for papers, the journal declared itself “the first dedicated, international, peer-reviewed journal to critically explore those cultural products and services designated as pornographic” (Porn Studies: Vol 6, No 2). This represented a shift towards reconciling pornography studies with cultural studies and sociological analysis, as well as “discussions that focus on theoretical approaches, methodology and research ethics”.⁷ Articles published in the journal have included meditations on censorship, surveillance, age verification, labour and piracy, and they approach many other questions relating to the digital age of pornography. The work published in Porn Studies over the past 5 years has contributed greatly to conversations between pornography scholars and it has signaled those outside the discipline to pay more heed to pornography as a serious object of study.

⁷ Porn Studies is an interdisciplinary journal informed by critical sexuality studies and work exploring the intersection of sexuality, gender, race, class, age and ability. It focuses on developing knowledge of pornographies past and present, in all their variations and around the world. Because pornography studies are still in their infancy we are also interested in discussions that focus on theoretical approaches, methodology and research ethics. Alongside articles, the journal includes a forum devoted to shorter observations, developments, debates or issues in porn studies, designed to encourage exchange and debate. [Porn Studies - Aims and Scope](#), retrieved June 21 2019.

Several other academic journals and books published in recent years have put forth work tackling questions around free streaming pornas well as the technology and business practices that power it. In 2008's *Control and Freedom*, Wendy Chun emphasised how important it is for scholars to strive for comprehensive and medium-specific criticism that includes hardware, software, interface, and extra-medial representations of internet objects. Her work calls for “engaging visual and nonvisual aspects of networked machines—human and machine readings—as well as their economic and political impact” (Chun, 2008a, p. 17). From the perspective of porn scholarship, this recommends that alongside looking at code and hardware, and without exceptionalizing porn, it is important to consider the genealogy of social and cultural factors that have led to the squeamishness and fascination simultaneously levied at pornography. In her work, Chun explores how the internet was crafted both technologically and culturally as a medium. By exposing these influences and subsequently criticizing them, Chun allows for a better understanding of the effects and practices they have engendered. Susanna Paasonen's *Carnal Resonance* explores the affective qualities of internet porn, focusing on the figure of the porn consumer. Considering that the logic of PornHub is so demonstrably obfuscated, a user-centred understanding of pornography is essential to this project because it offers a novel path to understanding modern porn-making and watching. Paasonen writes: “Porn is both material and semiotic: it involves fleshy intensities, conventions of representation, media technologies, and the circuits of money, labor, and affect.”(2011, p. 2) While not setting aside questions of meaning altogether, this project follows Paasonen and Chun in emphasizing the material experience of engaging with porn while retaining a critical and feminist reading of tube pornography.

Alongside the aforementioned work, Jennifer A. Johnson has convincingly illustrated that the practice of porn consumption is stratified under both capitalism and patriarchy. Using data driven approaches, her work positions watchers of porn as subjects of an identity project working to commodify any and all sexual experiences and moving the body in search of profit (Johnson, 2010, 2011). Johnson activated social network analysis to map a network of online pornography producers and distributors, guided by principles of political economy - that is, “elucidating the complex relationship between the modes of production of material life and the non-material sociocultural terrain” (2011, p. 190). Through this approach, her study found the core of the online pornography network to be composed of only a few powerful nodes: a concentration and centralization appears in the large conglomerates that connect to most other actors in the network. The coordinating ability of these major conglomerates is demonstrated to extend the reach of the network overall, by rerouting attention only to select affiliate programs and providers. Push technology enabled the webmasters in Johnson’s network to convert passive engagement into profit maximization using “technology designed to entrap the consumer and limiting his agency inside the network” (Johnson, 2011, p. 159). The current state of tubesite heteroporn suggests a vision of sex that reproduces a ‘general crisis of the patriarchy’ wherein individual men’s power over women has waned considerably under the broader spectre of modern capitalism and therefore many will seek out “a sense of empowerment at the micro-level” (Johnson, 2011, p. 151). Johnson concludes that this arrives in the form of a grab at hegemonic masculinity -- a feeling of control over the bodies of others manufactured for users by clicking through gonzo pornography.

Johnson's findings are consistent with observations made in this walkthrough, where it is clear the dominant mode being promoted on PornHub in 2019 is patriarchal and concerned with control of female agency, largely at the expense of women's pleasure and bodily autonomy. The most important contribution drawn from Johnson is a move away from the manichaeian idea that violent or patriarchal heteroporn is being produced because (male) audiences are actively seeking out poor treatment of women or derivative 'bad' porn. Instead, Johnson follows the call to treat porn as a normal business, in order to better understand how porn-watching actually functions without being imbued with the exceptional moral significance that is routinely assigned to sex and the sexual (Voss, 2012). Further work by Mirelle Miller-Young (2014), Lynn Comella and Shira Tarrant (2015), Peter Alilunas (2016; 2019), Heather Berg (2016), Rebecca Holt (2017), and Patrick Keilty (2016; 2018) has engaged elegantly with questions of representation, labour, design and technology within pornography —revealing new ways of considering the porn industry that refuse the exceptionalism that plagues sex work, and engaging porn through political economy in creative and pragmatic ways. In other words, these scholars and others in conversation impress that while tubesites must necessarily be placed within a genealogy of pornography at large, it is also essential to analyze how the particularities of the medium make a difference. Free streaming tube pornography is only one specific articulation of a media form that, though a wildly successful business model, must be recognized as constructed and exerting power, when it is tempting to consider the formation natural because of its pervasiveness (Foucault, 1990).

Given the gaps in research outlined above, there are some established avenues that can make inroads towards understanding the supremacy of PornHub. The preceding review of porn scholarship makes plain that the field can only benefit from more research that moves beyond the textual approach and into more material and technological realms. Research specific to porn must still, however, pay attention to the moralizing discourses that plague the medium. Understanding that pornography is embedded in a history of social and representational controversy is crucial to a well rounded media research approach. Even when projects such as this one do not undertake to resolve questions of meaning or social effects, they are still constitutive of the state of modern pornography and must not be set aside altogether. This foundation acknowledges that porn is steeped in value judgements that render it invisible and shameful, leading to the often-overlooked conditions that make up modern porn production. Communication scholarship has a long history of detailed research that focuses on discrete sites to elucidate larger theoretical effects that technologies can have on culture (Carey, 1992). The effects of these organizational technologies can perhaps be understood best “not through a frontal assault but, rather, through the detailed investigation in a couple of sites where those effects can be most clearly observed” (Carey, 1992, p. 210). The following framework sets this approach up by considering pornography seriously as a culture industry undergoing transformation by platformization, and PornHub as a site best approached via digital methods.

Chapter 3: platform studies

‘Platform’ has become the shorthand for the technological mediators who function as “economic actors within a capitalist mode of production” (Srnicek, 2017, p. 3). Much has been written on the dynamics that are reinforced by developing media technologies, but there are limits to a purely economic approach to understanding the power of platforms. Political economic approaches have demonstrated a more robust understanding of the ideologies of corporations and the relationship of digital labourers to capital within the platform economy (Elmer, Langlois, & McKelvey, 2012; Dal Yong Jin, 2017; Gillespie, 2018a; Kleis Nielsen & Ganter, 2018; Nieborg & Poell, 2018; Nieborg & Helmond, 2019). Platform studies have sprung up to account for the relationship between digitization and capitalism, labour, and the social questions that emerge out of the process of expansion and centralization we have witnessed through these companies over the past decade.

In his 2018 book, *Custodians of the Internet*, Tarleton Gillespie defines platforms as online sites and services that a) host, organize and circulate content, b) without having produced or commissioned the majority of that content, while c) built on an information infrastructure that collects and processes data for service, advertising and profit and finally d) which moderates the activity of its users using some logistics of detection, review and enforcement (Gillespie, 2018a). Porn tubesites really are quintessential platforms - media intermediaries carefully moderating an exchange of content between their users, partners and advertisers all while maintaining the illusion of neutrality. Through their oligopolistic force in the industry, rampant piracy of content,

and free model that renders competition near impossible, tubesites are operating within a capitalist mode of production that Nick Srnicek identifies as constantly striving towards exploitation, exclusion and subduing competition within their own industry (Srnicek, 2017).

Among the most troubling aspects of this media ecosystem is that alternative modes of cultural production that are not congruent with this mode are suppressed, often to the extent that this specific process is perceived as the naturally occurring order of production.

PornHub.com and similar tube platforms are built on this wildly successful free-access model that relies on driving massive amounts of traffic across their sites to collect data. Collecting data from their viewers necessitates that PornHub promotes content most likely to draw high page view count, claiming on their statistics blog *PornHub Insights* to have compiled data from billions of hits to deploy content algorithmically curated to the browsing patterns of its users (Holt, 2017). To succeed in this mode, PornHub must produce an over abundance of content through a race-to-the-bottom approach in production, and by routinely hosting pirated content. Securing this traffic requires operating in an oligopolistic mode that is not concerned with quality of the porn being hosted, only the quantity of clicks derived from it. Though there are many links to what appears to be external content on the site, most of what PornHub links to and promotes falls under the MindGeek porn network. Like many large media firms, the PornHub business model relies on vertical integration, meaning the site partners closely with content producers also owned by MindGeek including Digital Playground and Brazzers, among over one hundred others. Gillespie recognizes the carefully controlled ‘choices’ of the user within the architecture of a website as a type of commodity, “meant to draw users in and keep them on the platform -

paid for with attention to advertising and in exchange for even more personal data” (Gillespie, 2018a, p. 41).

PornHub exemplifies cultural production in an era of platforms, with content made easily and freely available through massive and obfuscated supply chains. Like many media conglomerates, the PornHub business model features vertical integration, partnering closely with content producers like Digital Playground and Brazzers, also owned by MindGeek. Collecting data from their viewers, PornHub promotes content that is most likely to draw high page view count, claiming on their statistics blog *PornHub Insights* to have “compiled data from billions of hits, all to explore the intricacies of online porn viewership”⁸ in order to deploy content that is algorithmically curated to appeal to browsing patterns of its users. This is why my research relies on platform scholarship to understand the hegemony of the freemium tube model.

Summed up, platforms were borne out of the commercial lineage of the web, a.k.a. the ‘dot-com boom’ of the 1990’s through to the current digital economy flush with apps, startups and cryptocurrencies. In 2017’s *Platform Capitalism*, Nick Srnicek sketched out the conditions that allowed for the internet platform bonanza we’ve witnessed since the millenium. Following the crisis of overproduction that plagued manufacturing sectors for decades, venture capitalists looked to online traffic and data as a means to reclaim some economic vitality out from beneath a struggling production sector. Srnicek made the case that the 2008 financial crisis was, in fact, “a key enabling condition for parts of today’s digital economy to rise” (Srnicek, 2017, p. 27) and

⁸ Pornhub Insights, “About”, pornhub.com/insights/

promoted the domination of platforms through enthusiastic venture capital funding. Data contained the possibility of returns on investment without the incentive of production stimulus and from this composition of needs, platforms began to be developed. Following this ‘turn to data’, platforms have developed with a broad spectrum of service objectives. Srnicek has classified platforms according to function: advertising, cloud, industrial, product and lean platforms. PornHub, under this classification, would be considered an advertising platform because the site extracts user data and capitalises on advertising space.

Familiar names are frequently cited in discussion on platforms: social media giants like Facebook, Instagram and Twitter, services including rideshare operations such as Lyft and Uber, or retail and storage web services seen with Amazon and Alphabet, the parent company to Google. Less common are discussions of pornography giants like PornHub as platforms, despite meeting all criteria below to an extent that makes the porn giant exemplary of platform-capitalist tendencies towards exploitation, exclusion and competition . As aggregators and mediators of content, tubesites act as platforms, “exerting significant control over institutional relationships with end users and complementors” (Nieborg & Poell, 2018, p. 18).

By Srnicek’s assessment, a platform has three identifying characteristics: first, it simply mediates an interaction between two groups, and through that function it produces data on the user dynamics. Second, platforms are reliant on robust networks, a state that privileges monopolistic growth and discourages new entrants to the market. The final feature of platforms is their tendency to subsidize or even provide services for free to encourage growth in their user base

and gain profits instead through means like advertising and data mining rather than traditional sales revenue. Common to all platforms is a reliance on data and a hypercompetitive dynamic that uniformly pushes towards monopolistic control of the market (Srniczek, 2017). This has implications that are not restricted to the digital economy but reach into culture industry production infrastructures, which have come to rely heavily on platforms to survive. Although platforms are often remarkably small employers, many are massively profitable and their influence on the economy is pervasive (Gillespie, 2018a). Consumers engage with platforms constantly and the values embedded in the technology posture over both the supply side (individual users) and the production (content producers) to the extent that their influence is inescapable. Despite this, the reality of many platform business models is that they rely on venture capital to survive rather than generating revenue through traditional means. This also means that successful platforms tend to operate in an oligopolistic model, making them “highly visible and influential” (Srniczek, 2017, p.88), but also causing them to function precariously and frequently operate at a loss in order to destabilize their competition. This bottoming out of the market arrives to porn in the form of freemium content, a strategy meant to secure the market by eliminating competition over time. Massive platforms such as PornHub are able to enforce intraoperability, which denotes “a digital platform becoming such a dominant hub in the data economy that it can enforce asymmetrical power relationships, thereby enhancing the importance of their standards, making them more powerful as data hubs and passage points” (Bechmann, 2013, p. 75) which entrenches their position of power further both explicitly and through indirect effects on the market.

Oligopoly power is not unique to platforms or new to cultural industries. Next to mergers, acquisitions, and takeovers, Vincent Mosco has warned that media companies can gain market share in more subtle ways. This is achieved “through equity swaps, setting industry or technology standards, or through licensing agreements,” (Mosco, 1996, p. 6) and as aggregators, media platforms can totally “reshape the formation of institutional relationships by setting up a technological infrastructure for user connectivity and business transactions” (Mosco, 1996, p. 6). Anna Tsing has referred to this phenomenon as ‘bigness’ (2009, p. 150), a quality dependant on a concentration of power. This is often attained by “enterprises willing to work at the borders of legality” (Tsing, 2009, p.162) in order to cut costs and control production conditions for the suppliers of product. For streaming internet porn providers, the product is not only the pornographic content from producers, but arrives in the form of data through internet traffic as well. PornHub.com, like many platforms, operates in a multi-sided market configuration by facilitating interactions between users (consumers), producers (both independent and studio), and third-parties interested in data such as software licensees, developers, advertisers, and others (Hagiu, 2013). Through indirect effects, the transactional processes of platforms will aggregate not only content, but audience attention and thus advertisers. In this way, power and ideologies are operationalized through these multi-sided networks - an infrastructure that PornHub works to obscure behind an abundance of free content. This opacity is controversial, because platforms interfere deeply but invisibly in the superstructure of our communication and organization and pornography is no exception to this trend. While increasingly centralized control of markets and the resulting dampening of innovation is not new to capitalism, the precarious venture-capital dependency of platforms in particular makes them vulnerable to failure, and hurts the ability of

smaller and younger firms to enter and survive in the market. As pervasive infrastructures of public participation and expression, the content and character of platforms are responsible for shaping public discourse through media, including porn.

In a 2018 methods paper, David Nieborg and Anne Helmond distinguished platform research as a realm where “media studies scholars engage with the materiality and technical specificity of new media’s underlying computer systems to examine how the lower ‘platform layer’ enables and constrains particular activities and produces social, cultural, and political effects” (Nieborg & Helmond, 2019, p. 7). N. Katherine Hayles identifies that digital texts exist as processes rather than objects. Unlike analog film or video where a text may exist as an object independent of other vehicles for delivery, online porn watching processes rely on a hardware to run programs, files, algorithms, and network routes to deliver the chosen text to a viewer. These texts “exist in momentary configurations as data packets are switched very quickly from one node to another” (Hayles, 1999, p. 276). A major component of this experience is the organizational logic required to funnel an unending array of pornography videos to audiences. Dealing in data means resources are not just material, and go beyond the startup costs of servers. Rather, the real prize of a platform is building up a digital audience over time. The internet exponentially favours bigger, more popular and recognizable sites with which users feel familiar. Matt Hindman breaks down this power of media concentration on the internet:

“Large internet firms can take advantage of a host of economies of scale, even beyond simple network effects. Large sites load faster. They are prettier and more useable. They have more content and update more frequently. They rank higher in search results. They

have established brands, and visitors are more practiced in navigating them. They are more efficient platforms for advertising. There is substantial evidence that each of these factors, individually, serves to concentrate traffic.” (Hindman, 2018, p. 9)

Websites live or die based on their ability to attract and retain attention. Design is a means to attract users, but recommendation systems are one of the most powerful ways for sites to keep them there. Shoshanna Zuboff referred to this condition as surveillance capitalism, where “profits derive primarily, if not entirely, from such markets for future behavior” (Zuboff, 2019, para. 3). This means platforms like PornHub, who collect and mobilize huge amounts of data, have a steep advantage over smaller competitors. With data functioning as the core resource, these specific values ensure that industry players are committed to keeping their users engaged, to constantly expand on the scope and detail of data they extract, and through that same expansion they encroach upon one another to crowd out new players. This data driven approach is critical to their success. Srnicek identifies the four core qualities which unite all platforms as “expansion of extraction, positioning as a gatekeeper, convergence of markets and enclosure of ecosystems” (Srnicek, 2017, p. 89). With PornHub.com, MindGeek exemplifies each platform qualifier.

When platforms extend into economic, governmental and infrastructural ecosystems of the culture industries, these systems are fundamentally altered, claim David Nieborg and Thomas Poell (2018). The authors propose that researchers examine the increasing modularity of the cultural industries as a result of platformization. Their contribution outlines the way in which

platforms have displaced the two-sided model of consumer-producer with a complicated multi-sided economic configuration. When platforms extend into economic, governmental and infrastructural ecosystems of the culture industries, they are fundamentally altered. The influence platforms have over users and producers exerts such control that platforms are able to set pricing structures for products, accumulate disproportionate revenue, and encompass a winner-takes-all approach in their sector. Under this oligopoly, cultural producers are robbed of their autonomy and transformed into complementors of the platform's chosen system, meaning the commodities produced in the sector become increasingly standardized. In the case of pornography, this reinforces a very specific articulation of sexual acts featuring white, heterosexual, penetrative and often aggressive porn that performer Stoya has called "progressively more and more homogenous" (Pearson, 2015). Nieborg and Poell's work reveals that cultural producers are transformed into platform complementors, subject to a project of control passed down through ubiquity, accessibility, reliability and invisibility. Platformization naturalizes the material infrastructure of the companies at the top of the heap, steering the cultural industries they belong to by insisting only certain types of media can be profitable through direct control as well as indirect effects.

When Justice Potter Stewart famously uttered "I'll know it when I see it" (Gewirtz, 1996) regarding pornography, he could not have predicted the ways in which platforms would later prevent us from seeing structures of inequality and exploitation embedded in the porn supply chain. There is a lack of clarity around the practices and values that MindGeek activates through the PornHub site. Marechal and Roberts have identified private corporations' resistance to

sharing proprietary data and a lack of legal obligation to disclose information in the interests of civil society (Maréchal & Roberts, 2017). This resistance is an agency that reminds us “the Internet is no mere ‘platform’ or ‘container’ for pornography” (Paasonen, 2011, p. 68).

Recognizing as per Latour (2005) that platforms are aggregators and mediators, not neutral carriers of content, a platform studies framework is well suited to examining the organizational strategy favoured by Pornhub.

PornHub’s approach is succeeding, even while performers, producers and competitors recognize this model as cannibalizing the industry from the inside. To get a firmer grip on some of the economic and technical dimensions of platforms, scholars are working with innovate and mixed methods. Nieborg and Helmond opt for boundary analysis, critically evaluating the “increasingly dominant position [of a platform] in the digital economy” (Nieborg & Helmond, 2019, p. 5) by drawing from “recent work in business studies, critical political economy, platform studies, and information systems research” (5). The authors also draw on multi-sided market theory to account for economic supremacy and make sense of the networks and partners they operate through and with. A comprehensive platform studies approach may cast a wide net by choosing to focus on an individual company but using diverse approaches in the case to triangulate some of the strategies of massive media systems. Following the authors, a robust study of Pornhub’s operating model would preferably incorporate ‘boundary analysis’ through “close ‘document analysis’ of financial and managerial data” (Nieborg & Helmond, 2019, p. 8). MindGeek remains a privately-held company, however, so information like an Initial Public Offering and shareholder communications must be excluded from assembling a blueprint of their business

strategy. In lieu of boundary analysis, the walkthrough method provides a useful starting point to trace PornHub's user interface and data-driven advertising ecosystem. Platforms like PornHub do not emerge from the ether, however, but have material and labour considerations which can be traced, whether as markets, publishers, or employers. It is helpful then to take a closer look at the history of the company and the conditions that led to PornHub's position of authority in the world of internet porn.

i. The internet is for (free) porn

In a popular 2015 GQ magazine article titled *How to Watch Porn Ethically*, researchers and labourers from across the adult-entertainment industry chimed in on the subject of how to “be good at being bad” (Skipper, 2015, para. 1) as pornography consumers online. Suggestions covered a wide range of tactics, from diversifying regular viewing habits, to following favourite porn stars on social media in order to engage with their fleshed-out personalities. Though the prescriptive solutions were varied, without exception all those consulted agreed upon one fundamental factor: ethical viewing means paying for your pornography.

But In 2019 who is still willing to pay for porn? A quick search engine query for any lewd keyword will return hundreds of thousands of explicit photos and videos hosted freely online. Given that viewers can click through this limitless content anonymously, there is not much impetus to pay. Modelled after the ubiquitous streaming video service YouTube, content that once required pay-per-view, or membership access privileges, is now made freely available

across a network of tubesites. Porn consumers today face an abundance of choice from sites with names like YouPorn, RedTube, XTube and PornHub, who aggregate and share these free porn videos from various sources across the net. That this abundance of free porn content has emerged from behind the velvet curtains and paywalls of yesteryear makes any appeals for individuals to pay for porn something of a futile project. While other media like films or music can also be unearthed for free, legal protections like the *Digital Millennium Copyright Act* theoretically are in place to ensure that content from these industries will not be brazenly and openly pirated.⁹ Stakeholders in mainstream media have a vested interest in upholding the copyright claims of their own artists, ensuring that piracy protections are in place on streaming platforms and piracy is kept minimal, or at least driven underground.¹⁰ Where recording labels, hollywood studios and high profile artists may have the clout and resources to enforce protection of their property and keep free streaming in check, there is no such fervent defense of the ‘little pornographer’. Policymakers are not motivated to stake their careers on protecting the assets of pornographers, so porn producers have been effectively unable to rely on the deterrents that copyright law is intended to provide. As a result, porn is circulated out from under the control of its creators with

⁹ Congress ostensibly passed the "anti-circumvention" provisions of the DMCA to discourage copyright "pirates" from defeating DRM and other content access or copy restrictions on copyrighted works, and to ban the "black box" devices intended for that purpose. In practice the DMCA anti-circumvention provisions have done little to stop "Internet piracy." Yet the DMCA has become a serious threat that jeopardizes fair use, impedes competition and innovation, and chills free expression and scientific research." Electronic Frontier Foundation "DMCA." <https://www.eff.org/issues/dmca>

¹⁰ One high-profile example of copyright protection enforcement for streaming media can be found in pop recording artist Taylor Swift, who pulled her music catalogue from free streaming service Spotify in 2014 to protest the the meagre royalties paid to artists by the streaming service, who profits from advertising. The following year, Swift won a similar battle with Apple, protesting that their free trial services would not pass royalties on to artists. (Linshi, 2014; Shahani, 2015)

alarmingly few protections, feeding into a media ecosystem where the base expectation is that explicit content should rightfully be free.

While the massive free sites that have ‘disrupted’ the industry are succeeding, smaller pornographers are having their labour significantly devalued (Bisley, 2017). For traditional producers, the shift to free streaming has created a problem of dramatically reduced profit margins. This allows for extreme precarity for labourers at all levels of porn production as they move within an industry facing rampant piracy and a hostile legal environment (Berg & Penley, 2016). Though tubesites produce some fairly created original and partner-sponsored content, the vast majority of porn on tubesites is collected from third-party creators. Some of this video is posted freely by amateur users or submitted through partnership programs in order to drive traffic toward their own paid sites, but a great deal of it is also content stolen from small producers or uploaded by unpaid amateurs. In 2014, a coalition of porn actors and producers started the #PayForYourPorn campaign in an effort to combat this piracy, but to little effect (Raker, 2017). The rhetoric of their campaign was the same argument made by record and hollywood execs: If you value something, you should support it. Despite their campaign attempt, the lack of data or even conversation around the particular porn piracy issue makes it too easy to ignore the parasitic system at work, and allow this unstable economy to carry on uninterrupted (Darling, 2014).

Content creators working in the porn industry are now at the mercy of these platforms, because in the digital environment, their pricing models can't compete with free (Lemley, 2010). While

some porn browsers might respond favorably towards calls to subscribe, tip, and crowdfund their chosen pornographers, the overwhelming majority will continue to opt for the path of least resistance being promised to them by the many free streaming tubesites. That porn can, and should, be accessed freely is now taken as a given by audiences, and the free distribution model has drastically altered the production and distribution processes for porn (Metz, 2015).

Amplifying this, the sheer volume of free porn content has exploded over the past decade. This rise of tubesites, with their endless offerings of searchable free videos, coincided with the 2008 decline of the global economy and once audiences caught on that content could be accessed freely, the high demand ensured many users would be unlikely to willingly pay for their porn again. Ultimately, free porn platforms face the same questions posed at social media companies and other platforms over the last decade. How are they handling their influence and control over the production and distribution of pornography? These companies have become what Tarleton Gillespie calls “stewards of public culture,” (Gillespie, 2018b) a responsibility that they were not prepared for from the outset, and to which they have shown little accountability.

Crucial to making sense of the porn landscape is the revelation that many of the most successful tubesites are not discrete entities acting independently of one another, but a deeply interconnected network largely falling under the control of a single privately held company called MindGeek. In the conclusion of the aforementioned GQ article, popular porn performer, pornographer, and owner of trenchcoatx.com Stoya, was adamant:

"If for some reason you can't pay for my work, I prefer you either go to PornTube.com, very specifically—not PornHub, not YouPorn, not RedTube—it's not owned by MindGeek. Or use the Torrent sites... It seems to me that largely the culture based around Torrent sites is: Information should be free! And the culture based around Tube sites is: Well, they're just whores." (Skipper, 2015)

In other interviews, Stoya has called MindGeek a “dominant, evil force”, and entreated “please, for the love of all things filthy and explicit, keep it off the damn Manwin/MindGeek owned tubesites” (Pearson, 2015). She is not alone in this sentiment, and many porn performers have cited MindGeek as being uniquely detrimental to their industry (Auerbach, 2014; S. C. Brown, 2014; Hern, 2014; Millard, 2015). In a *Quora* post sporting over 106 thousand pageviews, adult film star Siri claims “the tube sites that MindGeek owns do absolutely nothing to prevent users from uploading pirated content from other (non-MindGeek owned) adult film studios” and that they “force copyright holders to jump through hoops to get our content removed.”¹¹ Using retail giants as an example, Siri draws a comparison:

“It's kind of like how Wal-Mart intentionally builds Wal-Marts in small towns and drives prices down to a level that no local business could ever compete with, thereby shutting down all of the mom-and-pop stores, and leaving the town with only one choice of where to shop: Wal-Mart. Except imagine that Wal-Mart did that, and then to top it off went into the mom-and-pop shops and literally stole all of their products to be resold at

¹¹ Quora.com “Siri’s Answer to: Who Owns and Operates Major Porn Tube Sites...?”

Wal-Mart...If you're the kind of person who only shops at Wal-Mart, hates supporting small and local businesses, and would rather steal something (if it's easy enough to get away with) than pay for it, despite the moral implications therein, then I wouldn't expect you to watch porn anywhere but on tube sites. But if you're a person who generally thinks it's a good idea to shop small and local businesses, and you don't like to steal, then please consider not supporting tube sites. Every time you log on, you are in fact helping put me and thousands of other adult industry workers out of a job.”¹²

A 2014 *Slate* investigation calls this phenomenon ‘Vampire Porn’, with author David Auerbach claiming that “MindGeek has become *the* porn monopoly, putting industry members in the paradoxical position of working for the very company that profits from the piracy of their work” (Auerbach, 2014, para. 2). Put simply, free porn sites have made it very hard for workers at all levels in the industry to make an effective living. MindGeek are not well-liked by many performers and producers, . Despite this animosity, they have achieved an unprecedented level of success as content aggregators in an industry that is reportedly hemorrhaging profits on traditional production and distribution fronts (“The Porn Monopoly,” 2016). In an interview for web site TorrentFreak.com, porn performer and piracy critic Tasha Reign summed up the conundrum for performers: “It’s like we’re stuck between a rock and a hard place in a way, because if I want to shoot content then I kinda have to shoot for [Mindgeek] because that’s the company that books me because they own... almost... everything” (Andy, 2014, para. 14). It is curious that such a ubiquitous company can operate in such a controversial mode and somehow

¹² Ibid

still remain almost completely invisible to the public. As pornography scholar Constance Penley puts it: “As a society, we debate, legislate, [and] regulate pornography in almost a total vacuum of knowledge about what it really consists of historically, textually, [and] institutionally.”

(Comella, 2012, para. 4)

Departing from traditional media models based around paying for content, successful porn now assumes a ‘freemium’ form, wherein data collection and the relentless drive of traffic across a site are the source of monetization rather than subscription or membership fees. Free content is displayed without paywalls or access barriers in order to encourage users to move throughout the site. By offering ‘free’ porn on these sites, operators consolidate distribution into a critical mass and instead profit through a freemium model that relies on moving clicks and traffic for advertising and data collection (Raboy, McIver, & Shtern, 2010). From the consumer side of the equation, the allure of free products made easily available make it so that only the most dedicated of porn fans will pay for their adult entertainment. Rather than an exchange between content buyers and sellers, the business of internet porn has transformed into a multisided market that relies on additional revenue streams in the form of software licensing, advertising revenue and premium accounts, creating browsing conditions that include saturating pages in advertisements and selling browsing data (Hagiu, 2013). The freemium model’s prevalent race-to-the-bottom approach is also exemplary of Gresham’s Law, a monetary principle stating that ‘bad money drives out good’, making it difficult for alternative models to succeed in competition with PornHub and their affiliates. This results in a cheapening production effect

common to many internet markets, resulting in media that one *Wired* journalist identified as “too cheap to matter” (Anderson, 2008).

ii. Desire for data: the rise of MindGeek

While nowhere near a household name, the company now known as MindGeek is a major player within the internet economy, a driver of tech entrepreneurship and arguably deserves to share billing alongside the massive GAFA companies (Google, Apple, Facebook, Amazon) that are currently dominating conversations surrounding online platforms. Before embarking on the walkthrough, I will trace the rise of MindGeek, a trajectory which established tactics of misdirection and secrecy early on as a means to consolidate control over the market. This is important to acknowledge because there was no sudden turn to opacity within their corporate strategy, but something that marked their practices from the outset.

MindGeek is the single largest purveyor of free online pornography. A content delivery network for a single MindGeek site like PornHub can drive about 8,000Gbps in traffic, which is the equivalent of nearly 2% of the internet’s total traffic (Anthony, 2012). For a single site that is impressive, but PornHub is not alone in this bandwidth ecosystem. There are dozens of similarly sized porn tubesites including the top 2 MindGeek competitors, also privately held. Both *Xvideos* (owned by WGCZ Holding, a Polish company) and *XHamster* (owned by Hammy Media, a company registered in Cyprus) process similar massive quantities of data (Woods, 2016). Though impenetrability of the company means precise numbers for viewers or revenue are difficult to determine, the cast of Avenue Q is hardly exaggerating when they gleefully belt out

that “the internet is for porn!”¹³ Yet, online pornography as a major driver of technology entrepreneurship remains conspicuously absent from conversations surrounding digital economic growth. The reasons for this lack of clarity are many, and I will approach some of them in my subsequent chapter on pornography studies, but the outcome of this exceptionalism is that a media giant like MindGeek has flown almost entirely under the public’s radar.

At the time of writing, PornHub has been in operation for over a decade. As stated on their website:

“Founded in 2007, PornHub is the leading free, ad-supported adult video streaming website, offering viewers the opportunity to upload and share their own videos. With over 5 million videos and over 90 million visitors a day, PornHub truly is the best adult site in the world. PornHub has built the largest dedicated membership base in the adult community, with over 10 million engaged and loyal members, offering viewers a fun and sophisticated social experience directly in site, complete with messaging, photos, achievement badges and much more.”¹⁴

The company was originally operated by the founders of Brazzers, Montreal-based Ouissam Youssef, Stephane Manos and Matt Keezer, friends from Concordia University who had met while playing on the competitive-Foosball circuit (yes, really). Their first porn ventures focused on busty women, and later the older-woman niche with small paysites including *Jugg World*, *Ass*

¹³ D’Abruzzo, Stephanie and Lyon, Rick; Avenue Q Ensemble. *The Internet Is for Porn*, 2003.
<http://avenueq.com/#home>

¹⁴ <https://www.PornHub.com/press>

Listing, *KeezMovies*, and *XXX Rated Chicks*. They contracted with American producers to create content, and industry commentators recognized Brazzers for their high production quality (Wallace, 2011). While Brazzers was well-respected, emerging free tubesites were not greeted with the same enthusiasm by industry partners, who recognized early on that their own traffic would be devastated by an explosion of free content. A profile in *New York Magazine* noted that in 2007, the founders were actively distancing themselves from tubesites. On popular industry forum *GoFuckYourself.com* Youssef, writing under the username “Brazzer”, responded to rumors that that he and his partners had been approached to start a tubesite. By his account, they had refused because “it would be 100 percent against the core interests of our business” and more, he declared parasitic sites “will not steal it and get away with it, their days are counted!” (Wallace, 2011, p. 7). No one in the industry could prove that Brazzers or their holding company Mansef (a portmanteau of Manos and Youssef) had ties to tubesites, but suspicions persisted.

In 2009, the U.S. Secret Service moved to seize nearly \$6.4 million in funds from two bank accounts controlled by Mansef. The Organized Fraud Task Force in Atlanta had identified the Brazzers holding company as having ties to financial-fraud watch lists (Holt, 2017). After this brush with law enforcement Youssef, Manos and Keezer decided to sell off their considerable assets to a German software programmer on an acquisitions spree named Fabian Thylmann. Thylmann got his start writing software to collect browsing statistics and quickly identified that porn was generating most of the web’s untapped traffic. As a result, he had written an affiliate-tracking software package, modeled after adult websites. His opus, called NATS or Next-generation Affiliate Tracking Software is a back-end program that allows website owners

to track clicks on advertisements and links in order to receive their commission.¹⁵ This innovation came to dominate the banner and pop up ad market, and after being comfortably bought out of the company he co-founded, Thylmann went hunting for other companies to buy. Under the corporate name Manwin, he took over the Mansef assets including Brazzers and the Mofos paysite networks, in what he has called his personal biggest acquisition coup (Ovidie, 2017). Under Thylmann, these porn holdings were based out of Luxembourg. In another scuffle with the law, Thylmann was extradited to Germany in 2012 for tax evasion on Manwin's profits. It was in 2013 that Thylman was bought out by the current CEO Ferras Antoon and COO David Tassillo, two longtime players from within the organization (Neubecker, 2014). In this iteration of the company they consolidated control of another popular site, RedTube, and have since operated from Montreal, after changing their name to MindGeek in October 2013. Today the MindGeek empire controls an unprecedented amount of the mainstream porn world through their acquisitions. They operate over one hundred websites that in total consume more bandwidth than Twitter, Amazon, or Facebook, boast well over 100 million daily visits and are one of the top consumers of bandwidth; some reports have them in the top three (Auerbach, 2014). As of 2019, Their most popular web property, PornHub.com, averages over 94 million visitors daily.¹⁶

The outcome of this fine balance of surveillance, sex, and secrecy is that PornHub has captured our attention, where we now experience desire as structured by data. Under this articulation of platform capitalism, only massive firms like PornHub may flourish, exerting authority over the

¹⁵ "Affiliate Marketing, Tracking, and Management Software". Retrieved May 8, 2019, from <https://www.toomuchmedia.com/>

¹⁶ 2018 Year in Review, *PornHub Insights Blog*

market and ensuring smaller producers struggle at the margins (Srniczek, 2017; Gillespie, 2018a; Nieborg & Poell, 2018; Zuboff, 2019). By limiting the avenues for production alternatives, this porn oligopoly has fundamentally influenced the variety and quality of sexually explicit material made available (Barss, 2010; Johnson, 2011). The ubiquity and easy accessibility of free porn also continues to foreground larger debates around digital media production, reflecting conflicting agendas from privately held corporations, labourers, governmental organizations, and concerned individuals (Dyer-Witthford, 2015). In this context, online porn is increasingly recognized as more than a censorship issue; it involves addressing social processes, labour, and technological change. Tarrant touches on the business model of free tubesites, cautioning readers that “finding reliable data on the industry is almost impossible” (Tarrant, 2016, p. 8). This begs a question for researchers; how best to look back at opaque and amorphous ‘big porn’? How can we approach this miasma critically and effectively?

Because this model took off so explosively in the last decade, free accessibility to a bottomless supply of pornography has become a base expectation for the thirsty denizens of the internet, but it is worth considering what implications are embedded in the success of the free porn model. Content creators and below the line workers in the porn industry are now at the mercy of massive platforms like PornHub, because in the digital environment, their pricing models can't compete with free. The naturalization of this media mode invites many questions: How does a single company consolidate this degree of media control? How does free porn profit from it's audience? Tracing the history of a single company will explore some preconditions that brought about the supremacy of free online porn, in order to begin answering the former. For the latter, I recall

Carey's claim that organizational media technologies can be understood best "through the detailed investigation in a couple of sites" (Carey, 1992, p. 210). I will use digital methods to take a closer look at PornHub.com and show that free pornography distribution practices exert and structure's the experience of their users. The analysis that follows will delineate ways that user desire is structured, regulated and transformed into data.

Chapter 4: The Walkthrough

PornHub produces different results and promotes different content based on the location of user access. In this walkthrough, my geography of analysis will be contained to North America and to the English language. This walkthrough will also not engage with the development of the interface as it evolves over a span of time. This is because gathering material from websites and platforms over time generates methodological complications, given that user interfaces are transformed with great frequency and that “incomplete and old documentation has been moved, overwritten, or simply deleted”(Brügger, 2015). As a result, the following walkthrough research took place over the course of one week in May 2019, a contained snapshot of the website at a given point in time. All research was conducted in the Google Chrome browser, in incognito mode¹⁷ and with a Private Internet Access VPN activated within Montreal in order to conceal the researchers’ unique IP address.¹⁸

i. Environment of Expected Use

Here we establish the vision, the operating model and the governance of the space. What are the purpose, target user base and scenarios of use for PornHub? What does the company understand

¹⁷ Incognito mode is a function in Google’s Chrome browser that means Chrome will not save browsing history, cookies and site data, or information entered in forms. Files you download and bookmarks you create will be kept. User activity isn’t hidden from websites you visit, your employer or school, or your internet service provider. (“Browse in private—Computer—Google Chrome Help” <https://support.google.com/chromebook/answer/95464>)

¹⁸ The VPN serves to mask a user’s real IP address with an anonymous IP addresses, effectively keeping websites and internet services from tracking web browsing habits, monitoring searches, and discovering a users geographic location. “After establishing a secure connection to our security layer, you will be issued a new internationally based IP address which will substitute a different location.” (Private Internet Access - How it works London Trust Media. <https://www.privateinternetaccess.com/pages/how-it-works/>)

their platform to be? For this component, I look to paratextual elements: corporate promotional and recruitment materials, trade media and journalistic sources.

A user would never get a sense of the aforementioned history of financial troubles, piracy accusations, lawsuits or even the R-rated content they trade in from looking at MindGeek's corporate material (Thomsen, 2013). Their meteoric success in consolidating control of the porn world is rendered invisible on their corporate website, and incredibly difficult to find outside the efforts of a handful of intrepid journalists cited throughout this project (Auerbach, 2014; Neubecker, 2014; Thomsen, 2015; van der Linde, 2016; Wallace, 2011; Cole, 2019). This is because, despite the explosive growth in holdings and changing of hands, they continue to be a privately held company. This detail means the internal operations of MindGeek are made opaque to anyone curious about their practices. The reign of piracy suggested by many performers goes entirely unacknowledged in MindGeek's sanitized narrative around their own activities (Thomsen, 2015). Though they have been accused of hurting the pornography industry, MindGeek do not even care to publicly disclose themselves as being a major player in the world of porn. Nowhere in MindGeek's public-facing corporate communications do they refer to the nature of their content, or name their trade as pornography, adult entertainment, or sexually explicit media. Instead, they now identify as "a global industry-leading information technology firm"¹⁹ fixing their place in the internet ecosystem as purveyors of innovation, rather than acknowledging their smutty origins. While PornHub.com and other streaming tube properties

¹⁹ MindGeek.com "A Leader in Web Design, IT, Web Development and SEO."

within their network are saturated with fleshy, explicitly pornographic content, the presence of parent company MindGeek online is blandly sanitary.

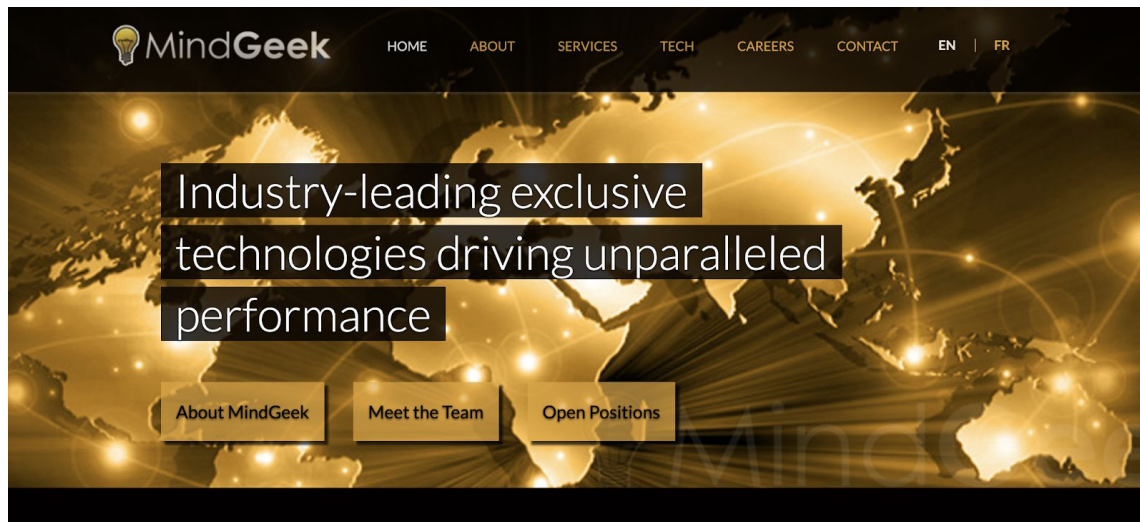


Fig. 2: MindGeek homepage banner, <https://www.mindgeek.com>, accessed May 3, 2019

Minimalist design and a clean colour palette grace the MindGeek website, where they are self-described as a “Global Presence”, delivering “Industry-leading exclusive technologies driving unparalleled performance”.²⁰ This stands in contrast to the porn content in which they trade so successfully. MindGeek’s sanitized vision of itself is perhaps not so misleading, if we grant that their egoistic logic is sound and that the concern of the company is not primarily pornography at all - this is merely a means to an end. Rather, PornHub’s concern lies with the relentless churn of traffic across their site.

It is no coincidence that the MindGeek corporate website is scrubbed clean of any mentions of pornography, or even of more tame terms like ‘adult entertainment’. They prefer innovation

²⁰ MindGeek.com “A Leader in Web Design, IT, Web Development and SEO.”

rhetoric, with buzzwords like Big Data, Ad Impressions, and User Habits deployed throughout their web copy. In a section of the website headed “What We Do”, MindGeek identify their work under 2 broad categories, Technology and Services. Listed between these two are 9 sub-categories: Search Engine Marketing, Hosting, Security, Anti-Fraud, Cloud Services Suite, Ad Platforms, Media Content Delivery, Data Analysis and Customer Care Services. Each is accompanied by a punchy line drawing or graphic, including a pie chart, a coffee mug, and a magnifying glass. Not so much as a nipple in sight.



Fig. 3-4: MindGeek: About Us, <https://www.mindgeek.com/about/>, accessed May 3, 2019

Recruitment is featured prominently on the site, suggesting a team always looking to accrue more “seasoned hackers and analysts” in order to improve themselves in areas of fraud analysis, attack simulations, penetration testing, risk monitoring and, of course, adherence to regulatory and compliance standards for payment processors:

Gathering, storing, processing and analyzing billions of data points a day is a colossal challenge that MindGeek Engineering embraces. It takes a careful combination of internally developed solutions, open source technologies and enterprise software to handle this vast amount of information and its exponential year over year growth.

MindGeek data scientists have developed sophisticated machine learning algorithms to mine the data and extract the meaning from the noise.²¹

MindGeek employees identify as “developers, engineers, programmers, online marketers, designers and sales experts who are at the top of their game”, but not as pornographers. They encourage potential recruits to ‘INNOVATE under pressure at one of our Hackathons’, or to “GIVE BACK to our local communities with our Pay It Forward Program” and of course to “GLAM IT UP, at our Holiday bash or chill under the sun at our summer BBQ”.²² There is no mention whatsoever of the actual work that will be done in between getting in shape at the corporate gym or picking up free breakfast at the on-site canteen. In sum, despite having perhaps the largest pornography holdings worldwide today, MindGeek’s narrative of their own success is

²¹ MindGeek.com “Our Technology: protected by a dedicated security team”

²² MindGeek.com “A Leader in Web Development, IT and SEO”

decidedly un-pornographic. They understand themselves as primarily a data-based, rather than a porn-based entity. The reality of working at MindGeek is far less sanitized than their projected vision of themselves. On the MindGeek page for the employer-reviewing website GlassDoor.com, one user wrote, “If you’re interested in the ‘Content Formatter’ job, just be aware you’re basically a glorified child porn screener, and you will be watching disgusting videos all day.”²³

You would never guess at the content they trade in from MindGeek’s decidedly PG mission statement: “To deliver a world-class portfolio of entertainment experiences and IT solutions to a global customer base, utilizing our expertise to drive innovation and build new solutions exceeding customer expectations”.²⁴ MindGeek identify as “a global industry-leading information technology firm,” fixing their place in the internet ecosystem as purveyors of IT solutions and innovation, rather than pornographers.²⁵ In a 2018 paper delivered at SCMS and recorded by the *Porno Cultures* podcast, Patrick Keilty emphasised that a huge proportion of MindGeek revenue is derived from the licensing of software, with the remainder composed of memberships and advertising revenue (Arroyo, 2018). MindGeek’s staff are routinely making strategic choices regarding information management and the graphic arrangement of objects across their properties. This includes experiences with improving hosting services, live chat functions, banner advertising, streaming developments and credit card processing. They also

²³ GlassDoor “Working at MindGeek.”

²⁴ “A Leader in Web Design, IT, Web Development and SEO.”

²⁵ MindGeek.com “A Leader in Web Design, IT, Web Development and SEO.”

promote massive campaigns to save bees and pandas and support women in STEM through their *PornHub Cares* initiatives.²⁶



Fig. 5-7: Pornhub Cares Initiatives, <https://www.pornhub.com/cares/>, accessed May 6, 2019

PornHub corporate responsibility programs and the *Insights* blog work to associate Pornhub with the image of college scholarships, saving the environment, and responsible data analysis. Strategies such as these are not unusual, following in the neoliberal footsteps of the California ideology and tech startup culture, however, it is important to consider the misdirection of these

²⁶ “PornHub Cares.” <https://www.pornhub.com/cares>

strategies within a capitalistic, monopolistic and economically exploitative pornographic environment (Holt, 2017).

This misdirection is not accidental, but a deliberate distancing from the content and business strategies that drive their business model to exponential heights year after year. By minimizing the pornographic base of their operations, they legitimize themselves to payment processors and legislators, further insulating their practices from the scrutiny, persecution and blacklisting levied at smaller producers (Malcolm, 2017). Keilty's observations show that the preference for tech company rhetoric is also accurate. In addition to this, unlike most companies, PornHub is entirely comfortable disclosing the extent to which they surveil their users, compiling the data into playful infographics displayed on the *Insights* blog (Holt, 2017). Launched in 2013, the blog claims to provide data-based insights into the browsing habits of millions of PornHub users, revealing patterns and truths about our sexual inclinations. This strategy works towards building an audience while simultaneously gathering data about them and organizing it into specific narrative metrics. The blog seems to serve a singular purpose, which is ostensibly promoting the PornHub brand in a glossy public-relations fashion. This allows PornHub to present a tongue-in-cheek review of their successes and circulate their name widely through click-enticing headlines. The *Insights* blog manages to simultaneously trumpet the ubiquitous consumption of the PornHub brand while acknowledging it is a shared secret: porn remains a source of great public anxiety. Rather than minimize the fact of their user surveillance, these blog posts boast of tracking geographic location, IP address, the trending of search terms and tags, where users specifically skip ahead to in videos and many more details of the porn watching experience

(Holt, 2017). It is impressive that it succeeds in this effort using only colourful infographics, leaning on the power of the PornHub brand and entirely avoiding the fleshy pornographic aesthetic typical of its parent site.

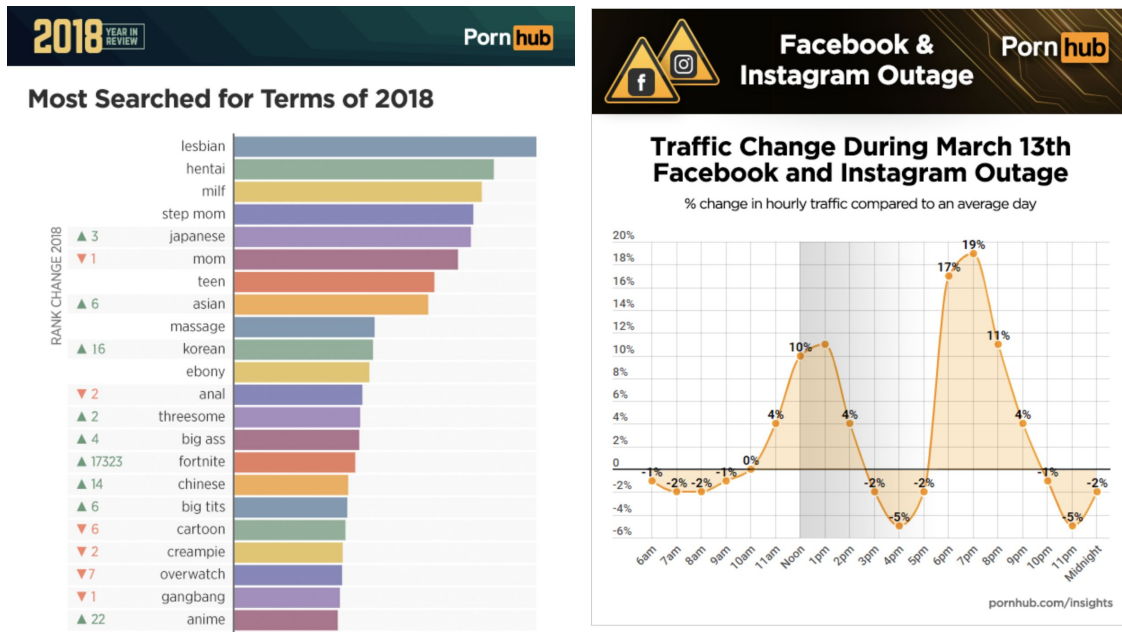


Fig. 8-9. *PornHub Insights* Infographics, *PornHub Year in Review 2018*, accessed May 24, 2019

Insights entries include data on browsing during the American government shutdown and, on “May the 4th”, in Star Wars related searches. *Insights* claims to represent playful data transparency but the blog’s goal is ultimately to promote the PornHub brand, including fixing them as a reliable and quantifiable source of information about porn consumption. By claiming to reveal truths about porn consumers to themselves, and by promoting the supremacy of quantifiable data, PornHub gleefully embraces a surveillance ethos. As one journalist gravely put it, “Every single porn user is being used, manipulated and watched” (Daubney, 2014, paragraph 16). Clearly they understand themselves as primarily a generator of traffic: where their users

desire porn, PornHub's concerns and triumphs are with data. Design choices made by PornHub employees are curating, distributing and regulating our encounters with sexually explicit material. The way data is collected, interpreted and presented is reaching further, making claims that shape our understanding of who engages with what kind of porn. All of these processes are encased in a black box protected by MindGeek's proprietary data concerns, meaning a single company has disproportionate impact on what kinds of porn media are being produced, promoted and subsequently claimed to be naturally successful products with their audience. As a result, the success of MindGeek's consolidated model has steered what forms of porn are made profitable.

The *Insights* blog suggests that another shift has occurred in porn consumption: elimination of traditional notions of privacy in viewing. Though porn watching is often thought to be a fundamentally private experience between a viewer and their content of choice, tubesites operate by surveillance measures, collecting data on traffic and mobilizing it for video recommendation, tagging and organizing content and targeted advertising. PornHub viewers may be anxious about surveillance, but they are equally constituted by its function. Tarrant describes PornHub's mobilization of data:

“The company...uses algorithms to create a highly curated, personalized site based on a user's keyword search history, location, and even time of day they log on. Another way of looking at this business model is that it spoon-feeds a limited range of content to unsuspecting online porn users who do not realize their online porn-use patterns are largely molded by a large corporation.” (Tarrant, 2016, p. 16)

Chris Vanderwees has identified this as living under a ‘scopic regime’, stating “the pleasure of online pornography in terms of its production and consumption is inextricably linked to shifting, circulating, and conditional referents of the Other’s gaze within the scopic regimes of contemporary technoculture” (Vanderwees, 2019, p. 3). In this understanding, encounters with porn are bound up in a narcissistic anxiety over the technological gaze, or a thrill and worry that we are being observed. This is a natural extension of Lacanian psychoanalysis, which is predicated on an awareness of ‘the Other’ looking back at us (Žižek, 1997). In her work on the technological drives behind pornography, Wendy Chun states: “the computer as personal or private is deceptive” (Chun, 2008b, p. 8) since tracking a given users’ online activities is fundamentally constitutive of, rather than accidental to, the experience of this medium. This stands at odds with how we understand the viewing experiences of online porn. Pornhub’s terms of use confirm this, stating:

We collect, process and retain personal data to the extent it is necessary to provide users with our service... As you navigate through and interact with our Website, we use automatic data collection technologies to collect certain information... such as your IP address, browser type, operating system, the referring web page, pages visited, location, your mobile carrier, device information, search terms, and cookie information... We may disclose your Personal Information to members of our corporate group (that is, entities that control, are controlled by, or are under common control with us) to the extent this is necessary for the purposes of provision of services, customer management, customization

of content, advertising, analytics, verifications, functionality and security, and compliance.²⁷

Despite claims to security and compliance, many PornHub policies defer responsibility for recordkeeping arrangements or piracy prevention measures back to third parties. The 1988 Child Protection and Obscenity Enforcement Act means pornography producers are required to account for sources of “visual depictions of actual sexually explicit conduct” and that they “shall create and maintain individually identifiable records pertaining to every performer portrayed in such a visual depiction.”²⁸ In their Terms of service, PornHub rejects responsibility for any such recordkeeping arrangements, declaring:

PornHub.com is not a producer (primary or secondary) of any and all of the content found on the website (PornHub.com). With respect to the records as per 18 USC 2257 for any and all content found on this site, please kindly direct your request to the site for which the content was produced. PornHub.com is a video sharing site in which allows for the uploading, sharing and general viewing of various types of adult content and while PornHub.com does the best it can with verifying compliance, it may not be 100% accurate.²⁹

²⁷ <https://www.pornhub.com/information>

²⁸ “18 U.S. Code § 2257—Record keeping requirements,”

²⁹ 18 USC 2257 Statement “Site Information - FAQ, Privacy Policy, Advertising And More | PornHub.”

Fig. 10. DCMA Takedown Form. According to Pornhub terms of service, takedown requests are to be submitted by users, rather than Pornhub admin moderating videos which violate ToS or community guidelines, <https://www.pornhub.com/information#dmcaform>, accessed May 6, 2019.

Following this, on the same terms of service page, Pornhub states the site will abide by the following procedures to ensure compliance: “Requiring all users to be 18 years of age to upload videos” and that “when uploading, user must verify the content; assure he/she is 18 years of age; certify that he/she keeps records of the models in the content and that they are over 18 years of age.” immediately following this statement, Pornhub.com declares that content may be flagged as inappropriate by users, and claim that :

Should any content be flagged as illegal, unlawful, harassing, harmful, offensive or various other reasons, Pornhub.com shall remove it from the site without delay. Users of

PornHub.com who come across such content are urged to flag it as inappropriate by clicking 'Flag this video' link found below each video.”³⁰

This statement establishes a boundary between PornHub and the various content producers whose media appear aggregated on their site, deflecting any recordkeeping obligations or responsibility for the content of individual videos back to the “site[s] for which the content was produced”³¹, which are not to be mistaken for PornHub.com. What this means is that PornHub takes next to no responsibility for hosting pirated content or harmful content like revenge porn and deepfakes. Since 1994, Section 230 of the *Communications Decency Act*, commonly known as ‘Safe Harbour’, ensures that platforms like PornHub are considered intermediaries and not publishers of images uploaded on their site.³²

Terms of use also include information on the *Digital Millennium Copyright Act* and intellectual property legislation. In their DCMA statement, PornHub declare that, “If you believe any material accessible on PornHub infringes your copyright, you may submit a copyright infringement notification”, and if deemed valid, they may consider “terminating or disabling, in appropriate circumstances and at our sole discretion, the accounts of users who are deemed to be repeat infringers.”³³ This puts the moderation onus entirely on those whose content is being pirated, rather than on the platform doing the hosting. The only preventative solution offered by PornHub is to pay to have content logged with a database of digital fingerprints through Vobile,

³⁰ Site Information—FAQ, Privacy Policy, Advertising And More | Pornhub.com

³¹ Site Information - FAQ, Privacy Policy, Advertising And More | Pornhub.com

³² Electronic Frontier Foundation “Section 230 of the Communications Decency Act.”

³³ DMCA Notice Of Copyright Infringement “Site Information | Pornhub.com”

a content registry service.³⁴ Essentially, PornHub profits from content they host while electing not to moderate that content or account for sources unless attention is drawn to specific violations. This requires labour on the part of small producers, or benefits the paid services that work in exclusive partnership with the site. Independent and amateur pornographers, in short, need to invest their own time and money in order to *not* have their content pirated on the site, and this process remains entirely compliant with law under current media regulations.

In a recent example of this policy at work, PornHub has come under fire for hosting videos from *Girls Do Porn*, a company being sued by a group of 22 women appearing in their videos for coercing women to have sex on camera (Cole, 2019). The *Girls Do Porn* channel on the site is named a ‘Pornhub Content Partner,’ which means the two parties are under a contractual agreement that benefits both the channel and Pornhub through page views and advertising revenue. A Pornhub spokesperson has claimed, as per the aforementioned policy, that content which "directly violates our Terms of Service is removed as soon as we are made aware of it,"(Cole, 2019) and that users are encouraged to flag such videos using a content removal request form, or send a DMCA takedown request: only then would the uploader in question be subject to the platform's multiple infringer policy. Despite these allegations and Pornhub VP Corey Price’s statement that “we were able to confirm which videos belonged to the plaintiffs in this case, and immediately removed the videos from its site, as well as any other images that may feature one of the plaintiffs”(Cole, 2019, paragraph 18), the channel remains active. It is clear that Pornhub recognizes it is in partnership with a company accused of abuse by many women,

³⁴ “VideoTracker Protects Premium Content Using Digital Fingerprinting Anti-Piracy.”
<http://www.vobilegroup.com/videotracker>

who are further making the claim that Pornhub helped spread videos that ruined their lives. Moderation, in this instance and others, falls to those who are being actively harmed by the content, despite the ease with which Pornhub could end the partnership and eliminate the channel from its site. In many ways this epitomizes the problem with the digital economy, where so many elements of porn production are hidden that consumers believe content is truly and seamlessly free. Even if consumers don't pay the bill, somebody must. Most importantly though, thanks to the ephemera of digital content, users don't have to think about significant hidden costs, like devaluing the labour of porn performers or what norms of production Pornhub encourages that lead to an abundance of free content.

This Environment of Expected Use summarizes the general oversight and regulation of user activity on Pornhub, showing what users may do or not do, and revealing how the site understands its own operations and identity. The company structure is closed, limiting access to financial documents, but recruitment materials suggest a company incubating the standard tech industry 'bro culture' (Cain, 2017). Revenue is derived from advertising and software licensing, rather than subscription or use fees and in exchange for unlimited free streaming porn, all Pornhub requires is users browsing data. MindGeek is not concerned with protecting this data as browsers access Pornhub, but rather proudly tracks the movement of users and have even recently been revealed to have uniquely elevated data risks with 93% leak rates for user data to a third party (Maris et al., 2019). Governance of their site, including their terms of service and community guidelines, absolve Pornhub of much intermediary responsibility in the role between porn producers and watchers. Rather than pornographers, they prefer to envision themselves as

tech philanthropists, and an IT company committed to innovation. This is decidedly not how users are meant to understand the PornHub experience, as the Technical Walkthrough component will detail.

ii. Technical Walkthrough

Engaging with a platform's interface requires making plain the design elements that guide a users interactions with the site. Researchers may record this process by generating field notes and keeping screenshots for data. Here I will detail a browsing process for the average PornHub user that includes site entry, everyday uses such as searching, menus and categories, filtering, browsing, available and unavailable functions, advertising, and access to premium content.

Unlike with apps, or porn paysites, the in-browser experience of PornHub requires no registration processes (even to confirm a user is of legal age), or account creation of any sort to begin to access video content. Entering the URL *PornHub.com* into a browser accesses the main PornHub page directly [figure. X]. There is no particular set of permissions, terms or agreements that a user is required to engage with or consent to at the outset, they are simply directed to the home page full of porn content. In contrast with the sanitized corporate presence of their parent company MindGeek's website, the home page of PornHub.com is saturated with fleshy content.

The array of featured videos ends in a page bar prompting users to advance to the next page of videos, identical to the first in layout, but with a fresh batch of autoplay videos to peruse through. A final feature advertisement by *TrafficJunky* bookends the video content on the main page, this

one always a banner ad spanning the width of the page. The banner is segmented, with an autoplaying video sandwiched between stills of the scene being advertised.

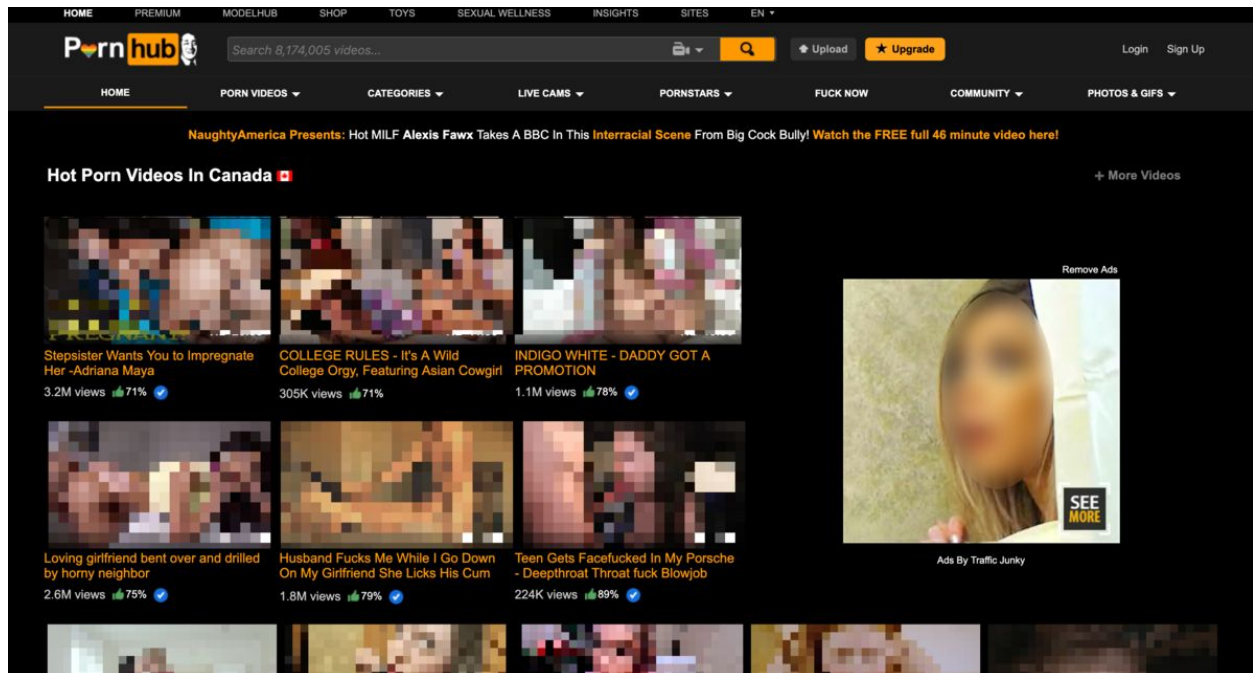


Fig. 11: Pornhub Main page, Pornhub.com accessed May 24, 2019

Beneath this page menu and the final banner ad, the foot of the homepage features a statement:

The Pornhub team is always updating and adding more porn videos every day. It's all here and 100% free porn. We have a huge free XXX DVD selection that you can download or stream. Pornhub is the most complete and revolutionary porn tube site. We offer streaming porn videos, downloadable XXX DVDs, photo albums, and the number 1 free sex community on the net. We're always working towards adding more features that will keep your love for porno alive and well. Send us feedback if you have any questions/comments.³⁵

³⁵ Pornhub.com

The overall effect of this homepage layout is not an impression of any individual video or scene, but rather the endless variety and availability of them, flowing inexhaustibly down the screen; this, combined with the statement above, suggests quantity to be prized above anything else. This echoes Laura Kipniss' observation that porn "proposes an economy of pleasure in which not only is there always enough, there's even more than you could possibly want" (Kipnis, 2003, p. 202).

Menus across the top of the page invite you to explore by: Porn Videos, Categories, Live Cams, Pornstars, Community, Fuck Now (which redirects to partner AdultFriendFinder.org) and Photos and GIFs. Against their signature black and orange palette, most of the real estate features a waterfall of videos, three to four abreast, under the heading 'Hot Porn Videos In Canada' sporting titles like *Stepsister wants you to Impregnate Her*, *BLACKED first interracial gangbang*, or the comparatively tame *Incredibly beautiful woman with big tits makes love, the best porn video*. Hovering your mouse over thumbnails makes each rectangle launch into a silent autoplay of the video's highlights. Titles for the videos tend to name the female subject, paired with a short description. In these titles, female participants are hyperbolically described by the markers of age and experience (barely legal, virgin teen, mom, granny) race (white, black, ebony, asian, latina) and relative societal position (white trash, spoiled/rich, employee). In building the titles and categories on PornHub, there is generally a representation of 'normative' heterosexualities and the policing of outliers identities and sex acts. This suggests homepage content is geared towards a presumed straight male viewer, the default neutral user. Of 50 videos displayed on the home page as recommendations, all but 3 depict heterosexual penetrative

intercourse. The exceptions include 2 solo female masturbation scenes and one lesbian clip, which can be equally levied for the pleasure of a straight male viewer. The same is true of advertisements, where, in the course of the walkthrough, I encountered no advertisements for gay male porn, but plenty of girl-on-girl imagery. The content is also overwhelmingly white, with only 7 homepage videos featuring nonwhite participants and each of them naming the race of the nonwhite participant in the title (in these examples, Asian, Black, or Mexican). Whiteness is not expressly labeled, and comprising the majority of content, it is presumed to be the norm in sexual representation, while other racial identities are marked as outliers.

Many of the video titles on display are ambiguously related to the actual content of the videos they describe, which are frequently non-narrative sex scenes with no dialogue and seemingly filmed by amateurs. Claims to depict sex between employees and employers, neighbors or family members such as stepmother, father, siblings etc. are unverifiable, and presumably irrelevant to the action taking place. The titles are not so much accurate summaries as they are bait; fodder for imagination and therefore clicks. Susanna Paasonan has observed that on porn sites like this one “Language has a perpetual and highly visible presence in captions, lines, terminology, hyperlinks, exclamations, names and titles” (Paasonen, 2011, p. 201). To this list I would add tags, which adorn each video to make them easily searchable. As well as the surprisingly lively comments section encouraging users to engage with one another. The tone of language across the website swings from the vulgar, expository and slangy style of the video titles to a formal legalese embedded in the community guidelines and terms of service, but the average user would be more familiar with the former. As Gustavo Turner explained in a recent issue of *Logic*

magazine, “It’s their tastes that set the tone for professionally produced content and the industry as a whole” (Turner, 2018, paragraph 36). Snappy titles and advertising copy encourages clicks, aspiring to grab the attention of users as they browse through content.

One of the ways in which porn is made into the conventions we observe today is through the power of categorization and recommendations. Pornhub offers a diverse palette on its categories page, offering 101 distinct options as varied as ‘behind the scenes’ ‘Czech’ and ‘scissoring’.

Gayle Rubin’s charmed circle of sexuality has delineated the notion that permissible forms of sex privilege certain aesthetics, acts and representations (Rubin, 2012): broadly, this means heterosexual sex between a cis man and a woman, of the same race (ideally white) occurring in the confines of a domestic setting and bounded by a monogamous relationship for procreative purposes is the most permissible form of sex. Deviations from this supposed position of neutrality, in any direction, are considered transgressive. This means heterosexual acts between partners of different races, multiple partners, non procreative sex including oral or anal, sex in public or in unusual settings, and sex between family members are all a step removed from what is taught to be ‘natural sexuality’. The more elements of aberrance introduced in a sex scene, the more transgressive the porn is considered to be. This type of transgression is titillating to audiences, but bounded by expectations of exactly what normal and neutral sex is perceived to be. For example, “threesome” or “teen, virgin and barely legal” scenes may be just the right amount of transgressive, but orgies are considered more extreme, and paedophilia, hebephilia and ephebophilia are banned outright on the site. A demonstrable desire for very young women in these scenes (video titles on the homepage include terms “bratty sis, student, fit teen,

stepdaughter, young amateur, Toronto Girl, stepsis, hot body teen, and YOUNG twin sisters”) is at odds with the fact that actual porn depicting sex with minors is banned from the site for legal reasons. Titles have power to create conventions on the market. The term ‘interracial’ is used liberally in the tagging and categorization of porn videos. While in a broad sense, interracial refers to interactions between different socially-defined races or racialized ethnicities, it takes on a particular significance in videos on PornHub - becoming synonymous with particular scenes featuring white female and black male performers (Miller-Young, 2014). The means and processes of cultural production distinguish particular signifying systems like this one that are integral to the role of the industry in the larger culture.

As early as 1998, Don Slater referred to the types of bodies and sex acts typically recorded as ‘pornonormativity’, meaning a deeply ingrained set of norms that build on expectations of what ‘natural’ sex looks like, akin to Rubin’s charmed circle (Slater, 1998). It is important to note that the particular media model of PornHub mobilizes all of these diverse production tropes under its video categories, listing Amateur (239,584 videos) and Fetish (94,704 videos) as two of the more popular categories.

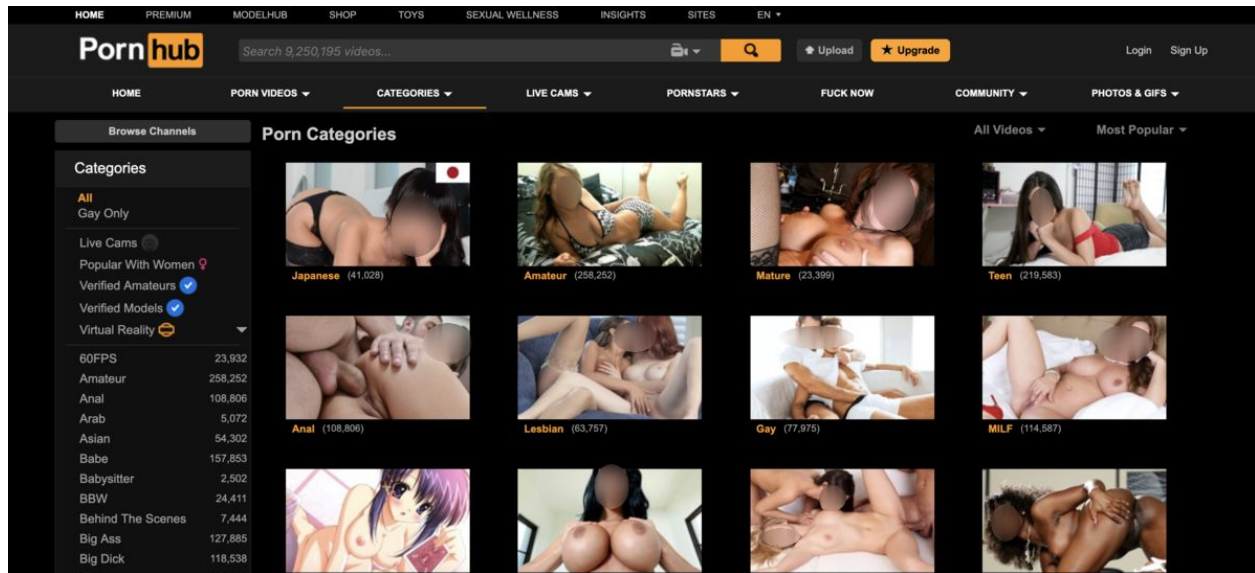


Fig. 12: Pornhub.com 'Categories', www.pornhub.com/categories accessed May 24, 2019

The categories page hosts a footnote as follows:

Having a wealth of porn categories at your fingertips is what every avid fan of XXX craves. Often you'll come across a site that boasts that it has it all, but in the end you're left unsatisfied with their meager assortment of erotic scenes. Here at Pornhub.com, you'll find no shortage of anything and everything from eager amateurs to seasoned milfs. White babes, Latina bombshells and ebony divas await you in hardcore sex scenes. Watch our buxom beauties lie-up to suck the biggest dicks in the adult biz and swallow loads of creamy cum. These reality girls and famous pornstars alike love getting naked in front of the camera and displaying their perfect tits and delicious asses. The steamiest movies featuring petite Asians, celebs, kinky fetishes, solo, foreign and much more are here. We even have a comprehensive Gay and female-friendly section so no one is left out. Get on board the best and biggest free porno tube on the Internet and feed your

carnal desires. Sex comes to life in graphic detail so what are you waiting for? Watch alone or with your lover! ³⁶

Recalling Hindman, the concentrated nature of web traffic is a condition created by the torrential drive for new content and constant churn, conditions which prime aggregators like PornHub to be exceptionally successful (Hindman, 2018, p. 101). Successful sites are therefore those which are recognized as abundant, usable and familiar. Though the content of the videos changes from page to page and over time, the conventions of pornonormativity remain consistent, as does the design and organization of the videos. Visits to PornHub feature a repetition and predictability that allows for a certain affective comfort in browsing. On PornHub, “Users do not merely choose a video to watch, ... Instead they search, browse, (through sites, listings and directories) bookmark, click, download, upload, leave comments, rate, log in and compare” (Paasonen, 2011, p. 259). The grab of porn, like the stickiness of all successful sites, is dependant on formulaic conventions that imbue a sense of familiarity (Senft, 2008). This commitment to convention is not unique to free tubesites when it comes to porn, and it has been observed in earlier mediums that “pornography can only function as such in so far as it is ritualized, fundamentally repetitive, a series of infinite innovations on a very small number of themes... it relies on its formula, its theme, its script to induce desired effects through a more or less guaranteed pathway”(Paasonen, 2011, p.197). On PornHub, this is achieved not only through the narrative flow or the sex acts depicted within the scenes, but also the arrangement of the objects on the site against one another, the ease they are displayed through autoplay, and the vulgar banality of the video’s titles

³⁶ pornhub.com/categories, accessed May 10, 2019

that can breed this sort of familiarity. This allows users a sense of ease and ritual when engaging with the space, through consistency in design and language, ensuring they will return.

The design of the site and use of language draws users into this web through validation of male dominance and hegemonic masculinity. Banners, pics, and premium membership perks all capitalize on this drive, and it is how web designers convert casual surfers into engaged memberships with affiliate sites and advertisers. This is the chicken-meets-egg conundrum of data-driven porn: Not only is it changing how the industry produces and promotes porn, but it's also raising unverifiable claims about popular porn narratives and preferences. Media coverage is accepting claims about porn browsing patterns through what is 'popular' and 'trending' as well as through unverifiable claims made on the *PornHub Insights* blog. A lack of substantiating evidence doesn't stop reporters from repeating traffic trends that PornHub claims as facts, amplifying speculations made in their blog posts and presenting them as fact in headline after headline, thus allowing a single private company to speak definitively on the worlds' taste in porn (Turner, 2018). Have audiences grown exponentially more fond of incest pornography in the last decade, or has data driven organization simply enabled companies to cater more closely to the perceived tastes of their audience, resulting in an out of proportion feedback loop for porn? Paasonen has described the phenomenon as follows: "Porn users are seeking what grabs them and what they want to grab in return. When doing so their IP addresses are being grabbed, and their movements tracked"(Paasonen, 2011, p. 261). This makes it difficult to parse whether trends and recommendations even remotely reflect the tastes of porn consumers, or whether they are being conditioned to a Pavlovian response, wherein 'massage' porn becomes a term to

stand-in for scenes of female pleasure, and ‘stepsister’ becomes synecdochal for nubile young blond women. In a story for the Cut, *PornHub is the Kinsey Report of our time*, Maureen O’Connor wrote on how internet users’ sexual lives are highly likely to be impacted by the short videos we browse. Imaginations can be stoked by a sexual meme, or “fantasies that replicate and spread like wildfire”(O’Connor, 2017, para. 3). Encountering niche content in a recommendation list or coming across it as trending content alters the sexual media landscape in terms of what people may consider sexually possible. This measurement and subsequent regulation of desire is driven by the development of biometric techniques for consumer surveillance and speaks volumes about PornHub’s recognition of itself as influencing traffic behavior. What’s more, the data presented by *Insights* is uncritical, unverifiable and unscrutinized; an elegantly synecdochal expression of the ways in which PornHub occupies a large corner of the internet.

In 2018’s *The Internet Trap*, Matthew Hindman identifies that faster load times and intuitive site architecture (i.e. sites that are easy to navigate) are consistent factors leading to higher traffic. Along with these factors, personalized content recommendation systems and the net effect of more content being more frequently updated contribute to a site’s success. What Hindman terms the ‘economic geography of cyberspace’ encompasses this industrial agglomeration and the traffic concentration caused by three primary conditions. The first is a simple economy of scale for both content production and advertising revenue, meaning bigger websites draw more eyes and clicks. The second assumes users have at least modest preferences for some content diversity, meaning content must be in abundance and renewed frequently: “All else being equal, the best place to host content is wherever the largest audience already is. Successful [sites] then

face strong incentives to produce - or at least host - content themselves” (Hindman, 2018, p. 79) in order to increase those returns. The third factor is that the time and effort required to seek out content online means users will avoid search costs or switching costs in navigating the web (Hindman, 2018, p. 63). This review shows that PornHub.com features all of these qualities.

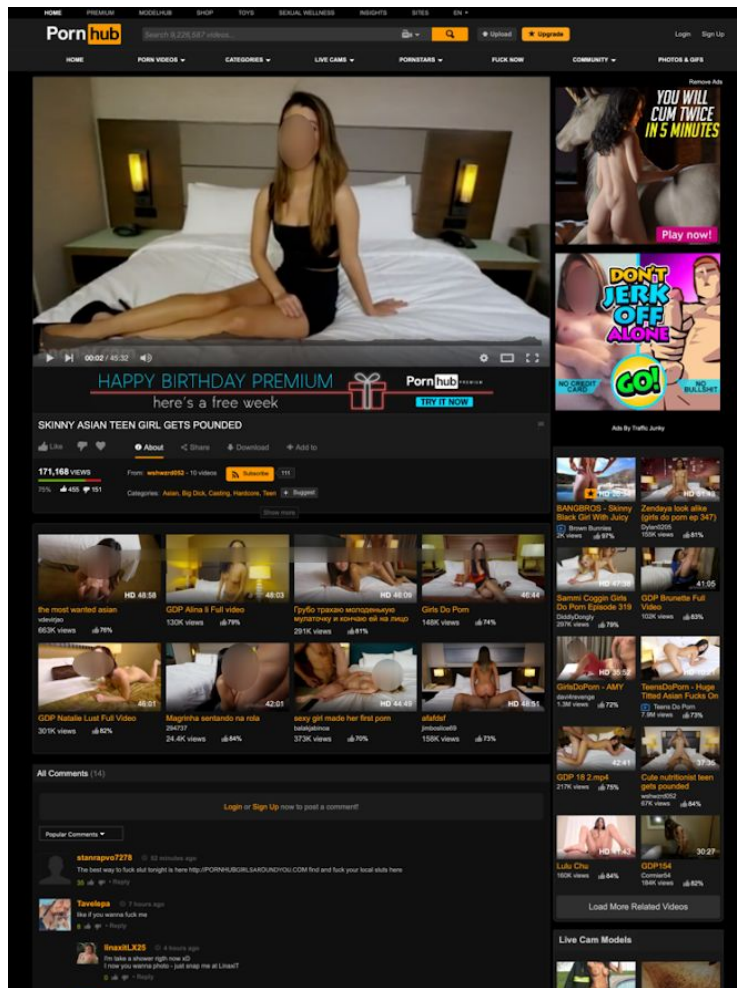


Fig. 13: PornHub.com video, featuring advertising and comments, accessed May 28, 2019

Page views are the primary metric reported by PornHub in measuring its own popularity and traffic flow and are directly influenced by this site architecture, considering that “changes in

page layouts can increase or decrease the number of page views recorded”(Hindman, 2018, p. 108). This is worth noting because the largest single object on the page is a featured advertisement, twice the size of the other videos. Big Porn’s new business model is online advertising. Advertisements on any given PornHub page take up a huge amount of space, with two oversized ads appearing on the homepage, a full page banner ad segments the categories page, and appears again at the foot of each page.

On each page hosting a porn video, several banner ads crowd the left half and bottom of the video page. Proportionally, the left banner advertisements occupy 320 by 620 pixels on the screen, when the video in question takes up only 990 by 550 pixels [fig x]. This means advertising takes up about 36% of the visual space being used on the video pages - a considerable amount of real estate. Beneath the video follows two rows of recommended videos suggesting similar content, four per row with 8 in total. Like the mainpage videos, these featured videos autoscroll if the mouse hovers over them. More related videos are arranged along the left, below the TrafficJunky advertisements, including a panel of 6 ‘live cam models’ in video chat rooms on an affiliate site. Below this is a comments section for each video, where users may register with a PornHub account and respond to the video as well as interact with one another. This area frequently sports lively responses and a great deal of elaborate comedic content deserving a dissertation of its own. Video pages conclude with a final full page banner ad across the bottom, cycling through content from *Ads by TrafficJunky*.

Hindman breaks down Ad targeting to 3 general types, Property Targeting, User segmented targeting and Behavioural targeting. Targeting property ads run on sites featuring related content or overall favourable demographics. With user segmented targeting, the focus is on presumed on age range and gender of user. The final behavioural targeting is significantly more complex, employing machine learning techniques to distribute ads based on property and user demographics but also to optimize opportunities to target ad space across many properties (Hindman, 2018, p. 56). PornHub appears to use a combination of all three techniques, given that all advertising on the site is for pornographic affiliate or external sites, and that there is a clearly presumed user base for the site. Finally, some observations made on advertising content during the walkthrough suggest that the third and more complex arrangement may also be activated.

Always positioned on the top right of the screen and sporting the caption: *Ads By TrafficJunky*, that ad content over the course of my research tended to feature cut scenes of roommates or stepsiblings improbably surprising one another in sparsely furnished showhomes. In the week spent conducting this walkthrough, one shift in content exemplifies the larger role of sponsored ad content against the larger social landscape. Throughout May, as Georgia, Alabama and Missouri walked back state abortion rights, the advertising on PornHub took on a noticeable flavour. Pop up and banner advertising across the site began to skew towards themes of impregnation, specifically. Ads suggesting you *Find Her. Train Her. Impregnate Her*, or *BUILD HER. FUCK HER. IMPREGNATE* were recurring.



Fig. 14: PornHub.com impregnation-themed advertising, accessed May 28, 2019

The analytic site *SimilarWeb* reports an average 8.57 pages and 10.31 minutes per PornHub user visit. Following that framework, I found that impregnation-themed sponsored content appeared in 7 out of 9 ‘recommended’ videos on 3 occasions.³⁷ Further research is needed on the origins of this ad campaign, but I contend hosting this content reveals a lack of political will around a partisan issue at the centre of PornHub’s business model - access to non-procreative sex. For a company publicly campaigning for saving the bees and promoting women in STEM, the silence from PornHub on the question of procreative bodily autonomy is remarkable, and it can be inferred that appealing to advertising partners to churn traffic takes precedence over this particular rights issue.

Jennifer Johnson has argued that “Affiliate programs are the crucial link in building and sustaining this modern union,” (Boyle, 2010, p. 113) because “With regards to the structure of the online commercial pornography network, the dehumanization and degradation of women are

³⁷ “PornHub.Com Traffic Statistics.”

a means, not an end” (113). The impregnation advertising observed in this walkthrough encapsulates what Johnson has identified as a universal exploitation, equally economically degrading to men as it is bodily degrading to women. “Pornography is offered as compensation for individual powerlessness by an imperialist capitalist system that requires the support of patriarchy to maintain power” wherein “Pornographic fantasy is an expression of male powerlessness” and “desperation is ground zero for capitalist exploitation by the online pornography industry”(Johnson, 2010, p. 161). Put simply, it is not that the (presumably male) users are granted some power through female degradation, but that users tap into a feeling of control over others, the “illusion of collective power to men who are rendered individually powerless”(Johnson, 2010, p. 161) under capitalism. The takeaway here is that mechanics of exploitation and oppression by an unchecked capitalist culture industry operate in a multitude of ways. Porn as it is produced under platformization does not benefit men and hurt women, it is universally exploitative, just as any unchecked media industry would grow to be. This media network cultivates sticky content intended to build familiarity and entrap users by drawing them in repeatedly, and the exponential growth of PornHub’s traffic shows the network is succeeding.

Pornography is an industry generating a staggering amount of money, and attracting a massive amount of attention, while simultaneously not being taken seriously for study because of the exceptionalism that follows all things sex. The bigness and opacity of the supply chain for porn media systems mean researchers have had difficulty understanding the specifics of Pornhub's methods. Capturing the expressions of a major player in the porn industry can serve to flesh out a better understanding of these dynamics. The walkthrough can work to reveal some patterns, and

choices embedded in the user experience, and become a point of departure for further analysis. At the outset, this project asked two questions to make sense of the noise on the website. The first: *how can publicly available data on PornHub reveal some logic behind MindGeek's opaque operations?* And the second: *how does the operating model of PornHub.com structure attention and exert control?* In conclusion, I will revisit what has been revealed in the walkthrough and analyze these findings in light of the projects' synthesis of porn and platform studies.

Conclusion: Data by Desire

It is clear that although the website appears haphazard — overwhelmed by the sheer quantity of videos — the design of PornHub.com is highly intentional. Any messiness of design, or claims to lack of control over user uploads is misleading, a cover for highly technical business operations. This adheres to many of the principles that Hindman, Gillespie, Srnicek and other scholars have identified as shared by the most successful platforms. The user-led uploading practices on PornHub and lax policies towards moderating pirated content mean videos are updating constantly and seamlessly so audiences never need to look elsewhere (Hindman, 2018). A concentration of this content onto a single aggregator site takes advantage of economy of scale, including high ranking in search results, and MindGeek has worked to establish a brand familiarity that aspires beyond porn through environmental and scholarship initiatives (Srnicek, 2017). They envision themselves as tech innovators, and fun employers who allow employees to thrive creatively, all while bottoming out the porn industry for small producers. This is the result of their freemium strategy and a refusal to moderate a suspicious amount of harmful and stolen content. It is well within MindGeek's technical capacity to be accountable to their own terms of

service and moderate content on their site, but they choose not to. Putting the burden of moderation on users, or making claims to be incapable of consistent moderation is common to many media platforms (Gillespie, 2018a) because distributing content responsibly or maintaining records would generate fewer clicks, and their concerns are not with the quality of content, but with data.

Considering the implications of a data driven economy of pornography means thinking through the consequences of the datafication of desire. PornHub is making claims to be exposing ‘truths’ of our porn viewing habits, and promising optimization through recommendation systems responsive to browsing patterns. In doing so, PornHub enables not free sexual expression, but a commodification and optimization of our attention and the homogenization of a media form. If we engage seriously with the claim from within platform studies that there has been a platformization of cultural production (Nieborg & Poell, 2018), we must understand that this is only a starting point of inquiry. What happens when our porn media and marketing doesn’t end at harnessing attention for clicks, but through that process begin to shape the fuller spectrum of our sexual desire?

The coercive power of MindGeek is not contained to advertising on PornHub, or even to their network of porn sites. In perhaps their most ambitious project to date, MindGeek has lobbied for, developed, and owns the ‘Porn Pass’ AgeID system set to be implemented across the UK this November (Sewill, 2019). This will require porn users to verify their age via credit card, passport, or driver’s license using a verification process handled by third-party services in the

coming year. That third party is, unsurprisingly, MindGeek.³⁸ If that wasn't Orwellian enough, they've also launched VPNhub [fix X], a free solution to circumvent the same porn access problem they've helped create. Working behind the scenes, MindGeek promises, bafflingly, to keep you secure both through *and* around the law, and all it will cost users is access to their browsing data.³⁹



Fig. 15: MindGeek's VPN service, VPNhub, accessed May 30, 2019

In an article for Quartz, journalist Aisha Hassan writes:

“While a ten-episode run of *The Crown* is a very expensive proposition to produce, and one that surely benefited from Netflix's data analysis, each episode is one hour. By contrast, while the videos on a site such as Pornhub vary widely in length, many are less

³⁸ “FAQ | PornPass AgeID.” <https://www.ageid.com/faq>

³⁹ “Free VPN and Security Solution for Internet Browsing | VPNHub.Com.”

than 20 minutes. And with the average viewer staying on only ten minutes, and often toggling through multiple videos in that ten minutes, MindGeek can amass an extraordinary number of data points from each consumer.” (Hassan, 2018)

MindGeek puts that data to good use by extrapolating browsing patterns and serving up the exact content that users want in order to retain attention. Writing for the Cut, Maureen O’Connor makes the claim the Pornhub has become the Kinsey Report of our time - training us through media mimesis to shape our sexual desires. This suggests the tubesites have potential to change porn production to something shaped by our interactions with the dominant sites. This is already the case in the MindGeek network. In an interview with O’Connor, Pornhub vice-president Corey Price claimed “We license content from studios based on our users’ viewing habits... We regularly send reports to our content partners featuring top searches in various regions so they can better cater to users.”(O’Connor, 2017, paragraph 14) Such a shift in porn consumption is even more significant considering the dominance of Pornhub and similar sites in the market. This marketplace for our desire rewards popular or sticky content, but is also shaped by corporate and investment decisions, and leverages these by marketing. O’Connor provides an example: “Women who want to see images of female sexual pleasure learn to use “massage” as a shortcut to find it, triggering a feedback loop that brings them more massage porn and encourages pornographers to make more of it” (O’Connor, 2017, paragraph 14).

PornHub and the production practices it encourages has begun to alter our relationship to what kind of porn is succeeding. These modes of porn will continue to be produced as long as they

remain the most financially viable under the platform, while others are implicitly suppressed by the market tyranny of the freemium model. It is these implicit effects, not just the centralization of means, that have led Shoshana Zuboff to call platforms like this one “an unprecedented market form that roots and flourishes in lawless space” (Zuboff, 2019, sec. 4).

The exact processes that this data shapes and is shaped by remain unclear. In a *New Media & Society* paper scanning 22,484 pornography websites for data leakage, the authors found data tracking on porn tubesites sites is highly concentrated by a handful of major companies, whose policies were also intentionally obtuse. Nearly half of the sites revealed elevated risks of data leakage and given the sensitivity of the material, called for affirmative data consent on sites like pornhub (Maris et al., 2019). Authors of the study compared the lack of disclosure around data surveillance practices to a lack of informed consent around sexual experiences, saying “Individuals should have a clear understanding of the power dynamics of the sexual exchange they are entering when visiting porn sites” (Maris et al., 2019, p. 8) These power dynamics are deeply unbalanced, with some of the internet’s most powerful companies collecting and interpreting millions of data points daily with little to no systems of accountability established for their practices. This is not unique to the past decade, but an extension of a media technology trend “towards concentration and centralization of power and control in established institutions” (Carey, 1992, p. 189).

PornHub and MindGeek have become what Tarleton Gillespie calls “stewards of public culture,” (Gillespie, 2018b, para. 3) a responsibility that they were not prepared for at the outset, and to

which they have since shown little accountability. What my research reveals is an account of pornography as a paradox of power - downplaying their industrial clout and rejecting responsibility for content all while enacting particular values in the drive for data. This method of research can serve to flesh out a better understanding of the power dynamics particular to PornHub and how they mobilize values. This is achieved through design -- arranging media objects against one another, through recommendations and through advertising -- as much as it is through the content of the videos themselves. This approach can also serve as a case study for the way in which data driven strategies transform a cultural industry through net effects, rendering media producers contingent to the dominant mode (Nieborg & Poell, 2018). If cultural analysis pertaining to pornography is going to be meaningful, it is critical that it engage with these established and emerging norms of platformization. What I've discussed here is preliminary, and my future research using digital methods will further identify principles embedded in the supply chain, web design, and advertising networks. Doing so will demonstrate how these features reinforce certain values, and disclose the hidden ways in which platforms have become sites for the creation and dissemination of meaning.

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