

Economy

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Abstract

This essay examines the formal and informal economies *of* video games and attends to the economies *within* video games. The first part introduces key approaches in the early 2000s when games were primarily sold as a product through retail shops. We then move to the post-2012 phase as games became a service that was downloaded or streamed across multiple platforms. This era ushered in a period of rapid innovation in production logics, business models, and company types. It brought with it a range of creative opportunities and challenges. New platform and performance logics emerged, while free-to-play became the dominant revenue model. Two key processes emerge as important – datafication and platformization. During this period, the industry struggled to retain workers as many companies failed to address project management and diversity issues. Independent, or indie, companies multiplied by choice and necessity. The essay concludes with some reflections on e-sports, gamblification and increasing regulatory pressures.

Key Thinkers and Approaches – Games as a Product

Industry reports from the early 2000s estimated that the global games industry was worth an estimated £10 billion or USD \$12 billion (Spectrum, 2002, p. 10). In 2002, the US was the largest market, followed by Europe and Japan. Meanwhile, the core development locations were Japan, North America, and the UK. From 2000-2010, games shared many of the same economic characteristics as other cultural industries. It was high-risk as production costs were high with little guarantee of success. Console manufacturers controlled the flow of content to their platforms and often sold their hardware as a loss leader. They made their money on the games.

The economy of, and within, video games have been part of game studies from the early 2000s. The first UK conferences in 2001 had papers examining the structure and economics of the US, Latin American, British, and Irish game industries. These papers were subsequently published in the *International Journal of Media Management* (Williams, 2002) and in *game studies* (Lugo et al., 2002). Others became chapters in *Understanding Digital Games* (2006). Castranova (2001) had published his paper on virtual economies in games on SSRN.

These papers illustrate the dominant theoretical and methodological approaches to game economies in the field of game studies. Drawing upon cultural industries and political economy literature, Lugo (and I) were concerned with the structure of the industry compared to other media and cultural industries. We highlighted the power of publishers within the industry, the key professional roles and skills required to make a game, as well as local cultural factors shaping the trajectory of the industry. Williams also focused on the economic structure of the US industry but applied established methods from economics and calculated market concentration using the Herfindahl-Hirschman Index (HH) index. The HH Index is a method used by academics and policy makers to measure market concentration. He concluded that the console market in the US was highly concentrated, and that Sony had captured over half of the market through its sales of hardware and software for the PlayStation 1 and 2. For him, video games were a standards-based industry with strong first mover advantage and network effects. All these papers combined financial data analysis with interviews and some participant observation.

My own work (2006a) developed a variation on the standard technology-based market segmentation of Williams. I combined market structure, market concentration, revenue model, and openness of the technology system. Based on this approach, I identified four distinct sub-sectors in the video game industry – the console, standard PC, massively

multiplayer online games (MMOGs), and mini games sectors (which included mobile, browser, and interactive TV games). At this point, console dominated, with walled gardens and a small number of powerful hardware manufacturer/publishers controlling what could be published, when and where. I went on to trace the global networks of production used to source and assemble all the components of game hardware and the production processes, practices, and working conditions within game companies. My interviewees discussed struggling with intense overwork, or 'crunch', and pointed to an extreme lack of diversity in the workforce.

Castronova (2001) applied economics theory to analyzing the economies within games. He calculated the exchange rate, inflation rate, GNP per capital, and the poverty rate of the virtual economy in 'Norrath', the game world of MMOG *EverQuest* (Sony, 1999). He also examined the illegal currency market and how the exchange rate between Norrath's currency and the US dollar was calculated, bought and sold. Finally, Castronova's work was notable for the fact that he drew upon auto ethnography in the game world. Other virtual ethnographies identified legal and illegal economies within and around games for cheats and content modifications (i.e., mods) (Banks, 2013; Consalvo, 2007; de Paoli & Kerr, 2010; Sõtamaa, 2007). Economic geographers also contributed to the burgeoning literature. Johns (2004) argued that the power differential between large finance and distribution companies was key to understanding how the console and PC industries operated.

A key challenge in the studies of game economies is how to take seriously the role of technology without succumbing to technological determinism. Kline et al.'s (2003) book drew upon established critical political economy of the media literature and the circuits of capital theory to outline the role of three sub-circuits within the video game industry: technology, culture, and marketing. They situated the digital artifacts and infrastructures of

games within the technology, production, and consumption of games as texts within culture, and research, branding, and advertising within marketing. This book highlighted the ways in which the game industry is enmeshed with capitalism and the military industrial complex – both in the development of core technologies but also building marketing campaigns and game content that builds upon fantasies of militarized masculinities. This argument was extended further by two of the authors in *Games of Empire* (2009). Here the authors mobilized Hardt and Negri’s theory of Empire and the concepts of immaterial labor, cognitive capitalism, machinic subjects, and militarized hyper-capitalism to examine the game industry.

One did not have to look far to see the game industry building content that aimed to shock for maximum marketing impact. The launch campaigns and mods in the *Grand Theft Auto* franchise are a good example of how much free marketing the industry obtained from such campaigns (Kerr, 2006b). It was also a period where many traditional media companies tried to turn successful intellectual properties into games. Most of these projects failed to capture either film or game fans, indicating that games were rapidly developing into a unique cultural form (Kerr & Flynn, 2003). Coming from an innovation management perspective, Tschang (2005) identified how game companies in the ‘interactive experience economy’ favored sequels and licensing popular content from other media industries as strategies for reducing their innovation risk. Nieborg (2011) would analyze the ‘blockbuster’ nature of the triple-A games segment in his PhD thesis.

Key Thinkers and Approaches - Games as a Service Phase

If much of the first phase was marked by claims for the cultural and economic significance of games, the second phase had less work to do in this regard. My review (2017) of industry reports found that the industry was estimated to be worth USD \$91.5 billion by

2016 despite the global financial crash in 2008. I also identified a key shift in revenues in the industry around 2012 in the US as digital revenues started to overtake physical or retail sales (see also van Dreunen, 2020, pp. 18-19). Revenue growth has accelerated in the past five years, including during COVID shutdowns. NewZoo (2022) estimates that the global video game industry today is worth over \$100 billion and games for smartphones are now the largest segment at 45% of the market, with console at 29% and downloaded PC at 19%. Van Dreunen (2020) calculates that the industry was worth USD \$87 million by 2018, excluding hardware, accessories and peripherals. Boxed games sold through retail constituted less than half of the total. Van Dreusen (p. 125) calculated the HH index of the console segment between 1998 and 2018 and argued that this segment of the industry had become less concentrated, even if Sony still claimed over one third of the market share.

Improved access and speed of telecommunications networks combined with the data gathering possibilities of online game playing technologies was heralding the development of 'games as a service' and a remodeling of market structure and revenue models. By late 2017, the fastest growing segment was in games for mobile devices (smartphones and tablets) and there was a trend towards greater market segmentation by different academic and industry analysts (2017:36). While Williams had pinpointed three market segments in 2002, market analysts were now identifying up to seven market sectors including TV, casual games, and advertising. My own analysis moved to five market segments – console, PC, MMO/MMOG, online applications, and mobile applications. Key changes included the rise of online retail and distribution intermediaries (e.g., the App Store, Google Play), the development of social-network-based and mobile-based games, and the development of freemium (or free to play) based business models. Mobile, social media, and MMO games were adopting free-to-play business models.

The growth of mobile technology and games as a service globally has enabled an explosion in independent and small game development companies and more diverse game development locations. Most notable has been the rise of Chinese companies. For example, TenCent was established in 1998 and has become a dominant game company in revenue terms in multiple markets today. van Dreunen calls these companies ‘digital newcomers’ as they generally do not release games via physical channels. Finally, the global market revenue for games is more widely distributed with the US, China, and Japan enjoying almost equal market shares, followed by Europe and South Korea (see Van Dreunen, p.74-75).

I argue that we can identify multiple production logics across the game industry, including two new logics involving platform and performance logics (2017). Building upon existing theories in cultural industries and media studies, I see a logic is not just based on technology, but also involves different characteristics including market, economic chain, central broker, revenue, and worker aspects. While publishing, club, and flow logics can still be identified in the games as a service period, during the early part of the last decade two new logics emerged – one tied to multi-sided networked platforms and one to live performance. The former production logic is tied to the rise of platform-mediated free-to-play games, and the latter the rise of esports and live performances of gameplay. While production logic hybrids exist, it is clear that free-to-play as a business model has come a long way from its origins in South Korea. Today, most games aim to exploit network effects by achieving mass installations/downloads, exploiting mass and viral marketing for user acquisition, and monetization through datafication linked to advertising and microtransactions (usually for collectibles and aesthetic upgrades). Banks (2013) provides a detailed ethnographic study of how one Australian company exploited social network markets to create value. Whitson (2012) documents the rising ‘instrumentalization of play’ through metrics in the North American context. Some developers and academics have resisted this development. For many

small developers, the promised creative autonomy and democratization of video games have not materialized and instead, we are seeing greater ‘winner takes all’ effects and the intensification of game work (Whitson, 2019).

Games as a service are still a high-risk, hit-driven business which is strongly seasonal (with more purchases during the holiday period in certain markets). We still see publishers licensing successful intellectual properties from other media – e.g., Star Wars, LEGO, and various sports franchises. Developers have adopted game engines and middleware to help with the reuse and costs of content production, and legacy companies are still very active in acquiring digital newcomers. We also see the continuing importance of localization and curation as games are preparing for international markets, different content rating systems, and local cultural sensitivities. What is new are the data-gathering possibilities afforded by wired and wireless hardware and associated intermediaries.

Two notions have emerged as key to understanding games as a service: datafication and platformization. Datafication refers to the process whereby companies and organizations gather metadata and player data on all aspects of online communication. The aim is to ‘extract value’ and ‘actionable insights’ from data using statistical and machine learning techniques. Datafication has become the base on which free-to-play business models and advertising-based business models are based. Many game companies today hire data scientists to be part of their core development or marketing teams. Data, or what the industry calls metrics, are a core part of the design and marketing processes in the games as a service era. They are core to testing a game pre- and post-launch, insuring quality of service, and driving revenue.

The second key concept is ‘platformization’, and this has become a core focus for scholars across the disciplines, including game studies. However, while this term is used

frequently, and liberally, it may mean different things to different authors. It is important to distinguish between types of platforms and to understand the process of platformization. The term ‘platform’ has been used for years in the games industry. Platform games, or platformers, emerged as a specific game genre in the 1980s, epitomised by games like Nintendo’s *Donkey Kong* (1981), which was first released as an arcade game. In the last decade, we have seen the concept of ‘platform studies’ emerging as a methodology to analyze how computing systems and frameworks influence the design of digital content, including games (Bogost & Montfort, 2007). To date, the Platform Studies book series have explored Atari systems, the Nintendo Wii, the BBC Micro, amongst others. These early computing systems were walled gardens and non-interoperable – even as they moved from the early hard-coded game systems where the games were coded into the hardware, to the programmable console systems which took removable cartridges and later CDs.

The dominant use of the term ‘platform’ by academics and industry alike in the first phase of game studies was to refer to either the closed/walled gardens of console platforms, which were highly vertically integrated with tight control over content production and access to customers, or the more open PC and mobile systems which offered much less control. In general, the strictly controlled console approach was viewed as the most successful economically. However, the entry of computing, Internet and social media companies into the mobile games market has brought new types of platforms. Ballon (2009) noted that mobile Internet strategies and business models were driving greater ‘platformization’ to reduce transaction and developer costs but still maintain control. While Nokia dominated mobile systems until 2010, by 2011 Android devices, with the backing of Google, had surpassed them. Combined with Apple’s devices and its app store, these new shopfronts for games ushered in innovation possibilities for developers and made accessing games much easier for game players. Ballon identified four different types of platforms according to their control

over assets and customers: enabler, neutral, system integrator, and broker. Both ‘system integrator’ and ‘broker’ platforms have emerged in the games industry where varying control over assets produced by others is combined with control over the customer relationship.

These new types of platforms had a significant impact on the economy of games. Facebook introduced in 2006 its Facebook Development platform which gave third-party access to user profiles, information and, importantly, data. Platformization, for Helmond (2015:1), is about the “rise of the platform as the dominant infrastructural and economic model of the social web and its consequences”. Her focus on the importance of data, infrastructures, and economic aspects makes this a useful approach in terms of understanding how data sharing across platforms influences cultural production. Nieborg and his co-authors refer to games as a ‘contingent cultural commodity’ (Nieborg, 2015; Nieborg & Poell, 2018). They note how multisided markets controlled by a small number of platform intermediaries have come to dominate in different cultural industries. Platform companies exert tremendous control and small changes to interfaces, pricing, and infrastructures can have significant impacts on content creators. Paying attention to the economic and material/technical infrastructures is crucial to understand games as a service.

The new networked and mobile technologies underpinning games as a service have enabled extensive ‘datafication’ of play and player data. This data is used to monetize games better but also to personalize marketing and game content. Social media and mobile applications have led the way in metrics driven game development with companies like Zynga, King, and SuperCell excelling as game startups. However, multi-sided platforms are not unique to mobile and social games. Steam has developed as a key multi-sided intermediary in the PC games segment. Thorhauge (2022) analyzes the Steam platform and identifies how it has developed from its early days as a client for downloading software, to today’s multi-functional service which includes a store for selling in-house and third-party

games, a service for playing games, and a facility that moderates community relationships. She argues that Steam is a unique type of platform given how it integrates player-driven game economies with developer and publisher game economies. These new economies were not met with universal player approval, as Joseph (2018) documents.

Three additional topics have emerged in recent studies of game economies which have pushed scholars to rethink key approaches and concepts. Firstly, there is a trend to examine the socio-spatial elements of local and trans-local formal and informal (e.g., game jams) game development economies. From cities (Cambridge, UK; Toronto, Canada; Melbourne, Australia) to countries (Ireland, Finland, Scotland, France, South Korea, Canada, Czechoslovakia) to regions (Latin America, Scandinavia) a greater diversity of game economies has been excavated (Jørgensen et al., 2015; Parker & Jenson, 2017). Second, the meaning and nature of independent game development and the informal, liminal, and rich “scenes” which are emerging as indies and amateurs extend what constitutes game development is examined (Keogh, 2018; Ruffino, 2020; Young, 2018). And finally, scholars are pushing beyond the industry’s talent pipeline discourse to ask questions as to how and why the game industry continues to struggle to both attract and keep skilled workers. Surveys and production studies have identified economies which are often hostile to women, people of color, and those who do not conform to cisgender norms (Harvey & Fisher, 2014; Kerr & Savage, 2020; Peticca-Harris et al., 2015). Industry solutions to these challenges have tended to foreground training, but others have pushed for more radical solutions including worker collectives and unions (Kim & Lee, 2020; Ruffino & Woodcock, 2020).

Emerging Issues

Over the past decade, esports have become increasingly professionalized and a more formalized market segment within the formal game industry. They have been adopting

competitive structures and cultures from professional sports and broadcast media and developed professional, sponsored teams, college scholarships, and competitive leagues at national, regional, and global levels. Taylor (2012) provides a study of the professionalization of this sector in North America and Asia. Jin (2010) provides detailed insights into the national esports industry in South Korea. Some companies develop games to be played in large-scale competitions and perhaps the market leader now is Riot with *League of Legends* (2009). Key revenue streams in the industry include sponsorship, media rights, publisher fees, merchandising, tickets, and both digital and streaming rights. According to NewZoo (2022), this segment of the industry is worth €1.3 billion and growing at almost 22% annually.

Another element of esports is the development of esports betting (Macey & Hamari, 2019; Zanesco, et al., 2020). Indeed, betting on games, betting in games, and the adoption of random outcome mechanics (i.e., loot boxes) in games – where players pay with real money for an uncertain in-game outcome – have been blurring the boundaries between games and gambling. This has led some to argue that we are seeing the ‘gambification’ of games and that we need to understand better the economic and societal implications of this (Brock and Johnson, 2021). This rise of gambling economies around and within video games has led to more political and regulatory scrutiny of the game industry and prompted content regulation bodies in Europe and the US to add content advisory warnings to games that contained loot boxes. Games that contain realistic simulations of gambling must be rated as adult in Europe and North America.

Gambling is not the only issue raising regulatory attention for games. As game companies become data controllers and brokers, they fall under an increasing range of legislation including the General Data Protection Regulation (GDPR) in Europe. These place additional responsibilities on companies and are accompanied by a range of new legislation

which place increasing responsibilities on platform intermediaries. These responsibilities relate to player privacy, player safety, and may also involve banking regulations. China has been imposing playing time limits and strong content censorship. Where once game economies might have occupied the unregulated frontier of cyberspace, all aspects of video games' economies have become enclosed and are subject to very real geographic and political limitations.

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