A Future-Forward Examination of the Viability of Worker Cooperatives Within the Digital Games Industry

by

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Abstract

In this thesis I explore the subject of cooperative labour and its potential broad adoption within the digital games industry in light of recent unionization efforts. I begin with historical and environmental scans to examine the trends surrounding the practices of digital game development and publishing, followed by a review of the literature on worker cooperatives as an alternative to the traditional hierarchical organization prevalent within the digital games industry, and finally apply the Three Horizons model as a foresight method to ascertain what impact the broader adoption of this model might have upon the digital games industry. Through this study, I present the indie games movement as a site of industry disruption, and its recent experiments with worker cooperatives as an indicator towards emerging future game development practices, highlighting points of synergy between indie game development and worker cooperative principles. I conclude with the suggestion that this structure affords the opportunity to develop games collaboratively between independent studios towards their own ends beyond profit and shift towards a more equitable, creative and collaborative game development ecosystem.

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Chapter 1 – Intro

With increasing regularity, some of the largest game developers and publishing companies are facing lawsuits over their labour practices. *Activision Blizzard Is Sued by California Over Workplace Culture*, reads one headline by the New York Times (Browning, 2021). *The same government agency that's suing Activision Blizzard has an ongoing lawsuit with Riot Games* (Cassidy, 2021), reads another, and in the same month *French game workers union sues Ubisoft for 'institutional sexual harassment'* (Chalk, 2021). Prior to the initial filing of the *California Department of Fair Employment and Housing v. Activision Blizzard*, the company was heavily scrutinized for laying off 190 employees due to the COVID-19 pandemic, while granting CEO Bobby Kotick a $200 million bonus (LeBlanc, 2021). The year before, the company had an even larger mass layoff event, seeing over 800 employees laid off, despite the company reporting a record sales year and offering its CEO a $40 million bonus (Schreier, 2020). At this time, it was reported that employees were sharing documents comparing salaries, finding that most received less than 10% annual raises, and anecdotes of some employees skipping meals to pay rent due to high prices at the company's own cafeteria circulated online (Gilbert, 2020). This surge of attention towards unfair and exploitative labour practices in the digital games industry prompted my own interest in investigating their root causes and potential solutions.

In this thesis, I aim to explore the future possibilities for worker cooperatives as a new paradigm for labour organization within the digital games industry and suggest it as a viable alternative to the traditional hierarchical structure currently used by most studios and publishers. I utilize the Three Horizons foresight method to consider both how the digital games industry might be restructured towards worker cooperatives, as well as identify the current trends that indicate a possible transition towards this desired outcome. The intention of this thesis is to synergize the existing body of research on worker cooperatives with the discourse surrounding labour in the digital games industry. The aim of this research is to assess the potential for widescale adoption of worker cooperatives within the digital games industry. While this thesis will primarily focus on the digital games industry, the wider implications for other creative industries is considered, as well as its possible applications to organizational management and contemporary theories of labour.

In the following chapter, I detail the research conducted to inform this paper. I begin with an examination of the digital games industry and its relation to labour through review of current and historical practices to identify trends and explore their future possibilities. Following the industry environment scan, similar attention will be given to the worker cooperative labour structure, examining its current and historical basis, concluding with literature on its performance and relation to labour unions. In chapter 3, I detail the Three Horizons foresight technique and explain how it is applied to consider the future possibilities for worker cooperatives in the digital games industry. This analysis is continued in chapter 4, where I construct and analyze my own Three Horizons model detailing the possibilities for worker cooperative adoption in the digital games industry, explain the connections made between the industry's present and possible future, and identify the points of synergy and conflict between the two as a transitory period. In my findings, I detail the opportunities of this industry transition based upon identified trends and existing pockets of the future in the present, suggesting that collaboration between cooperative studios presents the potential to assemble into larger organizations. I conclude by advocating for the worker cooperative's adoption by newer and smaller developers specifically, while also suggesting further points of research and leverage.

Chapter 2 – Contextual Review

In this chapter, I survey both the historical and contemporary trends within the digital games industry in attempting to identify pockets of the future that indicate towards a possible future emergence of worker cooperatives as a dominant mode of production in the practice of game development.

Historical Examination of Game Development Practices

While the first computer games were created by American computer scientists employed by the US Department of Defense, primarily creating simple wargames on mainframe computers, the industry itself and its subsequent practices owe its commercial successes to student hackers who repurposed the same technology established on campuses across the country as an act of protest against the ongoing Vietnam War (Dyer-Witheford & de Peuter, 2009, pg. 10). These students began creating, distributing, and remixing wargames of their own through university networks, resulting in popular games such as *Tennis for Two* (1958) and *Spacewar* (1962), which would eventually transform into *Pong* (1972) and *Asteroids* (1979), respectively (pg. 10). These remixes often improved upon gameplay aspects of their precursors, be it improved coding or design elements, and included thematic differences to set them apart. The popularity of games emerging from these early experiments prompted the first videogame companies to be founded and staffed by these students, most notably Atari in 1972 and Activision in 1979, which also prompted existing coin-operated entertainment companies such as SEGA and Taito, primarily based in Japan, to also begin producing their own games, resulting in the commercial success of arcade machines and subsequent birth of the videogame industry. Dyer-Witheford and de Peuter identify this moment as the end of videogames as a counterculture force of rebellion and the beginning of its transformation into something new:

> A decade after *Spacewar*, video games had become a six-billion-dollar business, rivaling the music industry of its day, amassing profits from a stream of quarters. The counterculture that had confronted the military-industrial complex was morphing into a cyberculture whose 'Californian ideology' of digital utopianism mixed with free-market fever fit smoothly into an America about to elect Ronald Reagan [as] president. (pg. 10)

This perfect storm of a rapidly growing, yet nascent, industry provided a compelling illusion of free-market exceptionalism for its American companies, who had until then faced limited internal competition. As a result, American videogame companies largely embraced Reagan's neoliberal ideology full force. Developers gradually had ownership benefits such as royalties and creative input during pre-production stripped away, as management sought to constrain autonomy and creativity within the limits of profit, prompting a conflict between "ponytails" and "suits." (Dyer-Witheford, de Peuter, pg. 11). Within a few short years, the videogame industry experienced its second market crash, resulting in a near-total industry collapse in the US. In 1983, many American videogame companies, including Atari, filed for bankruptcy, and thousands of then-worthless game consoles and cartridges were removed from stores and mass-bulldozed into landfills across the country (pg. 11). This market crash was driven by a variety of factors, almost all of which can be traced directly back to the neoliberal current emerging from the American companies. The videogame market faced a sharp increase in saturation, as a high quantity of low-quality games were mass produced for an increasingly segmented series of home consoles, each of which was only able to play games ported by the console's manufacturers. At its peak,

this generation of home consoles had over 15 different options, for which retailers were unwilling to maintain shelf capacity and consumers unwilling to determine major differences and title availability. The consequence of this market crash was the complete collapse of most American third-party developers, resulting in almost no new commercial games developed in the US until the market once again settled in 1985. During this time, Japanese game developers rose to dominance, with the majority of the market then being controlled by Nintendo.

Where console games experienced their industry crash in the 1980s, the emergence of home computers allowed 3rd-party game developers to maintain their presence in the form of "shareware": the physical distribution of computer game files through floppy disks, later LaserDiscs, that could be shared amongst a group of potential players (Anthropy, 2012). Early, pre-Web 2.0, online networks allowed for digital distribution through bulletin board systems (BBS), which notably saw resurgence in game remixing practices, with popular releases such as *Doom* (1993) resulting in entire communities dedicated around creating *"Doom* clones." The expansion of the internet from dial-up connection to dedicated infrastructure greatly expanded access to shareware communities and led to the development of increasingly sophisticated tools and distribution platforms for game creators and fans. As early as 1999, online game platforms such as *Newgrounds* and *Steam* emerged, allowing anyone to freely submit games for easy access, circumventing the need for expensive physical distribution and allowing digital games the ability to more seamlessly generate profit (Anthropy, 2012). Steam, largely considered the de facto digital distribution platform for games, emerged as an avenue for its developer, Valve, to distribute its first game, *Half-Life* (1998), around its contract with the game's publisher Sierra On-Line. Conflict regarding intellectual property rights over Valve's self-publishing efforts through Steam culminated in lawsuits between the two companies and Vivendi Games, the owners of Sierra (Feldman, 2004) and the future "Blizzard" half of Activision-Blizzard after the two merged in 2008. The success of Steam transformed the nascent developer Valve into one of the most powerful game publishing companies in the industry, introducing innovations to digital game publishing such as the automatic downloading of updates, strengthened anti-cheat and anti-piracy tools, and later a marketplace in which players could sell virtual goods earned in-game to one another (Sayer, Wilde, 2018). In the years following Steam, additional distribution platforms have been developed to compete with it, including the Epic Games Store, EA's Origin platform, and CD Projekt's Good Old Games (GOG). Steam's unique offering as a distribution platform focused on allowing other developers to publish through the platform prompted a considerable rise in the number of independently developed games. The shift from physical to digital distribution propelled by platforms such as Steam resulted in reduced cost of game publishing and allowed for a wide surge in the number of active participants in game development communities, the impact of which allowed for the rise of the independent, or "indie", games movement.

Rise of Indie

Following the advent of digital distribution and Web 2.0 user-generated content creation tools, along with a surge of interest in mobile gaming around 2008, the once loosely connected shareware communities formed the basis for the indie game movement. This contemporary movement acts in opposition to the corporatization of games that occurred over the decades prior and, similar in nature to indie movements that occurred within the film and music industries, represents a particular ethos around media production and distribution rather than a specific genre within the medium itself. This commonly manifests as rejection of the mainstream, considered highly capitalistic in the current global neoliberal paradigm, by emphasizing creativity and artistry over profit and popularity (Lipkin, 2013, pg.

9). Incidentally, the creativity and innovation that emerged from select indie games, coupled with their ease of distribution and comparatively low costs, resulted in several high-profile success stories of games achieving the same profit and popularity that the movement dismissed in the first place. The most outstanding of these success stories belongs to the runaway hit game *Minecraft* (2013).

Developed by a single programmer, Markus "Notch" Persson, Minecraft began as an attempt to develop an algorithm for procedurally generating an endless virtual environment. His work was initially made freely available from his website, on which he even included a running total number of downloads and allowed users to register for updates on the game's upcoming updates (Redmond, 2014, pg. 19). This resulted in Minecraft transforming from an individual developer's passion project into a community with thousands of members contributing towards a shared vision. This early access stage of what is now one of the most popular games in the world is described by Redmond et al. as:

> Almost entirely non-commercial in nature… [as] what convinced large numbers of fans to become Minecraft's unpaid co-creators was not just the franchise's core values of openness and respect for fan labor… Above all, it was Notch's capacity to articulate a clear and compelling vision of an audience-led development process. (Redmond, pg. 20)

Following Minecraft's initial success as an early-access community project, Notch founded Mojang Studios in 2010 and hired staff for the purposes of handling the game's full launch. In 2014, Mojang Studios was acquired by Microsoft for $2.5 billion, having already sold over 50 million copies of the game prior to the announcement (Warren, 2014). Minecraft is currently the highest-selling videogame of all time, with over 200 million units sold and 126 million monthly users (Warren, 2020). The case of Minecraft reflects a major conflict within the indie game movement, as anti-mainstream sentiment itself becomes subject to commoditization by mainstream market forces. As described by Lipkin:

> When mainstream publishers involved themselves in the indie and digital gaming marketplaces, the games that had been tightly connected with their developers and communities became fetishized, and the discourse of indie could no longer maintain the political-economic function it once had (pg. 19).

In many respects, indie gaming continues the legacy of student hackers making, modifying, and distributing their games, but similarly experiences the suppression of its countercultural elements through commodity fetishism. This has resulted in what can be described as a confusion of the indie games movement as, once more, the influence of capital results in the replication of qualities, such as visual aesthetics and nostalgic properties, while disregarding the opposition to corporatization and media hegemony, resulting in a clash between "indie by appearance" and "indie by intent" (pg. 19). Lipkin concludes that "all of this becomes void when the ability to separate games that are indie without publisher support and those that are disappears. Both are just indie games because the production practices are rendered opaque" (pg. 20). Despite these conflicts, both internal and external, to the indie games movement, it continues to represent a force of disruption upon the mainstream digital games industry, which will be further explored in the chapter 4 where I analyze the findings of this research.

Environmental Scan of the Digital Games Industry

This chapter began with an historical overview of the conditions within the digital games industry that contributed towards its present labour environment, summarized as a visual in Appendix B, and continues with an environmental scan to determine the current trends, opportunities, and points

of conflict within the digital games industry. The use of an environment scan here allows for detection of possible “weak signals” that may indicate greater change within the industry if acted upon. The multifaceted environment of the digital games industry creates a certain challenge in conducting a thorough scan of the industry, which would otherwise also include a scan of adjacent sectors such as eSports, game streaming, and hardware manufacturing companies such as Nvidia and IBM (see Appendix C for an example map of the industry). For this reason, the focus of this scan will primarily be on game developers and publishers, as present unionization efforts and worker cooperative experiments are largely concentrated in this area.

2022 marks the first period of uncertainty within the digital games industry since the rise of mobile gaming in 2008. Newzoo forecasts 2022 will see $200 billion in earnings for the digital games industry, representing a roughly 5% increase from the last year, as it has done nearly every year since 2015 (Rousseau, 2022). Ampere Analysis, conversely, is forecasting the first industry decline in nearly a decade, with $188 billion in earnings projected due to the Russian invasion of Ukraine limiting access to both country’s thriving game markets (Browne, 2022). Both forecasts predict that growth will continue in 2023 onwards, showing little indication of future decline through to 2030. The COVID-19 pandemic saw a significant increase in gaming due to lockdowns, with Nintendo’s *Animal Crossing: New Horizons* (2020) and indie hits *Fall Guys* (2020) and *Among Us* (2018) becoming global sensations during the height of the pandemic. While the continued growth of earnings within the digital games industry might appear to indicate lucrative opportunities for employment, the distribution of this growth tends to be highly concentrated upwards. The CEO to worker pay ratio is an often cited yet persistently staggering statistic, currently averaging CEOs earning approximately 351 times the amount of their average employee (Mishel, Kandra, 2021). This gap is drastically exacerbated in the digital games industry, where the gap is reported at CEOs earning 1560 times that of the average employee (Rousseau, 2022), significantly higher than in most other industries. This skews many of the reported statistics of average salaries within the digital games industry, with popular sites such as ZipRecruiter reporting an average yearly salary of $92 479 in the US (ZipRecruiter), despite 25% of listed jobs earning less than $50 000, and the most plentiful of these jobs, Quality Assurance Testing, only offering minimum wage. Ultimately, the growth within the digital games industry is only experienced by a small minority of already wealthy individuals, with this wealth gap expanding equivalent to its growth.

Alongside continuous reports of growth, there is a corresponding rise in the cost of making games. The largest and most profitable gaming companies, referred to as triple-A developers within the industry and gaming culture, typically produce games involving large budgets that rival blockbuster films. One such example is CD Projekt Red’s infamous *Cyberpunk 2077* (2020), which had budgeted roughly $316 million USD for development and marketing while generating an estimated $800 million in digital sales alone, despite controversies over the quality of the finished game, seeing it pulled from the PlayStation network shortly after launch and offering roughly $2.23 million in refunds (Spurlin, 2021). Triple-A games typically feature higher retail prices than AA, referring to medium-sized companies, or indie titles. The previous example of Cyberpunk 2077 is listed at $59.99 USD. These games are often accompanied by additional paid content in the form of game expansions and downloadable content (DLCs), which gradually increases the price of acquiring the full game over time. This is partly due to a shift from games being a standalone product to becoming a service, requiring regular updates and maintenance from its developers (King et al., 2019, pg. 132). Common across all three categories of game sizes, although skewed towards online and mobile gaming in particular, is the experimenting with

"freemium" monetization such as microtransactions and lootboxes. By encouraging small (micro) purchases for in-game items, bonuses, and sometimes specialized virtual currencies, consumers on average spend considerably more than they otherwise would have from simply purchasing the game (pg. 133). Recent experiments with this method have proven overwhelmingly successful, with Activision Blizzard earning $4 billion in revenue from microtransactions alone in 2017 (pg. 132) and at the time of writing this, on-going controversies surround Activision Blizzard's latest release, *Diablo: Immortal* (2022) earning over $100 million in microtransactions over the first two months of its launch, with some players reportedly having spent over $100 000 on in-game items (Stanton, 2022). While some games adopt a more benign approach to microtransactions to help offset the costs of continued development, some implementations of this system represent predatory consumer practices on the part of game publishers. Lootboxes are a highly controversial form of microtransaction, in which the player purchases a bundle of virtual items that are randomly generated upon opening. This monetization method became the subject of intense legal debate in the mid-2010s, as regulators argued that this violates consumer protection measures, given that there is no assurance regarding the quality of what is being purchased, and in countries such as Belgium and the Netherlands this violates strict gambling laws – particularly retaining to children, whom many of these games are targeted towards (King et al., 2019, pg. 132). While several countries moved to either regulate or ban the practice of selling virtual lootboxes, a 2021 report estimates the practice continues to generate an estimated $15 billion per year, primarily in North America and China (Dealessandri, 2021).

Another major economic trend within the digital games industry is the tendency towards industry consolidation. Microsoft acquired Mojang Studios, creators of the popular indie game *Minecraft* in 2014, and has since acquired several moderately successful AA studios, such as Obsidian Entertainment (2018), Ninja Theory (2018), Playground Games (2018), inXile Entertainment (2018), Compulsion Games (2018), Double Fine Productions (2019), and more recently began acquiring major publishers and their studios, including ZeniMax Media/Bethesda Softworks (2021), responsible for the highly successful *Elder Scrolls* and *Fallout* franchises, and are presently concluding a deal to acquire Activision-Blizzard (Colp, 2022). Microsoft competitor Sony Interactive Entertainment is also in the processes of consolidation, having recently acquired Bungie, a studio previously owned by Microsoft to launch the popular *Halo* (2001) series. Sony intends to continue its consolidation in the forming of *PlayStation Studios*, a re-branding of their former SCE Worldwide Studios division which oversees first-party development for the company (Mochizuki, Savov, 2022), in an effort to keep up with games-industry competitor Microsoft, while ensuring its own safety from consolidation in other industries, especially in film where it faces the existential threat from Disney.

While the social and political landscapes within game development have been notoriously tumultuous since the first industry boom in the 1970s, contemporary political discourse regarding the digital games industry is heavily centered around the GamerGate movement from 2014. GamerGate was a massive online far-right harassment campaign organized primarily against women visible in the digital games industry as a reactionary response to the shift in demographics of game players and developers. The movement began in response to the acclaim garnered by indie game *Depression Quest* (2013) made by developer Zoe Quinn. While online harassment directed towards Quinn began shortly after the game received positive reviews on websites such as *Kotaku* and *Rock Paper Shotgun*, a blog post authored by Quinn's former boyfriend falsely accused the developer of trading sexual favours for positive coverage, rapidly escalating the attacks upon Quinn and those who publicly defended her (Dockterman, 2014). The

long-term impacts upon gaming culture has since continued into what is now the alt-right political movement, entangling reactionary discourse to diversity in games with predominantly white nationalist, neo-Nazi ideology (Lees, 2016; Romano, 2021). This has created a divisive social and political landscape within the digital games industry, in which developers of games espousing politically progressive views are often subject to online harassment and death threats.

Despite the increasing hostility within the culture surrounding digital games, their audiences are noticeably diverse. According to Statista an estimated 3.24 billion people regularly play games, with Asia representing the largest market of 1.48 billion players (Statista). In Europe, roughly 50% of people aged 6-64 play games, with the average person spending 9.5 hours a week engaged in gaming (ibid). Mobile games continue to represent the majority of gaming activity, comprising roughly 50% of all game players and 59% of industry revenue (ibid). Among developers, however, less than 28% of the industry is comprised of women, transgender individuals, or other gender minorities (Yanev, 2022). This would suggest a stark contrast between the audiences that play games and the people who make them. In 2019 the International Game Developers Association (IGDA) found that among developers, a staggering 81% identified as white/Caucasian/European, followed by a combined 10% identifying as East, South, and South-East Asian, 7% Hispanic/Latinx, 5% Indigenous or Aboriginal, as little as 2% identified as black/African-American/African/Afro-Caribbean, and roughly 5% selected 'other' (Weststar et al., 2019, pg. 13). This demonstrates an incredible lack of diversity among game developers, despite the same survey reporting that 83% of respondents considered workplace diversity to be either 'very important' or 'somewhat important' (pg. 14). Unsurprisingly, this lack of diversity greatly contributes towards with the reports of toxic workplace culture and systemic discrimination described in major studios, with the response to the question "Do you feel there is equal treatment and opportunity for all in the game industry?" answered with "No" by 65% of the survey's respondents, despite a reported 71% of respondents working at a company with general non-discrimination policies (pg. 14). Among self-reported accounts of inequality, the survey found that most respondents did not personally experience any discrimination but were rather far more likely to witness it directed towards others, primarily in the forms of microaggressions and interpersonal conflicts, with roughly 25% of respondents also witnessing this occur in the recruitment and hiring process, promotion choices, salaries and bonuses, and access to choices of roles on a project (pg. 15). The lack of first-hand experience with workplace discrimination among respondents is a clear result of this lack of diversity, and further suggests that the few racial and gender minority developers are also subject to the majority of workplace inequalities.

The processes through which digital games are developed, while varied between studios, share common roots with software development and are often reinforced by tradition and precedence established during the industry's early years. Game production typically begins with a planning or pre-production phase, during which the general concept and required features are determined. This is followed by a production phase, where the game's code and assets are created and assembled. Most professional development utilizes a project management system such as Agile or Scrum, which allows for an iterative approach to software development by working on small and targeted segments over a short period of time (Keith, 2010). Following production, games either enter a launch or pre-launch phase, depending on the budget allocated towards marketing or participation in any of the various gaming conventions such as E3 or PAX. Following game launch, some level of post-launch work is commonly required to address glitches and bugs but given the trend towards games as a service,

continuous long-term support is often required to maintain sales, a practice for which large studios generally allocate a specific team towards.

In response to dissatisfaction with commercial game development practices, experimentation with alternative organizational structures has begun to emerge, specifically within the indie game space. Among the alternatives discussed, few have gained more traction than the worker cooperative structure. Worker advocacy groups such as Game Workers Unite (GWU) drew attention to the worker cooperative structure during the 2018 push for unionization. They argued that worker cooperatives could address the labour issues pervasive throughout the triple-A digital games industry by empowering developers with ownership over their work and pointed to existing studios that follow this model already (GWU, n.d.). In their argument in favour of the worker cooperative structure, GWU articulates the benefits of this approach from the perspective of a game developer as: shared ownership of the products of one's labour, equal share of profits divided between members, inherent democratic nature, accountability of leadership, improved working conditions, job security, community, and reduced dependence on employer benevolence (GWU, n.d.). At a time when criticism over working conditions in the digital games industry had resulted in mass walkouts, such as the Blizzard-Activision example in 2021, this quickly drew attention in online game development circles (Milner, 2018). This spike in interest also resulted in a resurfacing of a 2019 annual Game Developers Conference (GDC) talk entitled *Embracing the Co-Op Studio Model in Indie Games*, which featured members of Motion Twin, a small French game development team located in Bordeaux, France, responsible for the hit indie game *Dead Cells* (2017), in addition to members of The Glory Society, Talespinners, and Pixel Pushers Union 512, each of which operate as worker cooperatives within indie game development. The panel presented the differing perspectives and operations of each worker cooperative. Motion Twin's Steve Filby discussed some of the structure's limitations from the perspective of the longest operating worker cooperative on the panel, suggesting that the approach is most successful for smaller teams, averaging around 10 members, and noted the difficulty of hiring and firing workers in a zero-hierarchy environment – comparing the process to marriage (GDC, 2019). Ted Anderson from Pixel Pushers Union 512 described his experience transitioning from traditional game studios to the worker cooperative, noting the importance of distributing decision-making ability away from management to increase individual accountability and allow greater flexibility within the development process. Talespinners' Ian Thomas presented the application of worker cooperatives to services within the digital games industry, without necessarily being a game developer. Talespinners is a freelance writing and storytelling group based in the UK, which he founded to combat the difficulties of operating as an individual freelancer, stating that the cooperative structure allowed for collaboration with other freelancers he otherwise would have been in direct competition against. The Glory Society, founded by the developers of indie success *Night in the Woods* (2017), explained their decision to form a worker cooperative as neither member was comfortable with being "the boss", following their past conflicts with management in the industry. The Q&A session that followed yielded additional insight from the panelists, particularly in their explanation of cooperatives being more flexible in the kinds of games they can make, with particular interest in explicitly political, educational, and accessibility-based games, which seek goals other than simply being highly profitable. These early experiments with worker cooperatives in the digital games industry present particular synergy with the ideals of the indie game movement, partially described within this lecture, which will be further expanded upon in chapter 4.

Worker Cooperatives

The renewed interest in worker cooperatives emerging from the indie game movement prompts a deeper consideration of the origins and applications of the labour structure. Due to the limited available sample of games industry-specific worker cooperatives, this section will instead examine the various conditions in which worker cooperatives have emerged and thrived to ascertain their potential benefits, as well as identify potential shortcomings.

Worker cooperatives originate from mid-19th century socialist theorist Robert Owen, considered to be the father of British socialism, and founder of the New Lanark Mill as the first cooperative business. His mill deliberately sought to employ the poorest families, paid them with currency used to buy goods at the company's store for wholesale cost, and even provided an education to the worker's children (New Lanark Visitor Center, n.d.). The successes of the mill attracted investors which allowed him to amass a substantial personal wealth to fund his other projects, including his writing – which would later inspire other socialist theorists including Marx – a series of bills petitioning the ban of child-labour, and two failed utopian experiments, one of which still exists as New Harmony, Indiana (ibid). Since Owen's time, thousands of cooperatives have experimented with organizing co-owned enterprises, leading to the eventual codification of the Rochdale Principles, established by the Rochdale Society of Equitable Pioneers in 1844, as the basis for all cooperative organizations (see Appendix A). The International Cooperative Alliance (ICA) stewards these principles and requires their adherence for membership into their organized global cooperative movement. From these principles, several conclusions regarding the regular operations of any given cooperative can be established. The requirement that membership be open and voluntary not only restricts (although may not prevent) discriminatory employment practices, but also encourages workers to freely move between cooperative organizations willing to accept their membership. As a result, members who are unhappy with the conditions of their work can easily be relocated to another position, whereas traditional organizations would be more likely to replace them. From this we can assume that a cooperative organization will display a higher diversity of workers than traditional organizations and tend to experience a lower turnover rate by shuffling its workers. Democratic control can vary between organizations, with some employing a direct democracy (one member, one vote) policy, whereas others may elect representatives with limited authority to act on behalf of the group. The method of voting may also differ, with majority and consensus-based voting proving to be the most popular methods (Seeds for Change, n.d.). This principle, in conjunction with principle 3 – economic participation – does describe at least one shared feature of all worker cooperatives: all members receive a vote on how surplus capital is allocated. For traditional enterprises, surplus capital is typically controlled by an executive board comprising its major shareholders, who may often use the surplus to benefit themselves. A worker cooperative allows its members to decide how its collective assets are distributed, which can similarly result in higher payouts to its controllers, yet in a more equitable form than traditional business follows. With far less wasted surplus on executives and shareholders, it can be expected that any worker cooperative's remaining funds are used to ensure its longevity, be it through reinvestment, reserves, or improving the quality of life for its members. The 4th principle ensures that, while external funding can be secured by a cooperative, 3rd parties are unable to secure a majority position as this would jeopardize the organization's autonomy. This represents both security in member control over the organization, while also posing a limitation for cooperatives seeking financing. Any given cooperative's members will always have greater collective control over the organization than its external stakeholders and is unable to be acquired without dissolution. Cooperatives are generally expected to provide education and training to

their members, such that they become increasingly capable at their role as the cooperative develops, while also easing transition between roles for members looking to take on new work within the organization. This includes a wider-reaching aspect of providing education to the public, particularly with regards to their operations as cooperative to further public awareness of their existence, which tends to be lacking in regions without strong cooperative presence. Not all cooperatives dedicate themselves to this practice, however, and might designate specific roles within its organization for this purpose. Lastly, cooperative focus on community can demonstrate several commonalities: active community presence and consumer outreach, participation in local activism within spaces the cooperatives operate, and high reception of feedback from the communities it serves. These principles are widely accepted among cooperatives of all kinds

The limited sample of cooperatives is partially due to the conditions under which they are best created. Cooperatives appear less likely to emerge as startup enterprises, although those which do will also be discussed here, and are far more likely to result from a company acquisition by its own workers. Before a business permanently closes there is an opportunity for acquisition should any other businesses wish to claim their assets. In this situation, employees are typically laid off and experience such financial hardship that the possibility of buying the business themselves is seldom considered. Yet this exact method of facilitating employee buyouts was utilized to significant effect in Italy to overcome economic hardship in the face of mass business closures during the 1980s “stagflation” crisis. This practice was codified in 1985 by then Italian Minister of Trade and Industry, Giovanni Marcora, which allows workers to utilize accumulated unemployment benefits to contribute towards a worker buyout of a closing company (Vieta et al., n.d., pg. 13). Italy now has over 25 000 worker cooperatives, ranging from the country’s largest retailer, ‘Coop’, to agriculture and vineyards, manufacturing, and over 60% of the country’s home and health-care services (Adeler, 2009, pg. 5). The Emilia-Romagna region of Northern Italy has the highest concentration of worker cooperatives in the world, with roughly 60% of its population of 4.5 million people working with a cooperative, earning roughly 30% of the region’s GDP, and routinely rates among the highest-earning regions in the European Union (Duda, 2016). Italy, prior to the Marcora law, has had a strong historical basis in cooperatives, having successfully merged the country’s strong Catholic current with socialist theories during the 1800s, repressed during the Mussolini era while providing the basis for local anti-fascist resistances, and re-emerged in the postwar years as the country struggled to recover from its devastation (Rinehart, 2009, pg. 4). The case of worker cooperatives in Italy demonstrates a key aspect of their application: their ability to withstand economic turmoil with greater resiliency than traditional businesses. This is due to the shared economic participation of its members, which Pencavel et al. describe as their ability to reduce wages rather than jobs during times of economic hardship (2006, pg. 26). This is importantly different from traditional firms reducing wages, which typically only impacts lower-salaried workers while leaving executive earnings relatively unchanged, and occurs in response to market trends rather than economic crisis. Pencavel et al do note, however, that in their examination of the plywood industry, cooperative workers experienced more wage volatility and, on average, earned 14% less than traditional firms in the same industry (pg. 26). The fluctuation of wages at the examined cooperatives did not, however, take into account wages lost through job termination. This marks an important difference in attitude towards labour between cooperative and capitalist enterprises, in which capitalists prioritize economic growth whereas cooperatives prioritize economic stability. An example of this difference can be demonstrated by the 1998-2002 Argentine Great Depression. This crisis saw widespread unemployment, riots, government collapse, and a default on all foreign debt. The road to economic recovery of Argentina was

primarily the result of a sharp increase in worker cooperatives to regain services lost after capitalist businesses left the country. Many workers occupied emptied businesses and began running them as worker-owned cooperatives instead, resulting in over 200 worker-owned businesses by 2005, which has since doubled to 400 in 2020 (Voinea, 2020), despite occupied businesses being reclaimed by their former owners following the crisis. A popular documentary film by Naomi Klein and Avi Lewis, *The Take* (2004), follows the story of an automotive factory during this crisis, as its workers occupied and eventually, through an arduous legal battle, won the rights to their factory after its original owners unexpectedly returned. Capitalist firms inherently favour economic growth, and consequently are encouraged to make decisions which may negatively impact workers and the communities which they serve, which in the case of Argentina saw mass migration of jobs out of the country to mitigate losses, whereas worker cooperatives were effectively utilized to stabilize the country's internal economy by restoring lost jobs while financially disconnected from the global economy during the crisis.

With the focus on the transition towards cooperatives from unionization within the digital games industry, it is worthwhile to note how these two organizations relate to one another. Unions and worker cooperatives are not mutually exclusive organizations, with some worker cooperatives deciding to also unionize their workers, and in some cases even advocate for unionization within their broader industries (Canadian Worker Cooperative Federation, n.d.). While typically treated as separate, and in some conditions considered redundant through adherence to cooperative principles (Hoyer et al., 2011), unions and worker cooperatives largely pursue similar goals within the broader context of the labour movement. Where unions aim to directly address specific labour-related issues occurring within an industry, worker cooperatives provide an environment in which the same labour issues are typically addressed by its members (Stolarski, 2008). As a result, calls for unions to form worker cooperatives and worker cooperatives to form unions are steadily increasing within the broader labour movement and have resulted in the expansion of both within industries that see the two working together (Hoyer et al., 2011). This suggests the potential for popular unionization efforts, such as those presently unfolding within the digital games industry, to prompt further development of worker cooperatives, which in turn further bolster unionization efforts. This almost symbiotic relationship between the two provides further context for the proposed future of the digital games industry explored in the following chapters.

Chapter 3 - Methodology

In this chapter, I describe the methods that inform this research project, starting with the application of environmental scanning, and how this is useful to inform the Three Horizons method, which I utilize for envisioning the proposed future of worker cooperatives within the digital games industry.

Environmental scanning is a forecasting tool utilized to detect changes within a system that indicate the need for adjusting existing plans, also known as "weak signals" in futures and foresight groups (Gordon, Glenn, 2008, pg. 1). The objective of performing an environmental scan is to determine what elements within a given system are changing, the extent to which these changes occur, and the elements that do not appear to change at all, to gain as much time to respond to potential changes as necessary. The environmental scan does not necessarily represent a specific set of procedures, but rather a coordination of approaches towards the specific objective of identifying system changes. Glenn and Gordon suggest the use of expert panels, literature reviews, and trend forecasts websites as examples of sources to consider when conducting an environmental scan (pg. 4). Each of these sources are drawn upon throughout chapter 2 to identify the key issues that occur within the present environment. The historical review is partially drawn from the issues management process, which the authors suggest should follow the environmental scan to determine the impacts of current trends within the system (pg. 4). In this case, the historical review is placed prior to the environment scan to allow for a more comprehensive timeline of events within the industry, rather than after, which allows chapter 2 to reflect the use of the Three Horizons model, starting with the conditions that shaped the present (history of the industry), examining the trends that are presently occurring (environmental scan), and concluding with their ideal outcome (literature review on worker cooperatives). I follow this by presenting the Three Horizons method.

The Three Horizons method is a foresight tool for mapping specific concerns regarding current systems and envisioning a preferable possible future to consider the process of transformation which may resolve it. This futures-oriented approach allows for examination of complex systems and uncertain futures in a way that dynamically builds upon current trends towards a desired outcome (Sharpe et al., 2016, pg. 4). This is achieved through the use of horizons, which map specific patterns of activity within a system as occurring alongside one another while separated by time. Figure 1 depicts the Three Horizons Model, which consists of three lines plotted along two axes. The horizontal axis depicts the time in which the system examined exists, varying greatly depending upon the system being considered. The vertical axis depicts the level of "fit" – which is to say how well it responds to external conditions – each horizon experiences within its environment, with the first horizon beginning with the most fit and concluding with the least. This is to reflect the gradual change in external environment over time, which the present system becomes gradually less capable of responding towards without transformation (Hodgson, 2008, pg. 7).

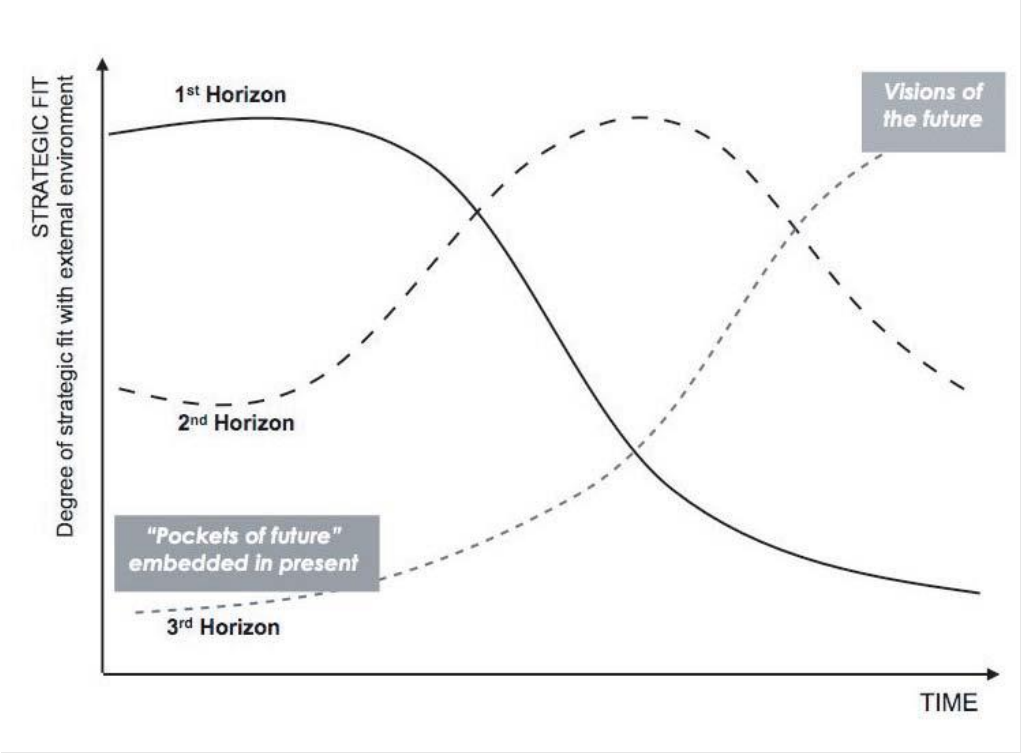

Fig 1, Schematic of the Three Horizons model (Curry & Hodgson, 2008)

The Three Horizons method begins with the identification of a desired future outcome. This 3rd Horizon is predicated upon the practitioner's ideas and arguments, which themselves can be the subject of scrutiny and necessitate justification for desirability. From there, the 1st Horizon involves identifying current trends within the system being analyzed. Most important for the 1st Horizon is the identification of weak signals, or "pockets of the future embedded in the present" (pg. 3). These weak signals are indicators that Horizons 1 & 3 exist along the same trajectory, representing an incremental growth rather than Horizon 3 occurring spontaneously. Horizon 2 is then introduced as a transitory space between Horizons 1 & 3, as well as a space of conflict between the two, in which movement towards either Horizons 1 or 3 are presented as potential resolutions. The purpose of utilizing the Three Horizons method is described by Hodgson as "[enabling] the futures analysis to be connected to underlying systems and structures, to different speeds of change in different parts of the system, and to tools and processes which facilitate strategic analysis" (pg. 2). It is also considered best utilized in scenarios that represent a disruptive, rather than incremental, transition, a point I return to in the analysis of my findings. The ability to visually demonstrate trends emerging, peaking, and declining at different times builds upon the historical and environmental scans conducted in chapter 2, as it allows for the investigation of trends both historical and current to indicate potential future directions.

In the following chapter, I apply the Three Horizon method to generate a model which outlines the trends indicating towards the possibility of adoption of the worker cooperative labour structure within the digital games industry.

Chapter 4 – Using the Three Horizons

In the previous chapter, I outlined the Three Horizons model as a foresight tool for envisioning desired possible futures and explained how it will be applied to envision the digital games industry's adoption of worker cooperatives. In this section, I present my findings from working with the Three Horizons model to identify current trends indicating the desired future and potential points of divergence. The constructed model (Fig 2) will be explained and analyzed over the following chapter.

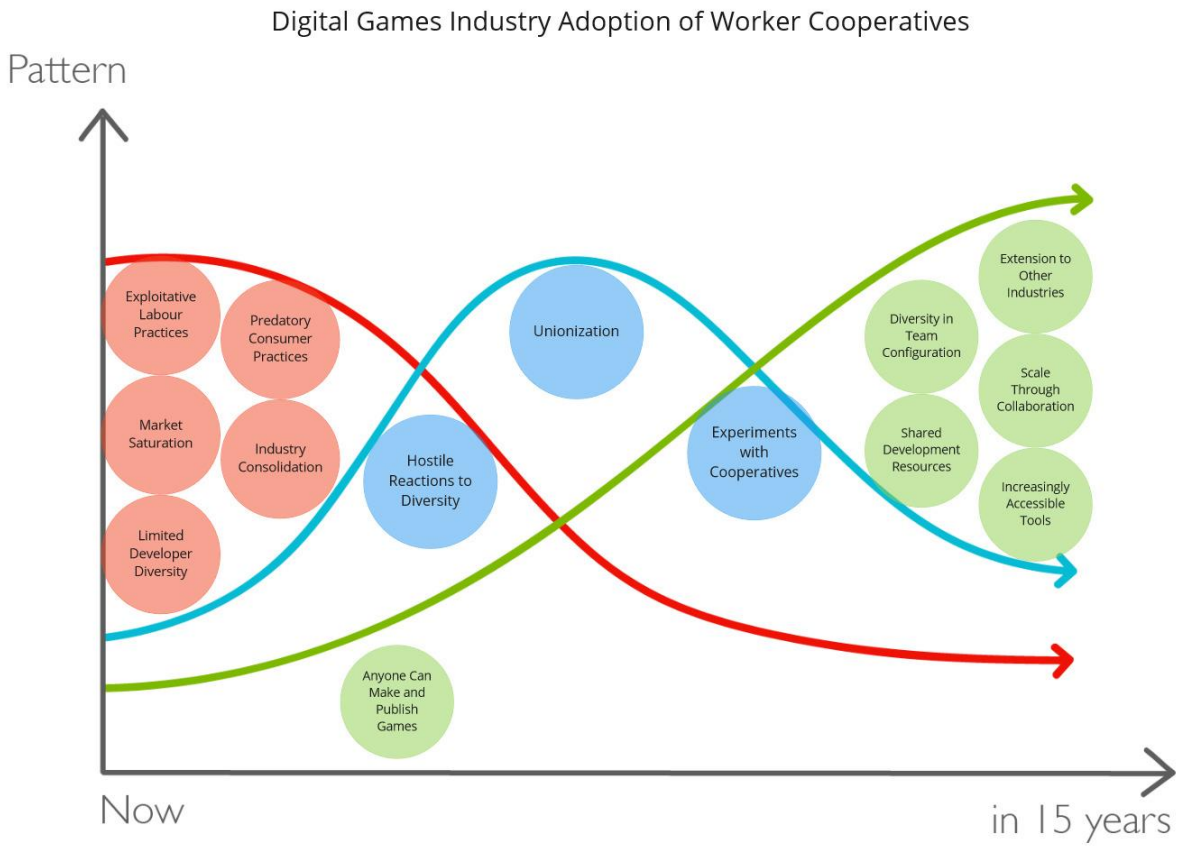

Figure 2, Three Horizons Model exploring game industry shift towards worker cooperatives.

First Horizon

The first horizon depicts the current state of affairs within the system being examined, in this case, the state of the digital games industry. Building upon the environmental scan conducted in the second chapter, I identified the key trends within the industry that demonstrate both the inclination towards and necessity of adoption of the worker cooperative business structure. The exploitative labour practices engaged by triple-A publishers presents what I considered to be the largest concern within the current system. Predatory consumer practices identified in chapter 2 such as in-game gambling systems in the form of lootboxes, asymmetrical product information, and lack of consumer guarantees was similarly identified as a concerning attribute of the current system. The rising development costs presents a potential concern as it indicates a lack of sustainability for both developers – who need to

continuously bring larger, more expensive products to compete in the market, and consumers, who consequently face higher costs for products. An argument can also be made that this presents the risk of further labour exploitation by offloading an increasing amount of game features to player modifications in an effort to reduce the overall development cost, notably reducing the paid hours for in-house labour, while benefitting from an influx of unpaid fan-labour. The increasingly expensive development cost is also responsible for the trend towards industry consolidation, as the largest industry players are able to acquire smaller studios with increasing ease. Lastly, the homogeneity of developers within these large publishers further propagates systemic discrimination within the industry, making it more challenging for members of marginalized groups to occupy roles as industry leaders, and consequently limits the range of unique experiences and perspectives that can be expressed through games as a medium.

Third Horizon

The third horizon contains the elements of a desired possible future in which the digital games industry transitions towards the use of worker cooperatives to facilitate game development practices. Such a transition would result in a far more decentralized configuration of the digital games industry, based upon the operating parameters of worker cooperatives as autonomous and democratically-run organizations, in adherence to the Rochdale Principles outlined in chapter 2. Based upon these principles, as well as the examination of current worker cooperative experiments within the indie games movement, I envisioned this configuration as consisting primarily of small, independent, and highly collaborative teams comprised of somewhere between 5-15 total members, with each member occupying a specific specialized role within the development process. The level of specification would likely vary between organization, with smaller teams recruiting for more generalized roles such as ‘programmer’ or ‘artist’, while larger teams requiring multiple of each general role further dividing into specializations such as ‘character artist’ or ‘network programmer.’ My inclusion of team-based collaboration within this ideal future, however, is more in reference to collaboration across teams rather than from within them. Two separate cooperative teams could form an agreement to collaborate on a specific project, adhering to cooperative principle 6 – Cooperation Between Cooperatives, over which all contributing members would have equal ownership, as per the second cooperative principle – Democratic Member Control. Such collaboration would allow for teams to develop larger and more ambitious projects than they otherwise could from relying solely upon their own membership, as individual teams could focus their efforts on specific aspects of the game project, to then be merged into a finished work greater than the sum of its parts. Larger collaborative projects that would otherwise be too unwieldy for just one team, such as Massively Multiplayer Online games (MMOs), could have several specialized teams each devoted to the development of their particular section of the project. With a configuration such as this, large triple-A-sized games would be the result of a highly coordinated and collaborative effort between multiple development teams executing a shared vision of the final product. An additional benefit of such collaborative efforts is the reduced necessity of marketing, as fans of one development team will be exposed to the works of their collaborators, which may prove beneficial for standing out. The highly collaborative nature of this practice would greatly expand access to game development tools and resources. Rather than every studio needing to construct their own code for basic gameplay features, cooperatives would be more inclined to share their resources with other cooperatives, applying principle 6 once more, and would ideally culminate in the creation of open-sourced tools, benefitting from the contributions of the cooperatives that choose to use it. An improvement in the availability of game development tools, as well as the lower barrier of entry to join or start a cooperative compared to gaining employment with a traditional game studio, would allow far

easier access to game development for those that are interested. Groups that are under-represented in game development circles that face discrimination within the current industry could chart their own paths through forming cooperatives, both providing new experiences to be had within the medium and inspiring others to do the same.

Two large-scale consequences of this ideal envisioned future include the extension of worker cooperatives into other industries and the overall decline of neoliberal capitalism's hegemonic global influence. Were an industry as highly publicized as the digital games industry to successfully transition towards a worker cooperative paradigm, in this scenario success being relative to its ability to continue generating sales, other industries would naturally take notice and attempt similar experiments. The vocational crossover between game development and other creative practices would similarly prompt demand for cooperative experiments, as artists or programmers who have come to benefit from the cooperative labour structure within this idealized digital games industry would likely advocate for its use in other industries which employ artists or programmers, such as film and television or tech industries. The cooperative inclination towards economic stability over economic growth suggests that any industry that adopts its structure will prove more resilient to hardship, provide greater job security to its workers and resort to fewer layoffs, be less inclined to outsource its labour, and act with concern for its community over fleeting financial gains for its membership. Its structure is in direct opposition to the governing ideals of neoliberalism that promotes pursuit of individual (privatized) profit above all else. While far beyond the scope of this research paper, the successful adoption of worker cooperatives across multiple industries would gradually result in large-scale social and cultural reforms to confront the conflicts between cooperative and capitalist guiding ethos; such reform itself would represent potential for divergent futures and could be subject to further research utilizing the Three Horizons method.

Second Horizon

Concluding the examination of the Three Horizons model with Horizon 2 aims to allow for identification of present responses to trends identified in Horizon 1. Given the key trends identified within Horizon 1, I considered the responses they have garnered, both positive and negative. The lawsuits regarding labour practices and efforts to unionize the digital games industry all indicate positive responses to the present trends of labour exploitation propagated by some of the largest game publishing companies. On the negative side, I included the reactionary, politically motivated, responses towards the projected increase in developer and consumer diversity within the digital games industry characterized in Horizon 3, indicating this as a result of conflict between current and historical industry trends and the espoused future. Both groups of responses indicate the potential for industry transformation and represent divergent futures dependent upon their resolutions.

Following the detailing of the Three Horizons model provided, I now aim to analyze the potential indicators towards the possible future adoption of worker cooperatives from considering its existing pockets within the first horizon.

Pocket of the Future Now

Upon completion of the Three Horizons model on the widespread adoption of worker cooperatives within the digital games industry, one point that became clear is the central role of indie games in relation to the future of the industry as a whole. The countercultural attitudes that influenced the first student hackers to repurpose once military-priviledged technology into a tool for rebellion has

maintained a largely consistent presence throughout the history of the medium. While the commercial aspects of the industry draw considerably more public attention, as well as generating far more revenue, the fringe elements serve a vital function in driving changes experienced by both sides of the game development practice. The indie game movement itself might represent a recent development within the industry's history, it carries on much of the spirit that allowed the medium to grow so popular in the first place, even withstanding the market ebbs and flows experienced by its commercial industry. Suffice to say, the indie movement itself is a trend which had existed as a pocket of the future from the beginning.

The identification of the indie games movement as part of a longstanding trend within the practice of game development establishes it as a key pocket of the future in the present, indicating possible futures for digital games as a medium. Were the conditions within the digital games industry to result in another major market crash, resembling that of the 1980s, while it remains clear that the commercialized aspects of the industry would seek to cut losses, the practice of game development itself would live on through the dedicated efforts of those who make games simply because they can. This desire to experiment – or play – with new possibilities is a seemingly inherent quality to the practice of game-making, and while commercialization may constrain its own experimentation to that which proves profitable, the experiments occuring independently are far less singular in focus. This, I argue, makes the explorative and disruptive space of indie game experimentation an excellent location for worker cooperatives to emerge and thrive. Additionally, the present unionization efforts occurring within the broader industry indicates the synergy identified with worker cooperatives identified in chapter 2. With the trajectory towards further unionization efforts within the commercial industry and further experimentation with worker cooperatives in the indie sphere, the overlap between goals may see cooperation between the two for mutual growth, seeing developers either unionize within large studios or leave to form cooperatives. The capacity of the two organizations to collaborate towards labour-driven goals, wide-scale transition towards labour-ownership in varying capacities through unions and cooperatives proves increasingly plausible given its initial successes. The establishment of unions and cooperatives within the industry therefore indicates towards the proposed assembly of a multitude of small, worker-owned development teams which collaborate with each other and larger union-based organizations to produce games on a similar scale as those created by present triple-A development teams. Under such a paradigm, a company such as Activision-Blizzard may continue to exist as a legal entity, but its governance and decision-making processes would be distributed across multiple studios joined through a company-wide union, as is currently the case with workers from Activision, Blizzard, King, and Raven Software within Activision-Blizzard (Carpenter, 2022).

The key distinction I present between cooperative and capitalist enterprises is the favouring of economic stability vs growth. Recalling from chapter 2, cooperatives prove to be more resilient organizations due to their shared economic and democratic ownership, encouraging decisions that benefit its own members rather than external shareholders, and its ability to uniformly lower wages rather than terminate positions during periods of low-revenue. These qualities offer significant benefit to indie game developers, who often work in already small teams and face inherent difficulty in securing and maintaining a consistent revenue source. Considering the development practices engaged by many indie game development teams, not only is there a clear synergy with worker cooperative principles, but many of these principles appear to have already been applied. Shared ownership between collaborators is a common practice in hobbyist productions, and identified in the GDC panel on indie games and

worker cooperatives, most teams appear remisced in identifying a particular member who ought to hold greater power over the rest. When seeking collaborators to develop a game, few would ever suggest unequal ownership between the project members, and equal distribution of any earnings is essentially an unspoken standard within non-commercial game development. The highly specialized skillsets associated with each role in the game development process makes each member of a development team effectively responsible for their own part of the overall project, which is supported by the worker cooperative principles of autonomy and independence. Even outside of one's own development team, collaboration between game developers is a staple throughout all aspects of the creative practice, both internal and external to the industry. Game programmers routinely ask for assistance with code from other game programmers on platforms such as StackExchange, an online Q&A board with over 100 000 registered users on its Game Dev-specific channel alone; artists ranging from a wide variety of vocations are known to utilize online platforms such as ArtStation, or the more game-specific Polycount, to receive in-depth feedback on their works to hone their craft. Game designers themselves have sprawling communities and forums where design decisions can receive feedback, as well as the entire academic field of ludology to better understand their own craft, none of which is trademarked or patented the same way that industry actors do to privatize their own discoveries. Cooperation between game developers stems from the exact same communal identity as the cooperation between cooperatives principle. These synergies that appear between the ideals of indie game development and the principles of worker cooperatives present a far better environmental fit than indie games and traditional capitalist structure. For these reasons, I conclude that the best indicator of widespread adoption of worker cooperatives in the digital games industry will be from the experiments currently undertaken by indie game developers.

At its core, this reconfiguration of labour towards the worker cooeprative presents wide-ranging impact on ownership, governance, and distribution of profits within the digital games industry. Its connection to the countercultural spirit of indie game development promotes creativity, experimentation, openness, and collaboration through distinction away from strictly for-profit development projects. If the current trends identified within both the triple-A and indie game spaces continue onward, not only does it prove viable that an industry-wide transition may occur, but increasingly likely that such transition will indicate towards worker cooperatives in the near-distant future.

Chapter 5 - Conclusion

Along this exploration of the digital games industry and the future possibilities for worker cooperatives within them, I have examined both the historical and contemporary trends that suggest the potential for restructuring within the industry to address the issues that are present today. Having considered the early shift in the evolution of videogames as medium from a countercultural force of rebellion to a neoliberal commodity whose mass consumerism has resulted in periodic industry boom and bust, I identified the persistence of its countercultural elements throughout the lifespan of the medium as a culminating in the current indie games movement. Following an environmental scan of the present industry conditions, I identified several concerning trends related to labour exploitation and predatory monetization practices stemming from the commercialized aspects of the digital games industry, contrasted with the experimentation to resolve these issues occurring within the indie games movement, the most promising of which identified as the early adoption of worker cooperatives. To develop a more comprehensive understanding of how worker cooperatives function, as well as the benefits they provide, I conducted a literature review that began with its origins in British socialism that proceeded to inform its international movement through the establishment of key principles that are followed by all cooperative organizations. After examining these key principles, I proceeded to explore instances of cooperatives outside of the limited sample available within indie games, looking to their application in Italy and Argentina, two countries that have utilized worker cooperatives to support their economies during times of hardship. To envision how a possible future of worker cooperative adoption throughout the digital games industry might come to be, I apply the Three Horizons foresight method to identify potential pockets of the future embedded within the present. Upon conclusion of my own Three Horizons model, I quickly identified that the indie games movement represents a similar “pocket of the future” of the industry’s present from its onset, and would therefore be a likely driver of the industry’s future. I analyze the synergies present between indie game development and the worker cooperative labour structure, and come to the conclusion that these experiments currently unfolding represent such possibility for worker cooperatives becoming more dominant in the future of the industry.

The potential for further research on the subject is vast given the experimental nature of the inquiries currently underway, as well as the limited available data on how worker cooperatives are performing compared to traditional counterparts. A more practical application of this research might involve a longitudinal study to examine the trials experienced by startups following the two different organization types, especially to determine whether the stability worker cooperatives are known for provides any considerable benefits to newcomers within a market that is considered to be constantly growing. Additionally, the potential for a greater diversity of digital games being produced within cooperative environments may open doors for further research on the possibilities within games themselves, experiencing a reduced constraint from capital and profit-seeking. Lastly, I would use this research to advocate towards game developers, especially newcomers and aspirants, that alternative structures for organizing their teams not only exist but may even prove to be preferable for creating the games that they envision.

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Appendix A

Cooperatives Principles - ICA

1. Voluntary and Open Membership

Co-operatives are voluntary organizations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination.

2. Democratic Member Control

Co-operatives are democratic organizations controlled by their members, who actively participate in setting their policies and making decisions. Men and women serving as elected representatives are accountable to the membership. In primary co-operatives members have equal voting rights (one member, one vote) and co-operatives at other levels are also organized in a democratic manner.

3. Member Economic Participation

Members contribute equitably to, and democratically control, the capital of their co-operative. At least part of that capital is usually the common property of the co-operative. Members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing their co-operative, possibly by setting up reserves, part of which at least would be indivisible; benefiting members in proportion to their transactions with the co-operative; and supporting other activities approved by the membership.

4. Autonomy and Independence

Co-operatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their co-operative autonomy.

5. Education, Training and Information

Co-operatives provide education and training for their members, elected representatives, managers, and employees so they can contribute effectively to the development of their co-operatives. They inform the general public - particularly young people and opinion leaders - about the nature and benefits of co-operation.

6. Co-Operation Among Co-Operatives

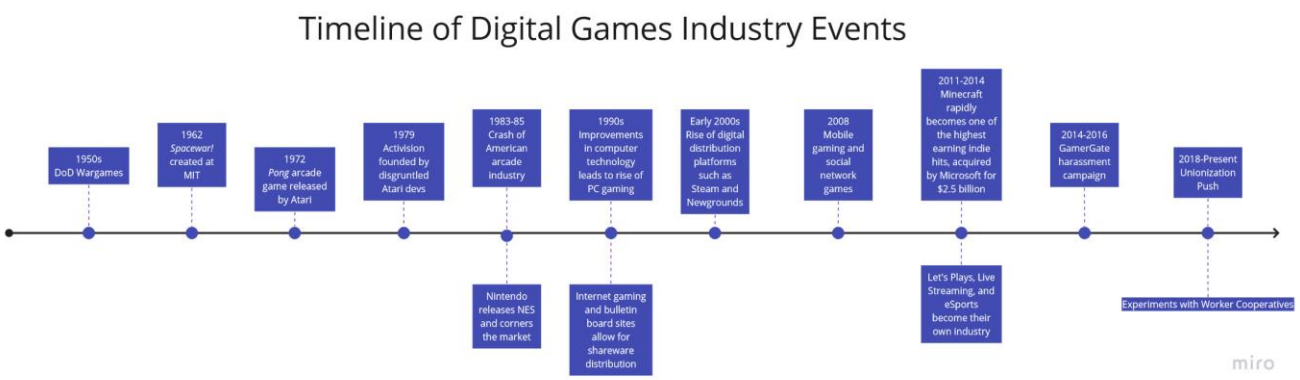
Co-operatives serve their members most effectively and strengthen the co-operative movement by working together through local, national, regional and international structures.

7. Concern for Community

Co-operatives work for the sustainable development of their communities through policies approved by their members.

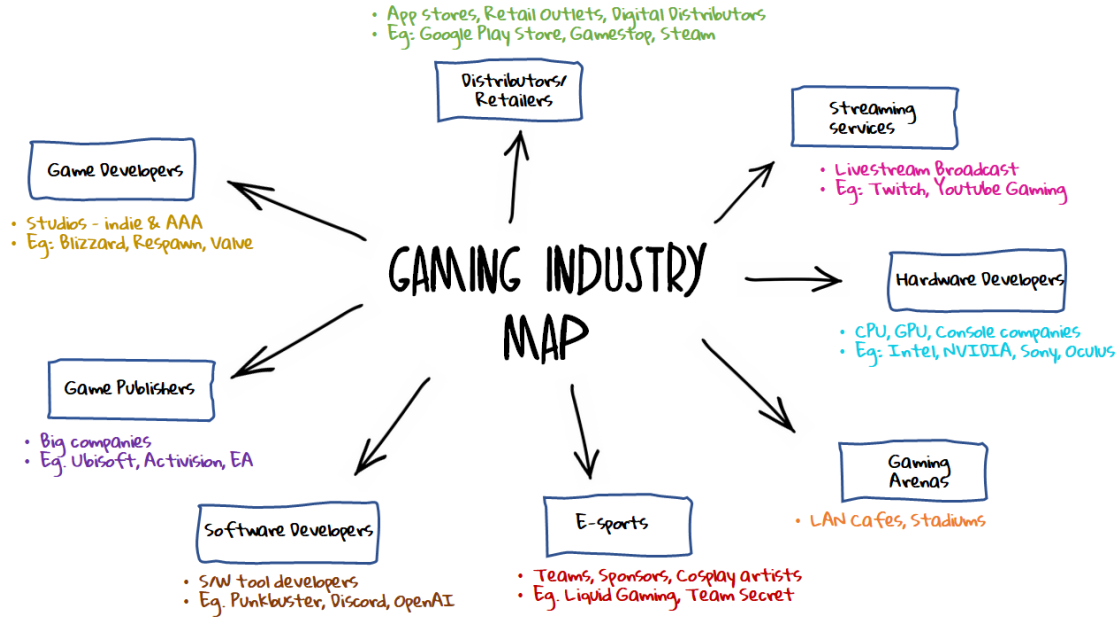
Appendix B

Visual Timeline of Key Events in the Digital Games Industry



Appendix C

Map of the Digital Games Industry



Map of the Gaming Industry (Priyanshu, 2019)