

**Submission to Senate Environment and Communications Committee
Inquiry into the future of Australia's video game development industry**

Submission from

Digital Media Research Centre, Queensland University of Technology

Submitted by

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About the Digital Media Research Centre

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Introduction

This submission is informed by research undertaken by Associate Professor John Banks and Distinguished Professor Stuart Cunningham for the Australian Research Council Linkage project LP100200056, 'The Games and the Wider Interactive Entertainment Industry in Australia: An Inquiry into Sources of Innovation'. The research focused on how Australian videogames developers have grappled with the profound restructuring of the videogames industry since the Global Financial Crisis and the industry's major move to mobile platforms. This research has focused on how many Australian videogames developers have responded to these challenges and explored the factors that constrain the continued growth of a sustainable Australian videogames development industry. This research involved undertaking fieldwork semi-structured interviews with Australian developers (interviews with 22 developers from 17 development studios in Brisbane, Melbourne and Sydney were conducted from mid 2014 to early 2015).

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The profound restructuring of the videogames industry

A recent ‘perfect storm’ of factors has combined to change the face of the Australian games industry. The global financial crisis saw higher end production scaled back and a withdrawal by the major publishers from spatially distended supply chains and their preferencing of formally affiliated production companies. At the beginning of 2007, the Australian dollar was 75 cents in the US dollar. During the GFC, the Australian dollar became a ‘currency haven’ such that by the start of 2012 it was worth US\$1.02, gutting the industry of its pricing advantages. Of even greater structural consequence for the industry was the simultaneous explosion of apps-based mobile casual games play based on the smartphone platform and then also the tablet.

Official statistics tell a stark story of destruction of value. Of the 1431 reported employees in 2007, by mid-2012 only 581 remained, and reported game development income had dropped from \$116.9 million to just \$44.4 million (ABS, 2013). Between 2003-2007, the employment base had doubled from around 700 to the reported figure of over 1400 – so the decline was that much more abrupt and painful. The industry’s revenue streams were massively exposed to overseas work for hire. It accounted for about 80% of the industry’s total income. The industry’s regional pattern in 2007 evidenced a significant presence in Queensland (695 employees) and Victoria (472), with additional studios in New South Wales (103), the Australian Capital Territory and South Australia (161 combined).

By 2012, the majority of the bigger studios had closed, and the industry had retreated to be concentrated in Victoria. Those whose doors closed or radically downsized included Krome, Pandemic, THQ StudioOz, BlueTongue, Team Bondi, SEGA Creative Assembly, and Tantalus Media Brisbane. The major studios remaining were Halfbrick (Brisbane), 2K Australia (Canberra) and in Melbourne, Big Ant, Torus Games, Tantalus and Wicked Witch. Many of these were significantly diminished from pre-GFC days. International publisher and

developer THQ closed its Australian studios and publishing arm in 2011 (Souri, 2011). A year later they filed for Chapter 11 bankruptcy in the US and by January 2013 their associated licenses and intellectual properties had been sold or auctioned off.

According to the Games Developers Association of Australia (GDAA), the main advocacy and professional association for the industry, somewhere between 60-70% of industry workers had either moved to another industry (many skills, pre-eminently programming skills, are very transferable) or had left Australia for more resilient industry locations and/or those better supported by government policy and programs (Reed, 2014a). In April 2015 Canberra based 2K Australia, one of the remaining larger AAA-style traditional studios operating out of Australia, also shut down. Press reports attributed this decision to the costs of operating out of Australia (Serrels, 2015).

In 2014, the GDAA characterised the industry as composed of 200 formally registered businesses, of which 92% are considered to be independents (Reed, 2014a). It defines 'independent' as a typically small scale enterprise which concentrates exclusively on original IP and self-publishes on the new digital platforms (Apple AppStore, Android, Steam). The GDAA believes the official figures underestimate the extent of active involvement in the industry, suggesting that there are many 'indies' which fall below the official statistician's radar. It documents about 800 now working in the industry (Banks & Cunningham, forthcoming). But it does not dispute that the industry has experienced massive revenue loss. This is the recent history of an industry much reduced in terms of turnover and traditional employment, but one which has transformed its revenue base from 80% work for hire to 75% original IP – an almost complete reversal in the balance between business models (Reed, 2014b).

Many of the developers we interviewed raised the distinct challenges that they confront as Australian-based developers seeking to compete in a rapidly changing global market. They invariably commented on their distance from key industry scenes (especially the USA) and the uneven and uncertain policy support they receive, especially at the Federal government level. Many that we spoke with, including leading developers such as Morgan Jaffit (Defiant Development Brisbane) and Trent Kusters (League of Geeks, Melbourne) spoke of the benefits they enjoyed from the government support they had received. Indeed they commented that successful recent games releases such as Defiant's *Hand of Fate* and League of Geek's *Armello* would not have been possible without this support at key junctures. But they also spoke directly to the challenge of converting these opportunities into sustainable and viable long term enterprises that would provide good jobs and opportunities for Australia's emerging game developer talent.

Addressing the Committee's Terms of Reference

This submission focuses on factors that are constraining Australian videogames developers efforts to build from the pool of developer talent and expertise and convert it into a future sustainable and viable Australian videogames development industry. This perspective on the Australian industry addresses several of the Committee's Terms of Reference (TOR). The two attached research papers that draw from the linkage project research speak in more detail to these challenges and opportunities of supporting and fostering a viable and sustainable Australian videogames development industry.

- a) How Australia can best set regulatory and taxation frameworks that will allow the local video game development industry to grow and fully**

meet its potential as a substantial employer.

Many of the Australian developers we interviewed commented on the favorable regulatory and taxation frameworks enjoyed by developers in other countries. They proposed that lack of similar frameworks and schemes in Australia meant that they faced further competitive constraints in an already turbulent and rapidly changing markets. So here we recommend that Australia play close attention to how such frameworks have fostered more mature and sustainable industries in, for example, Canada. Canadian-based developers benefit from a range of programs offering tax credits, employment incentives and grants on a Province (State) basis. Credits range from 17.5% tax credits on labour in British Columbia to 40% tax credits on eligible labour with a variety of caps based upon projects, or time-based (e.g. per annum). (<http://www.pwc.com/ca/en/entertainment-media/film-video-tax-incentives-canada.jhtml>)

In addition there are grants and loans available. (<http://venturebeat.com/2015/02/23/why-you-should-start-your-video-game-company-in-canada/>) with the CMF (Canada Media Fund) providing repayable contributions for specific funds, and for development, production, and marketing. Another initiative, The Ontario Media Development Corporation (OMDC), pays up to \$150,000 (max 50% of project) in grant funding for specific projects. OMDC also has a trade development program they finance by partnering with existing trade and event organisations.

In the *United Kingdom* the Video Games Tax Relief scheme was added to the Creative Industry Tax Relief from 1 April 2014. This provides significant tax relief based on expenditure (between 80% & 100%), and in the event of a loss, developers can obtain tax credits (up to 25%). This is effectively equivalent to between 20% and 25% cash rebate. (<http://www.bfi.org.uk/film-industry/british-certification-tax-relief/cultural-test-video-games>)

Other countries including *Singapore* offer generous support programs providing various R&D grants, tax incentives and production assistance grants.

(<http://www.mda.gov.sg/IndustryDevelopment/IndustrySectors/Pages/Games.aspx>;

<http://www.mda.gov.sg/IndustryDevelopment/GrantAndSchemes/Pages/overview.aspx>)

In the *USA* 20 states have some form of tax incentive for supporting videogame production.

Arkansas, for example, provides a 20% rebate of production costs, and covers 10% of payroll paid to local employees. Rebate ranges from 20%-30% across the 20 states and have conditions that include local business registration, local employment, and minimum wages.

<http://fortune.com/2015/02/24/10-successful-states-video-game-development/>

[http://fkks.com/pdfs/TaxIncentivesforVideoGameProduction.pdf?utm_source=8.14.2014%20Interactive%20Entertainment%20Alert%20\(Mobile%20Customized\)&utm_campaign=8.18.2014%20Interactive%20Entertainment%20Alert&utm_medium=utm_source=Mondaq&utm_medium=syndication&utm_campaign=inter-article-link](http://fkks.com/pdfs/TaxIncentivesforVideoGameProduction.pdf?utm_source=8.14.2014%20Interactive%20Entertainment%20Alert%20(Mobile%20Customized)&utm_campaign=8.18.2014%20Interactive%20Entertainment%20Alert&utm_medium=utm_source=Mondaq&utm_medium=syndication&utm_campaign=inter-article-link)

b) How Australia can attract video game companies to set up development operations in Australia and employ local staff.

As indicated in the attached research, many international developer studios have closed their Australian-based operations over the past few years. These have included significant operations such as THQ and most recently 2K. We have previously raised the various taxation and production assistance schemes that have attracted developers to establish and maintain studios in countries such as Canada. Similar schemes are urgently needed here in Australia. However, we suggest that it is just as important to consider how local Australian home-grown companies can also be supported to grow sustainable and viable studios.

Developers such as Wicked Witch in Melbourne, Defiant and Halfbrick in Brisbane,

indicated in our research their motivation to develop sustainable businesses to employ Australian developers. We would recommend a strong focus on policy interventions to build Australian businesses rather than primarily concentrating on incentives that will attract foreign investment, particularly when we historically see how quickly foreign-based developers divest when market conditions shift.

Taxation frameworks and other production assistance initiatives need to be developed that both attract overseas businesses to establish operations, and that encourage local developers and businesses to establish and expand their videogames development operations.

The key point is about talent, its retention and its benefits for Australia. While 'born global', trade-exposed sectors such as games will inevitably be affected by the Australian dollar's exchange rate, the fundamental reason why overseas games companies may establish operations in Australia has to do with the strength of the talent pool. Keeping the talent pool strong, and refreshing it from world-class education and training programs, is the most effective, long-term, way government can contribute. Government should pay close attention to industry voices and their recommendations for optimal education and training programs. Government can help to attract and retain talent by adopting stronger, more competitive incentives as outlined in (a) above.

One key point about games production talent is that it is very transferable for the benefit of other sectors. This is clear from our research that shows clear trend differences in the games cultures of Melbourne, Sydney and Brisbane. In Sydney, much games talent is an input into digital content and applications growing domestic industries which have more stable demand profiles than the highly volatile and massively oversupplied games consumption profile. Governments' industry and cultural policies which recognise this will do their utmost to attract and retain talent which is globally experienced, technologically advanced, and

consumer oriented.

c) How export opportunities from Australia's local video game industry can be maximized.

Australia's isolation from key locations in the global videogames industry is often cited by developers as being one of the limiting factors in building relationships, and working closely with the media to promote their products to the rest of the world.

Overseas publishers and platform owners, such as Sony, visit Australia infrequently.

Conferences such as the locally held GCAP provide an opportunity which brings many Australian developers together from around the country to not only learn from others, but also show off their latest IP. Last year Sony used this opportunity to sign deals with a number of developers to produce games for the Playstation platform, the first time in a number of years that they have visited.

The largest videogames industry conferences and trade expos take place offshore, the biggest being the Electronic Entertainment Expo (E3) held annually in Los Angeles. There is also PAX Prime, etc. Many countries have a strong presence at these events to promote their local videogames developers. For example, Poland in their 2013 'Do IT with Poland' international campaign, had a stall at E3 aimed at acquainting the world with the intellectual and investment potential of the Polish IT industries

(http://losangeles.msz.gov.pl/en/news/do_it_with_poland___polish_stand_at_the_e3_fair_in_los_angeles).

Australia has been singled out as not having a government trade presence at shows like E3, increasing the costs and difficulties for Australian developers to profile their products and services.

Australian developers estimate the cost of cultivating contacts and key networks as ten times that of those based in North America. The Victorian government recognizes this as an impost on developers and as such provides a trade grant of \$2,500 once per year (<http://www.business.vic.gov.au/support-for-your-business/grants-and-assistance/international-technology>) that developers can access to part fund travel to overseas conferences.

Other states have much more restrictive schemes with difficult eligibility criteria for those involved in game development/ICT and the federal government also has limited grants (e.g. FedGov <http://www.austrade.gov.au/Australian/Export/Export-Grants/What-is-EMDG/Who-can-apply/Who-can-apply-for-EMDG>).

We also recommend that games-literate business development agents be added to overseas Australian trade and investment offices, for example AusFilm, and possibly Austrade, and that the Department of Industry ensures that at least some of its business development officers are games-and creative industry-literate.

d) any other related matters.

The central submission we would make is that Australian policy making and support for local videogames development has been intermittent, half-hearted and often poorly targeted. For example, the most important recent initiative (\$20 million Australian Interactive Games Fund announced in November 2012 by the then ALP government Arts Minister, Simon Crean, designed to support and develop the Australian games industry through a period of heavy transition) was cut by the incoming Liberal government.

Concrete policy and program commitments at the state level especially in Victoria through the Film Victoria Games Development Fund have supported local developers and seen the survival of a thriving indie scene concentrated in Melbourne.

A recent initiative of the GDAA (Games Developer's Association Australia) is The Arcade, which also received limited funding from the Victorian State Government. The Arcade is a shared working space in Melbourne CBD that supports small developers and enterprises in the industry by providing rented space. Distinct from collaborative spaces, or incubators, The Arcade fosters a sharing of knowledge and resources by creating employment, enhancing talent, and creating an environment of sustainability and viability. Federal policy should support such innovative ventures and hubs that pull small businesses and their support enterprises together across the country.

Policy initiatives in other countries (especially Canada) which offer much more intense and targeted support for videogames developers have produced significant practical traction as well as strategic forward thinking to support more sustainable and viable clusters of videogames development than we have seen here in Australia. Many of these initiatives should also be considered for Australia, which would require adapting them for Australian conditions.

Attachment 1

Creative Destruction in the Australian Videogames Industry

John Banks and Stuart Cunningham

Abstract

The Australian games industry is a textbook case in creative destruction. Australian developers have adaptively engaged with the rapidly transforming and uncertain conditions of the global videogames industry. Some developers celebrate the creative freedom they experienced with a shift towards original IP games for mobile platforms while others caution about the design and craft compromises associated with the in-app monetisation mechanics. The turmoil and rapidly transforming Australian videogames industry over the past few years is certainly characterised by precarious labour. But it also includes experimentation in studio culture and associated changes in professional developer identity so as to continue the craft of making videogames in the midst of this uncertainty. This diversity is also characterised by differences among the production cultures of Brisbane, Melbourne and Sydney that are an indicator of the cultural roots that sustain developer identity and business models.

Bios

John Banks is Associate Professor of Media and Communications in the Creative Industries Faculty, Queensland University of Technology. His recent book is *Co-creating Videogames* (Bloomsbury Academic, 2013).

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The games industry is usually considered an ideal-type of the structures of global production in ‘an era of spatially-dispersed and casualised labour under a global regime of huge media conglomerates’ (Miller, forthcoming). It is characterised by astounding growth – overtaking music and film in global sector size some years ago – and dramatically more rapid innovation cycles (for example platform and device innovations and modes of player engagement) than the more stately history of the technology of and consumption interface with film, TV, and publishing. Larissa Hjorth itemises seven generations in the history of games since their birth in the early 1970s and that only takes the history to the battles between Sony PSP and Nintendo DS handhelds, and the Wii, Xbox360, and PS3 for game console dominance. A whole new generation of games as mobile apps has meant another massive change, making the industry in critical ways unrecognizable from what it looked like 5-7 years ago.

Videogames play a significant role as both a sub-sector of the Australian media industries and as part of Australian popular culture. According to NPD Group Australia, revenue generated by retailers from console hardware, games software and gaming peripherals was \$1.161 billion in 2012 (Moses, 2013). Over the past few years the Interactive Entertainment Association of Australia commissioned reports on the Australian videogames market, the most recent, Digital Australia 2014 (Brand et al, 2014) establishes that 93% of homes have a device for playing games and that 65% of Australians play videogames with an average age of 32 years for these games players. So we know that the playing of videogames is part of Australian mainstream culture. But Australian’s do not just buy and play videogames; we also make them. We have a videogames development industry.

The videogames development industry has been active in Australia for just over three decades; Melbourne’s Beam software, founded in 1980, was Australia’s first videogames-development studio. As Thomas Apperley and Daniel Golding (2015) note, Beam’s *The*

Hobbit, released in 1982 for the ZX Spectrum, went on to sell over a million copies and provided the foundation for the growing local industry, which was largely based on a work-for-hire model, producing games for the major international publishers, especially USA based such as Electronic Arts and Activision. Through the 1990s and early 2000s, in particular, Australian videogames developers produced very little original intellectual property. Much of Australia's videogames-development history comprises local and international collaboration, especially with US-based publishers, accompanied by a strong indie culture.

A recent 'perfect storm' of factors have combined to change the face of the Australian games industry. The industry had commenced with significant creative experimentation, but scaled on the model of work for hire producing 'catalogue fillers' for the major publishers. While very few AAA titles were made in Australia (Team Bondi's *L.A.Noire* 2011, 2K Australia's *Bioshock* series, 2007-2013, are the exceptions), games companies had a reputation for good quality. However, the business proposition was buttressed by a more than a decade of favourable exchange rates which (literally) underwrote international investment (as it also strongly influences film and television runaway production). Work for hire/licensed IP became the shape of the Australian industry with very little original IP being produced. Publishers not only owned the finished product, but also the source code (and on occasion the games engine itself). The industry by 2007 was structured around approximately 45 mid-size small businesses (ABS 2008). Notable companies included Krome, Pandemic, THQ StudioOz, Creative Assembly, Torus and 2K.

The global financial crisis saw higher end production scaled back and a withdrawal by the major publishers from spatially distended supply chains and their preferencing of formally affiliated production companies. At the beginning of 2007, the Australian dollar was 75 cents in the US dollar. During the GFC, the Australian dollar became a 'currency haven' such that

by the start of 2012 it was worth US\$1.02, gutting the industry of its pricing advantages. Of even greater structural consequence for the industry was the simultaneous explosion of app-based mobile casual games play based on the smartphone platform and then also the tablet.

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By 2012, the majority of the bigger studios had closed, and the industry had retreated to be concentrated in Victoria (we discuss localisation dynamics later). Those whose doors closed or radically downsized included Krome, Pandemic, THQ StudioOz, BlueTongue, Team Bondi, SEGA Creative Assembly, and Tantalus Media Brisbane. The major studios remaining were Halfbrick (Brisbane), 2K Australia (Canberra) and in Melbourne, Big Ant, Torus Games, Tantalus and Wicked Witch. Many of these were significantly diminished from pre-GFC days. International publisher and developer THQ closed its Australian studios and publishing arm in 2011 (Souri, 2011). A year later they filed for Chapter 11 bankruptcy in the US and by January 2013 their associated licenses and intellectual properties had been sold or auctioned off.

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In 2014, the GDAA characterised the industry as composed of 200 formally registered businesses, of which 92% are considered to be independents (Reed, 2014a). It defines 'independent' as a typically small scale enterprise which concentrates exclusively on original IP and self-publishes on the new digital platforms (Apple AppStore, Android, Steam). The GDAA believes the official figures underestimate the extent of active involvement in the industry, suggesting that there are many 'indies' which fall below the official statistician's radar. It documents about 800 now working in the industry (Banks & Cunningham, forthcoming). But it does not dispute that the industry has experienced massive revenue loss. This is the recent history of an industry much reduced in terms of turnover and traditional employment, but one which has transformed its revenue base from 80% work for hire to 75% original IP – an almost complete reversal in the balance between business models (Reed, 2014b).

What has happened in the Australian games industry is a textbook case of 'creative destruction' (Lane, 2014): major platform shifts, new business models, and runaway innovation started before but were massively accelerated by the Global Financial Crisis, and continue through this contemporary period of slowdown in the world economy. There has been major consolidation at the console production end of the games industry involving a hollowing out of the mid-range games market, and a rapid growth and proliferation of casual

gaming and mobile applications with unprecedentedly lower production costs and barriers to entry.

But how ‘creative’ has been this destruction? A rigorous critical organizational studies analysis of the Australian industry advances the argument that severe power differentials between publisher and producer/developer have persisted across this momentous industry restructure and continue to compromise local agency in global supply chains (Parker et. al 2014) An equally rigorous media studies argument anatomizing poor labour conditions in the industry globally is nevertheless clear that ‘the most plentiful and well-paying jobs in the video game industry continue to be those provided by major video game publishers either directly or indirectly’. (Vanderhoef and Curtin, forthcoming). Neither view offers much comfort for the idea that this destruction could be in any way creative.

These perspectives, however, contrast with the self-understanding of many of those games workers who have survived the shakeout, or who are sufficiently new to the industry to know no other conditions. (Semi-structured interviews with 22 developers from 17 development studios, and with Tony Reed president of the Australian Games Developers Association (GDAA), were conducted from mid-2014 to early 2015. This research was supported by ARC Linkage Project LP100200056.) Culturally and industrially, original IP – and the conditions under which it can be prioritised – tends to be championed against fee-for-service and as a normative aspiration. Industrially, a dominant narrative in the industry has been the desire to move from fee-for-service (the company is a price taker and doesn’t control its own destiny) to original IP. Culturally, this aspiration also speaks to many developers’ creative impulse and is actually enshrined in the advocacy and representative body, the GDAA’s definition of ‘indie’. It is reinforced by criteria built into state policy and program funding support.

Given the degree to which higher end fee-for-service business has dried up, while essentially self-publication on the major digital distribution platforms (Apple's Appstore, the Google Play Store, Steam, etc.) has grown exponentially, necessity has become a virtue. Conditions have crafted an industry which is much reduced in terms of turnover and traditional employment, but now operates within a distinctly disintermediated value chain which radically forces the pace of innovation. Despite much commentary which treats Apple, for example, as basically yet another global corporation 'taking their (un) fair share of financial profits,' (Hjorth, 2014: 281), near-to-global dissemination via the digital platforms on a 30 (Apple)/70 (creator) split of income derived represents an in-principle better deal than the power asymmetries enshrined in dealing with the major publishers.

Australian companies, in particular Halfbrick with their huge success with *Fruit Ninja* (2010), made hay while the sun shone in the early days of apps-driven games and became a sort of template for national ruminations on how to succeed in the new environment (Banks and Cunningham, 2014). It is distinctly harder now to capture attention – massively lower barriers to entry create conditions in which it is estimated that more than 1.3 million apps are now available on the Appstore with duplication across the platforms, of which around 20% are games (Statista, 2014a; 2014b).

Nevertheless, there are still Australian breakout stories. For example, *Crossy Road* (www.crossyroad.com), a mobile videogame released for iOS in November 2014 made by three Victorian based developers (Andy Sum, Matt Hall and Ben Weatherall of indie studio Hipster Whale) generated \$10,000,000 in the 90 days following release. The game combines a *Frogger* and *Flappy Bird* inspired design with an innovative free-to-play model that includes in-app advertising and in-app purchases. But before assuming that Hipster Whale may now provide a model for games development here in Australia it is worth noting Hall's

comment in his GDC 2015 presentation that there were ‘a lot of years where I earned absolutely nothing’ (Tach, 2015). As Dave Tach, the author of a Polygon.com article that covered Hall’s GDC presentation, ‘*Crossy Road* is the rare story of success at the intersection of art, commerce, design and marketing’ (Tach, 2015).

Mobile games production is markedly less driven by the crunch associated with games development under the dominant business model of fee for service work in which development schedules were driven by milestones at the behest of large international publishers. Developers in Australia pursuing original IP titles for mobile devices are no longer at the mercy of middle managers in Seattle, Los Angeles or Tokyo. This has led, GDAA President Antony Reed suggests, to a situation where the industry has seen much less attrition in last few years. Furthermore, there is arguably a great deal more innovation activity in original IP. Indeed, there is runaway innovation, with the rapid shift from games-as-a-product to games-as-a-service, driving the mobile apps purchase price points to zero accompanied by the proliferation of in-app purchasing. And these rapid shifts have in turn been challenged by a return by some to premium mobile app pricing as well as premium pricing for games released through Steam. A good example here is Melbourne based League of Geeks in development game *Armello* (League of Geeks, 2014; Dean, 2014), which will be released with a premium price point.

Elevating original IP to a level of high principle may reflect a more unchained, assertive developer culture. But is also as much a case of turning necessity into a virtue, and is no guaranteed panacea. General conditions of precarity have indeed persisted across the industry’s transformation, but the workplace cultures of the new and surviving companies have changed markedly. We examine this proliferation of business models and consider how

they can be seen as a ‘tale of three cities’ – that is, as emanating from differently nuanced developer and industry cultures across the three main sites of the industry.

Business models, culture, locale: A tale of three cities

The creative destruction unleashed on the industry has generated a proliferation of business models and sharpening and deepening of localised differences in the main production centres that have deep cultural, institutional and policy roots.

Based upon our interviews and other discussions with developers, the Australian developers approach funding and then releasing their games through five broadly distinct models: subscription; premium payment; free-to-play with in-game monetisation; advertising supported; and, pay-to-play. The subscription model is consistent with the games-as-service approach, whereby each set period, usually monthly, the player pays to stay engaged with the game. This is typical of games such as *World of Warcraft*, which continues to have a significant player base ten years after launch. The premium model is very much the traditional model for the games industry and is consistent with the games-as-product approach. The consumer pays for a complete experience with a one-off payment as typified in AAA titles, such as *Call of Duty*, or *Minecraft*.

Free-to-play can be adopted in a variety of forms, placing this category in both games-as-product, where you pay to unlock additional content but expenditure is capped, for example *Puzzle Retreat*, or in a games-as-service form where no cap on monetary expense exists (for example, *Clash of Clans*, or Kixeye’s *VEGA Conflict*). The advertising supported revenue model leverages advertising as the primary source of income by inserting advertising at regular, or semi-regular intervals; it is most typical of browser-based flash games. The in-app advertising model has been implemented successfully in *Crossy Road*. The final model is the pay-to-play monetisation model. Typified by the original arcade machines, each play of the

game requires an input of credit for the player to progress. The developers that we discuss in this article have tended to focus on emerging opportunities of free-to-play and premium payment approaches, especially in the context of the shift towards games as service.

The funding for games development also tends to take five distinct forms based on the sources of funding. Developers may use one or more of these methods dependent upon the available options, and the scale of the project. Briefly, these sources include: government funding, in the form of loans or grants with funds available not just for development costs, but also for travel costs, or to engage marketing expertise; crowdfunding, through platforms such as Kickstarter; the traditional publisher model, where the developer is engaged to produce content at a set fee and with set milestones for delivery, essentially work-for-hire; and, variations on the work-for-hire approach which may involve undertaking projects such as game installations, serious games, or non-gaming apps; and securing donations, where donations are received against the development costs.

Business model experimentation is embedded in developer identity and production culture. Interviewing 22 developers from 17 studios and as well as GDAA President Antony Reed, we probed for the human and cultural dynamics required to survive the perfect storm we have described. In researching videogames developers and studio cultures it is important to keep in mind that there is not a singular, homogeneous game developer identity. For example, programmers, designers, producers, artists and CEOs inflect their accounts of what's important and significant to the craft of making games in quite different ways. However, what came through clearly in their various accounts was a sense of pride in the fact that they were *still* making games; they and their fellow developers had found a way to survive the changes sweeping through the Australian industry over the past few years.

Much like the Halfbrick developers mentioned before (see also Banks and Cunningham 2014), many also emphasised that they were now doing this more on their terms and that the shift from fee for service to original IP meant they enjoyed greater creative control and autonomy. In describing this sense of creative control none of the developers were especially panglossian or naïve about the challenges and precarity confronting Australian based developers. Many told us about the pain of downsizing and seeing fellow workers losing their jobs with many heading overseas to the USA, UK and Canada. Others told us about their companies being repeatedly on the brink of closure and yet finding a way to keep the doors open. Nevertheless this assertion of creative control came through in a comment by Dean Ferguson at 5Lives (a Brisbane based group of five developers making the Kickstarter funded game *Satellite Reign*). When asked about the experience of making games post the Australian games development industry crash and how the Kickstarter funding approach had changed his experience of making games and working in the industry he replied, 'It's probably the first time in a number of years where I've felt like I'm crafting a game and not simply part of a cog. Before "the crash" I worked with, and formed great relationships with many very creative people, with really well-meaning people, including publishers, but it often came down to pure economics much of the time. It could be a real struggle to just craft something, and while it sounds tacky, a lot of us do this largely for the love of crafting' (Ferguson, 2014).

Many of the developers we interviewed expressed their view that there is a great deal more innovation potential in original IP. On the other hand, even as substantial fee-for-service work has diminished for most Australian developers, some companies continue to pursue fee-for-service work to offset the risk associated with free-to-play and indeed making original IP games generally. For some developers work-for-hire remains important to the sustainability of their studios.

There are also significant regional differences across the main locale of videogames development - Brisbane, Melbourne and Sydney. A sense of localised, embedded production culture, localised industry structures and state action, and cultural contexts was emergent in field research as a key to how business models were selected and articulated. The developers suggested that Melbourne was characterised by a thriving indie scene with much more of a games-as-art approach than just chasing commercial success. A common theme was that this had perhaps been supported and encouraged over the past few years by Victorian state government funding schemes (for example, Film Victoria schemes) that were lacking in many other states. The consensus was that the centre of gravity for games development in Australia had very much shifted from Queensland to Melbourne and that the lack of governmental support in Queensland may have contributed to this shift. (The games support that has existed in Queensland had come from industry and innovation portfolios, although the small amount that exists now is with Screen Queensland.)

Both Queensland (Brisbane) and New South Wales (Sydney) were viewed as having much more of a commercial and market focus. This especially came through in the interview with Morgan Jaffitt (Director of Brisbane based Defiant). Defiant released *Hand of Fate*, an innovative combination of card game and action role-playing, through Steam in February 2015. *Hand of Fate* also received Kickstarter funding. When asked to compare games development in Brisbane and Melbourne Jaffitt observed, 'I'd say here there's a bit more of a commercial focus, or at least there has been in the Brisbane indie scene'. He added speaking of Brisbane, 'There's a lack of funding here. A lack of regular events. We tend to see each other in Melbourne' (Jaffitt, 2014). Jaffitt also commented on what he perceived to be a hostility towards or rejection of work for hire among many Melbourne based developers commenting, 'I think that's the difference, they're immersed in the free play market. I think arts is fine, and some of the arts projects are making money too'. He added, 'I think it's fair

to say that Melbourne has a unique thing. I'm not positive those are just a Brisbane and Melbourne split.' Jaffit however also warned us not to overly generalise these perceived differences, especially between Brisbane and Melbourne: 'There's a commonality there. I would hesitate to say there's a Brisbane commonality through all of us and I'd much more say we're pretty idiosyncratic when it comes down to it Whereas Melbourne is very interlinked. There is a commonality across the developers, there's a lot of social engagement, and regular contact'. In short Jaffit considered Melbourne to have an emerging indie scene that was better supported by government funding whereas development in Brisbane and Sydney was more disparate and commercial in focus. When describing Sydney-based games development he considered it was generally much more closely connected to relationships with media companies, as he put it: 'The more traditional screen side, or on the advertising side there's so many different companies in Sydney competing for business ... and they all have a different approach'.

When discussing the Melbourne games development scene, Trent Kusters of League of Geeks (developers of Armello) notes that before the GFC he did not think 'we [Australian developers] created good games, good ground breaking games, good game experiences on a critical level' (Kusters, 2014). He suggests that the games culture emerging especially from the Melbourne indie scene is now fostering more of a cultural and critical discussion around videogames in Australia. Kusters emphasised that many of the Melbourne-based developers were also pursuing commercial viability and success but increasingly in the context of a more critical arts-driven approach.

In discussing Brisbane's games development community with the researchers both Halfbrick's CEO Shainiel Deo and Defiant's Morgan Jaffitt (both senior figures in Brisbane games development) emphasised their aim of developing viable and sustainable studios over

a long term that could provide jobs, training and opportunities for emerging developers. They suggested this may differentiate many Brisbane developers from the more games-as-art focus of Melbourne as it requires more of a commercial focus, especially in the absence of the kinds of state government support grants that many Melbourne-based developers enjoy. Jaffitt mentioned a conversation he had had with a Melbourne based developer: 'They said, "I have no interest in doing work for hire projects. I wouldn't do work for hire projects because I didn't get into this industry to make someone else's games. You know the whole reason to have a games company is to make games I want to make"'. Contrasting with this Jaffit said, 'The whole reason I've got a games company is so that we can employ the talent that is in Australia and hopefully have the bit of the industry we've got impact on in a better place than it was when we came along. Yeah those are different goals' (Jaffitt, 2014).

The particular character of videogames development in Sydney as a one focused on a business-to-business, 'creative services' relationship with other media businesses came through in an interview with Morgan Lean head of Epiphany Games. Epiphany employs 12 developers and is focusing on a long-term goal of developing a massively multiplayer online role playing game and episodic indie titles. They undertake significant work-for-hire projects for clients including TV channels Ten and 7 to keep the studio viable. Lean noted that '...the people we do work for are corporates, and most corporates are in Sydney and it is a very different type of work, work for hire.... These are people who don't know anything about games generally so we are trying to tell them this will be a branding exercise or this will help them in this way of that way, so it's a lot of education' (Lean, 2014). After commenting on the cost of living differences between Sydney, Melbourne and Brisbane and suggesting this placed Sydney developers in a more 'high pressure environment' needing to secure a lot of projects each year, he suggested that 'In Sydney the opportunities are definitely working for groups who are not into games, working for people producing television for example, those

are the sort of opportunities that we've got'. Lean ended the interview by addressing the challenge of creating a viable Australian videogames industry, including in Sydney, in the absence of government support. Commenting on the gutting of the Federal government grant scheme (\$20 million in federal support for games was peremptorily halved soon after the Abbot government came to power in 2013), he said, '... there is an opportunity in Australia but the government does have to recognise that we can make really high quality content that sits quite well on the world stage, so we can build an industry in this country.'

Leon Young of 2and2, a 30-employee studio with a focus on educational games for clients including Education Services Australia and ABC, also noted that in Sydney the opportunity is primarily with commercial clients although they were also developing games for clients in Melbourne. He observed that the challenge in Sydney '... is obviously cost. You know we're pretty much in the most expensive labour market in the world Now counter to that is one good government program here for start-ups which is the R&D tax concession, we get 45% of our R&D costs back ... and that kind of offsets the disadvantage' (Young, 2014).

Leigh Harris from Flat Earth Studios (a two-person PC and mobile games development team working out of the Epiphany studio already mentioned), noted that a challenge or disadvantage of making games in Sydney was not having the mentoring available from experienced identities such as Morgan Jaffitt who are very active in Brisbane's game development community, or to have regular access to Melbourne's The Arcade (a shared space for game developers). He commented that these scenes provided crucial networking and collaboration opportunities: 'I don't think you can really put too great a value on that, I'd very much like something like that opening up in Sydney, like a cohabited space'. He also observed the Sydney developers 'always seem to be more focused on the business. We don't have a Freeplay festival or any festival for that matter, that discusses the artistic or esoteric

design of the games. It's just all about how, in a practical sense, we get our ideas ... into the wider world.... The idea, the kind of rhetoric that I hear espoused in Melbourne most often is: "we're going to do something really unique and different and change the industry in some way"... And up in Brisbane because there were so many Triple-A studios that just crumbled, there's a lot more focus on building teams to be professional and to really have a solid framework from which to go forward. That's as far as I see it, the biggest difference is that Sydney doesn't necessarily have the experience and the people willing to volunteer their time to help people set up their indies in such a way that they will be best prepared for going forward. And what we do have here is a very strong start-up culture so people talking about how to get funding, how to get your idea off the ground, how to pitch a game to other people, seems to be a much more dominant conversation here than a structural one like in Brisbane, or an artistic one in Melbourne' (Harris, 2014).

Paul Stayer from See Through Studios (a two-person indie PC and mobile apps games developer operating out of the Epiphany studio offices that does not undertake work-for-hire) also shared the perception of Sydney developers as more commercially focused with Melbourne also having 'a really interesting arts driven scene that's fairly separate to that other scene.... Very much from a "we want to build really interesting art" side, and there's community around that, whilst we just don't have that here' (Stayer, 2014).

It would be a mistake to overly generalise these differences among Brisbane, Melbourne and Sydney. For example Wicked Witch, a longstanding studio started in 1999 and based in the outer Melbourne suburb of Bayswater balances fee for service work developing localised sports titles (Australian Football League and Australian Rugby League) for local publisher TruBlue Entertainment with original IP games for mobile devices such as *Jet Run: City Defender* (2014), a free-to-play game with in-app monetization. Since downsizing in the

wake of the GFC, Wicked Witch recovered to employing some 50 developers. This is a very commercially-focused studio that is also seeking to maintain a mid-sized viable studio.

Conclusion

Australian-based developers have adaptively engaged with the rapidly transforming and uncertain conditions of the global videogames industry. Some developers celebrate the creative freedom they experienced with a shift towards original IP games for mobile platforms while others caution about the design and craft compromises associated with the in-app monetisation mechanics. The turmoil and rapidly transforming Australian videogames industry over the past few years is certainly characterised by precarious labour. But it also includes adaptive experimentation in studio culture and associated changes in professional developer identity so as to continue the craft of making videogames in the midst of this uncertainty. As we have seen, this diversity is also characterised by differences among the production cultures of Brisbane, Melbourne and Sydney that are an indicator of the cultural roots that sustain developer identity and business models. Analysts who have been very close to the industry and its developer culture, such as Casey O'Donnell (2014), stress the (precarious) opportunities the current runaway innovation present to recapture the craft basis, the sustaining heart of the developer culture, stressing that games is not just a software industry. It should also be noted in this regard that none of the studios mentioned above are making games for large US-based publisher conglomerates, with many of the developers identifying as 'indie'. The shape of the Australian games development industry has profoundly shifted. This does not mean however that issues associated with uncertainty and precarity for the developers have resolved and if anything they have intensified. We are not suggesting that all of these changes are positive, many are certainly uncomfortable and raise

serious questions about the difficult conditions for sustainable jobs for Australian developers.

This is what makes the Australian games industry a textbook case in creative destruction.

Bibliography

ABS (Australian Bureau of Statistics). 2008, *8515.0 – Digital Game Development Services, Australia, 2006-2007*, last issue April 8, 2008.

<http://www.abs.gov.au/ausstats/abs@.nsf/mf/8515.0/>

ABS (Australian Bureau of Statistics). 2013, *8679.0 – Film, Television, and Digital Games, Australia, 2011-2012*, last issue June 18, 2013.

<http://www.abs.gov.au/ausstats/abs@.nsf/mf/8679.0>

Banks, John, and Stuart Cunningham 2013, 'Games and Entertainment Software' in *Handbook on the Digital Creative Economy*, edited by Ruth Towse, and Christian Handke, 416-427, Cheltenham, UK: Edward Elgar Publishing.

Banks, John and Stuart Cunningham (forthcoming), Games production in Australia: Adapting to Precariousness, in Michael Curtin and Kevin Sanson (eds), *Precarious Creativity: Global Media, Local Labor*, University of California Press.

Brand, Jeff, Pascaline Lorentz and Trishita Matthew, 2014, *DA14: Digital Australia*, iGEA, Bond University, Gold Coast.

Dean, Paul, 2014, *Exploring Armello: The Entirely Original Boardgame Bound For iPad*, Eurogamer, May 5, 2014

Ferguson, Dean, 2014, 5Lives Studios, interview with John Banks, August 21, 2014.

Hjorth, Larissa, 2014, 'Games: Mobile, Locative and Social', in Stuart Cunningham and Sue Turnbull, *The Media and Communications in Australia 4th edition*, 271-275. Crows Nest, NSW: Allen & Unwin, 2014.

Kusters, Trent, 2014, interview with John Banks, September 24, 2014.

Lane, David, 2014, *Towards an agenda for social innovation*, European Centre for Living Technology.

League of Geeks, 2014, Armello Press Kit, accessed October 31, 2014

<http://armello.com/press/index.php>

Miller, Toby, forthcoming, Cybertarian Flexibility—When Prosumers Join the Cognitariat, All That is Scholarship Melts into Air, in Michael Curtin and Kevin Sanson (eds), *Precarious Creativity: Global Media, Local Labor*, University of California Press.

Moses, Asher, 2013, *Video games slump as apps, downloads bite*, Digital Life, February 13, 2013, <http://www.smh.com.au/digital-life/games/video-games-slump-as-apps-downloads-bite-20130212-2ec19>

O'Donnell, Casey, 2014, *Developer's Dilemma: The Secret World of Videogame Creators* Cambridge MA: The MIT Press, 2014.

Parker, Rachel, Stephen Cox, and Paul Thompson, 2014, 'How technological change affects power relations in global markets: Remote developers in the console and mobile games industry'. *Environment and Planning A* 46, 1 (2014), 168-185.

Reed, Antony, 2014a, CEO: Games Developers Association Australia (GDAA), interview with the authors, Melbourne, August 28, 2014.

Reed, Antony, 2014b, e-mail message to authors, September 30, 2014

Serrels, Mark, 2015, *2k Australia in Canberra closes its doors*, Kotaku, 16 April 2015, <http://www.kotaku.com.au/2015/04/2k-australia-in-canberra-closes-its-doors/>

Souri. 2011, *THQ Studio Australia and Blue Tongue Entertainment to close this week*, Tsume, August 10, 2011. <http://tsume.com/comment/47944>.

Statista, 2014a, *Most popular Apple App Store categories in September 2014, by share of available apps*, Last modified October 12, 2014
<http://www.statista.com/statistics/270291/popular-categories-in-the-app-store/>

Statista, 2014b, *Number of available apps in the Apple App Store from July 2008 to September 2014*, last modified October 12, 2014
<http://www.statista.com/statistics/263795/number-of-available-apps-in-the-apple-app-store/>

Tach, Dave, 2015, *They wanted to make a video game phenomenon. They made \$10 million. The story of Crossy Road*, Polygon, <http://www.polygon.com/2015/3/3/8142247/crossy-road-earnings-10-million-gdc-2015>

Vanderhoef, John, and Michael Curtin, forthcoming, 'The crunch heard round the world: The global era of digital game labor', in Bridget Conner, Miranda Banks, and Vicki Mayer, *Production Studies: The Sequel*.

Attachment 2

Games production in Australia: Adapting to Precariousness**John Banks and Stuart Cunningham**

In this essay, we pay full attention to the structural conditions and human cost of precarious labor in a particular local instance of the games industry. At the same time, we attempt to shift the debate on precarity from the existential (the creative individual attracted to industries promising autonomy and meaningful work and finding only casualization, no work/life balance, and poor management) and the totalizing (all work under regimes of neoliberal hyper capitalism is increasingly characterized by precarity; indeed a whole new class – the precariatⁱ – is posited as emerging) to a focus on analysis for actionable reform.

Significant ‘creative destruction’ⁱⁱ through the Global Financial Crisis led to games industry restructuring and consolidation, which have included the withdrawal of major publisher investment in many dispersed regional hubs of games production. More fundamentally, major platform shifts and new business models started before the global downturn and continue through this contemporary period of slowdown in the world economy. There has been major consolidation at the console production end of the games industry, with more expensive blockbuster or AAA titles, a hollowing out of the mid-range games market, and a rapid growth and proliferation of casual gaming and mobile applications with unprecedentedly lower production costs and barriers to entry.

What has happened to one such regional hub, the Australian games industry, spatially remote from the centers of publisher power and hubs of creative ferment?

A recent ‘perfect storm’ of factors have combined to change the face of the Australian games industry. The industry had grown on the model of work for hire producing ‘catalogue fillers’ for the major publishers; very little original IP was produced. And, while very few

AAA titles were made in Australia, games companies had a reputation for good quality. However, the business proposition was buttressed by a more than a decade of favorable exchange rates which (literally) underwrote international investment. The industry by 2007 was structured around approximately 45 mid-size small businesses.ⁱⁱⁱ Notable companies included Krome, Pandemic, THQ StudioOz, Creative Assembly, Torus and 2K.

The global financial crisis (GFC) saw higher end production scaled back and a withdrawal by the major publishers from spatially distended supply chains and their preferencing of formally affiliated production companies. At the beginning of 2007, the Australian dollar was 75 cents in the US dollar. During the GFC, the Australian dollar became a 'currency haven' such that by the start of 2012 it was worth US\$1.02, gutting the industry of its pricing advantages. Of even greater structural consequence for the industry was the simultaneous explosion of apps-based mobile casual games play based on the smartphone platform and then also the tablet.

Official statistics tell a stark story of destruction of value. Of the 1431 reported employees in 2007, by mid-2012 only 581 remained, and reported game development income had dropped from \$116.9 million to just \$44.4 million.^{iv} The industry's spatial pattern in 2007 evidenced a significant presence in Queensland and Victoria, with additional studios in New South Wales, the Australian Capital Territory and South Australia. By 2012, the majority of the bigger studios had closed, and the industry had retreated to be concentrated in Victoria (about which, more later). Those whose doors closed or had radically downsized included Krome, Pandemic, THQ StudioOz, BlueTongue, Team Bondi, SEGA Creative Assembly, and Tantalus Media Brisbane. The major studios remaining included Halfbrick (Brisbane), 2K Australia (Canberra) and in Melbourne, Big Ant, Torus Games, Tantalus and Wicked Witch. According to the Games Developers Association of Australia (GDAA), the main advocacy and professional association for the industry, somewhere between 60-70% of

industry workers had either moved to another industry (many skills, pre-eminently programming skills, are very transferable) or had left Australia for more resilient industry locations and/or those better supported by government policy and programs.^v

In 2014, the GDAA characterized the industry as composed of 200 formally registered businesses, of which 92% are considered to be independents.^{vi} It defines 'independent' as a typically small scale enterprise which concentrates exclusively on original IP and self-publishes on the new digital platforms (Apple AppStore, Android, Steam). It estimates about 800 workers now in the industry. This is a recent history of an industry much reduced in terms of turnover and traditional employment, but one which has transformed its revenue base from 80% work for hire to 75% original IP – an almost complete reversal in the balance between business models.^{vii}

But, invoking Joseph Schumpeter, how 'creative' has been this destruction? A rigorous critical organizational studies analysis of the Australian industry advances the argument that severe power differentials between publisher and producer/developer have persisted across this momentous industry restructure and continue to compromise local agency in global supply chains.^{viii} An equally rigorous media studies argument anatomizing poor labor conditions in the industry globally is nevertheless clear that 'the most plentiful and well-paying jobs in the video game industry continue to be those provided by major video game publishers either directly or indirectly'.^{ix} Neither view offers much comfort for the idea that this destruction could be in any way 'creative'.

These perspectives, however, contrast with the self-understanding of many of those games workers (who we have interviewed for the research that supports this chapter) who have survived the shakeout, or who are sufficiently new to the industry to know no other conditions. Culturally and industrially, original IP – and the conditions under which it can be prioritised – tends to be championed by these developers against fee-for-service and as a

normative aspiration. Industrially, a dominant narrative in the industry has been the desire to move from fee-for-service (the company is a price taker and doesn't control its own destiny) to original IP. Culturally, this aspiration also speaks to many developers' creative impulse and is actually enshrined in the advocacy and representative body, the GDAA's definition of indie. It is reinforced by normative criteria built into state policy and program funding support.

Given the degree to which higher end fee-for-service business has dried up, while essentially self-publication on the major digital distribution platforms (Apple's Appstore, the Google Play Store, Steam, etc.) has grown exponentially, necessity has become a virtue. Conditions have crafted an industry which is much reduced in terms of turnover and traditional employment, but now operates within a disintermediated value chain which radically forces the pace of innovation. Despite much commentary which treats Apple, for example, as basically yet another global corporation 'taking their (un) fair share of financial profits,'^x near-to-global dissemination via the digital platforms on a 30/70 split of income derived represents an in-principle better deal than the power asymmetries enshrined in dealing with the major publishers.^{xi}

Australian companies, in particular Halfbrick with their huge success with *Fruit Ninja* (2010), made hay while the sun shone in the early days of apps-driven games and became a sort of template for national ruminations on how to succeed in the new environment.^{xii} It is distinctly harder now to capture attention – massively lower barriers to entry create conditions in which it is estimated that more than 1.3 million apps are now available on the Appstore with duplication across the platforms, of which around 20% are games.^{xiii} Mobile games production is markedly less driven by the crunch associated with games development under the dominant business model of fee for service work in which development schedules were driven by milestones at the behest of large international publishers. This has led,

Antony Reed suggests, to a situation where the industry has seen much less attrition in last few years. Furthermore, there is arguably a great deal more innovation activity in original IP. Indeed, there is runaway innovation,^{xiv} with the rapid shift from games-as-a-product to games-as-a-service, driving the mobile apps purchase price points to zero accompanied by the proliferation of in-app purchasing. And these rapid shifts have in turn been challenged by a return by some to premium mobile app pricing as well as premium pricing for games released through Steam.

They *still* make games

It is to these identities and motivations – the scripts games developers have written for themselves to adapt to the new conditions - and their relation to business models and production cultures that we now turn.^{xv}

Predominantly, there is a sense of pride in the fact that they were *still* making games. They had found a way to survive the changes upending the Australian industry. Many also emphasized that they were now doing this more on their terms and that the shift from fee for service to original IP meant they enjoyed greater creative control and autonomy. In describing this sense of creative control none of the developers were remotely panglossian about the precariousness they and the workers around them face routinely. Many recounted the pain of downsizing and seeing fellow workers losing their jobs, with many needing to leave the country for work in the USA, UK and Canada. Others told us about their companies being repeatedly on the brink of closure and yet finding a way to keep the doors open. Nevertheless this assertion of creative control came through in a comment by Dean Ferguson at 5Lives (a Brisbane based group of five developers making the Kickstarter-funded game *Satellite Reign*, forthcoming 2015): ‘It’s probably the first time in a number of years where I’ve felt like I’m crafting a game and not simply part of a cog. Before “the crash” I worked

with, and formed great relationships with many very creative people, with really well-meaning people, including publishers, but it often came down to pure economics much of the time. It could be a real struggle to just craft something, and while it sounds tacky, a lot of us do this largely for the love of crafting'.^{xvi}

Morgan Jaffit, director of Brisbane's Defiant Development, put the case even more strongly: 'Australia has a history of terrible work for hire projects and shitty lowest bidder poor quality games. It not only erodes your studio but I think it kills your soul too'.^{xvii} Trent Kusters, founder and director of Melbourne-based League of Geeks, also noted the importance of 'having an impact on the medium, and the progression of the medium, and where that is happening. That you as a creator, you're not just pumping out some crappy title that's you know, just going to turn a quick buck. If you want to make things that matter, you need to have a cultural understanding. You need to be involved in that, the discussion of the cultural zeitgeist of game development and games as a medium, and you can see a clear pattern between the people that are right now developing great games, and the networks that they move within'.^{xviii} The values that these leaders of what has emerged as a profoundly different Australian games sector associate with 'indie' game development need to be carefully interrogated - they are in no way opposed to commercial interests or business sustainability. Creative adaptation, experimentation and opportunity have arisen under conditions of profound uncertainty and precariousness.

Many developers clearly feel there is a great deal more innovation potential – and identity reinforcement - in original IP. On the other hand, viewed from an industry-wide perspective, some companies continue to pursue fee-for-service work to offset the risk associated with free-to-play and indeed making original IP games generally. For some developers work-for-hire remains important to the sustainability of their studios. Therefore,

we now posit a typology of approaches to funding and releasing games in the overall ecology of the sector and then briefly profile companies which exemplify this range of approaches.

Along with licensed IP, there are five distinct variations on the exploitation of original IP: subscription; premium payment; free-to-play with in-game monetization; advertising supported; and, pay-to-play. The subscription model is consistent with the games-as-service approach, whereby each set period, usually monthly, the player pays to stay engaged with the game. This is typical of games such as *World of Warcraft*, which continues to have a significant player base ten years after launch. The premium model is very much the traditional model for the games industry and is consistent with the games-as-product approach. The consumer pays for a complete experience with a one-off payment. Such a model is typified in AAA titles, such as the *Call of Duty* series (2003-), or titles like *Minecraft* (2011), but a quite different level of premium pricing also applies to variations on free-to-play.

Free-to-play can be adopted in a variety of forms, placing this category in both games-as-product, where you pay to unlock additional content but expenditure is capped, for example *Puzzle Retreat* (2013), or in a games-as-service form where no cap on monetary expense exists (for example, *Clash of Clans* 2012, or Kixeye's *VEGA Conflict*, 2013). The advertising supported revenue model leverages advertising as the primary source of income by inserting advertising at regular or semi-regular intervals; it is most typical of browser-based flash games. The final model is the pay-to-play monetization model. Typified by the original arcade machines, each play of the game requires an input of credit for the player to progress. The developers that we discuss in this chapter have tended to focus on emerging opportunities of free-to-play and premium payment approaches, especially in the context of the shift towards games-as-service.

The funding for games development also tends to take a variety of forms depending on the availability and the scale of the project. Briefly, these sources include: government funding, in the form of loans or grants with funds available not just for development costs, but also for travel costs, or to engage marketing expertise; crowdfunding, through platforms such as Kickstarter; the traditional publisher model, where the developer is engaged to produce content at a set fee and with set milestones for delivery, essentially work-for-hire; and, variations on the work-for-hire approach which may involve undertaking projects such as game installations, serious games, or non-gaming apps; and securing donations, where donations are received against the development costs.

An index of the stakes involved in this challenging innovation space is to consider the case of Halfbrick, the company that bet the farm on original IP on mobile games platforms. Halfbrick has continued this approach with recent releases such as *Fish out of Water* (2013), *Collosatron* (2013) and *Bears versus Art* (2014). While the company's recent releases experiment with various approaches to free-to-play and in-app monetization by drawing on analytics and metrics to inform their design and development process and decisions, they have not as yet managed to repeat the stellar commercial success enjoyed by *Fruit Ninja* (2010) and the lesser but still substantial success of *Jet Pack Joyride* (2011). Halfbrick are world leading in adapting to the shift from work-for-hire to original IP titles for mobile devices.^{xix} In front of the pack when mobile games were all paid for upfront, success after the market shift to free-to-play and games-as-service has so far eluded the company.

Wicked Witch, a long-standing studio which, like Halfbrick, started in the late 1990s, is different. It mixes work-for-hire with original IP development. During the industry decline, Wicked Witch radically downsized and verged on closure. However, by continuing fee-for-service work for domestic sports titles that were not subject to the exchange rate crisis, together with developing original IP games for mobile devices, Wicked Witch has managed

to rebuild a 50-person studio. This makes them one of the largest companies in the new ecology. Successful titles have included *Catapult King* (2012), released for both Android and IOS devices. Wicked Witch has also released titles like *Whac-A-Mole to* (2014) for Mattel, which is a conversion of the classic arcade game, for Apple devices, and *Jet Run: City Defender* (2014), a free-to-play game with in-app monetization, for iOS and Google Play. Wicked Witch CEO Daniel Visser observed that in his opinion the free-to-play model was becoming ‘a race to the bottom that is so intense that we’re going to end up paying people to play our games’.^{xx} Free-to-play is becoming such a crowded market, with considerable potential for destruction of value, that developers need to explore other models including premium payment titles for mobile platforms.

Melbourne-based League of Geeks exemplifies such an approach. League of Geeks are not banking the company on chasing the mobile free-to-play market. Since 2011, this group of developers including designers, programmers and artists have come together to make *Armello* (forthcoming 2015), a game they describe as ‘a swashbuckling adventure that combines RPG elements with the strategic play of card and board games, creating a personal, story fuelled experience’.^{xxi} Structured as a core creative team of four directors and a loose coalition of programmers and artists who contribute collaboratively to the project, they are located in The Arcade in inner city Melbourne, a game development space shared with other companies that has the look and feel of a creative start-up and is supported by the Victorian government. League of Geeks garnered attention in 2014 when they raised \$305,000 from Kickstarter to keep the *Armello* project progressing. Director Trent Kusters describes League of Geeks as a game development collective rather than a formal studio.^{xxii} Kusters left the Australian industry in 2011-2012 to seek work overseas. He said that through this period he felt “disenfranchised” by the big studio developer culture. He worried that in such an environment he may end up being ‘a little cog in a big wheel, tweaking combat timings on

some NPC for, you know, some multimillion dollar game'. In contrast to Wicked Witch, Kusters emphasized the importance of developing original IP, saying that fee for service work was 'like quicksand'.^{xxiii} Unlike some other Australian developers who retain some fee for service work to balance the risks associated with an original IP only approach, Kusters believes too much reliance on fee for service can compromise a studios capability of, and commitment to, creating original IP.

The game development engine Unity was becoming widely available, offering a low cost but high quality technology for making games. Combined with digital distribution opportunities through the App store and Steam, this radically changed the possibilities for making and releasing games. Kusters also noted the emergence of online indie developer communities using productivity tools to manage distributed collaborations among teams of people around the world. *Armello* has been made through this distributed network of developers that he sees as a game developer collective, not a formal studio business. Some developers were engaged through a points-based system in which they gain a cut of the eventual profit *Armello* generates based on their contribution to the project. Others work on the project through an arrangement that combines points with contracted and paid employment. Kusters also explained that *Armello* raised funds to continue development through Kickstarter, but both national and state government funding was critical to *Armello's* viability. League of Geeks plans to release *Armello* as a premium title rather than pursuing a free-to-play approach with in-game monetization. This model of indie development, Kusters says, is about 'adapting to the current climate ... the market completely shifts underneath us all the time, we just have to be agile. We just have to do what we need to do and that's basically how we came up with the model ... that doesn't require us to have cash.'^{xxiv} This is a business model that marshalls government backing, deferred, points-based, payment

systems, and crowd funding to underwrite passionately-conceived games that rely on innovation, reputation and point-of-difference to succeed.

Sharing office space in the Arcade complex with League of Geeks, Voxel Agents (a small studio with 5-6 employees) pursue the opportunities of original IP and free to play game releases for mobile devices with successful titles such as the *Train Conductor* (2009) series and *Puzzle Retreat* (2013). Voxel Agents are tackling the shift towards games-as-service, involving as it does the imperative for regular content updates and the use metrics and data analytics to respond to player behaviors. Voxel's Simon Joslin noted the value of working in a collaborative space such as the Arcade as it offered opportunity for both formal and informal sharing of knowledge and experience about the rapidly changing videogames market landscape.^{xxv} This includes access to small specialist firms, such as Surprise Attack, a company offering consulting services to developers as they seek to develop effective business models that embrace the demands of games-as-service, particularly expertise around in game monetization and effective use of data analytics. Government, both state and national, support for business development was critical as they scaled up their efforts to experiment with various approaches to the games-as-service model. Joslin noted that, while the shift to original IP provided greater creative control changing business models towards games-as-service, especially in the form of free-to-play games such as *Candy Crush Saga* (2012), may compromise the craft of making quality game experiences. He worried - as did other developers - that many of the monetization strategies associated with in-app game purchases relied on mechanics that may be addictive. He discussed the ethical and craft implications of free-to-play commenting that, 'it's a complex question, a grey area ... There are points where I've played games and I feel that's the wrong way to do it ... I wouldn't feel comfortable doing that to my players'.^{xxvi} He talked of the steep challenge of adapting existing game

design knowledge and skills to create engaging and compelling free-to-play titles, while also making effective use of metrics and analytics.

So far, with the exception of Wicked Witch, we have emphasized GDAA-defined indies in this survey of the precarious but widening range of business models and company and developer identities. But some US company presence remains in the country. Kixeye, situated in Brisbane with a staff of some 50-60, manage the distance from centers of developer culture by being a wholly owned subsidiary of San Francisco-based Kixeye, developer of online browser-based strategy and combat games such as *Battle Pirates* (2011), *War Commander* (2011) and *Vega Conflict* (2013). The studio director, George Fidler, a veteran of the industry, emphasized the fundamental challenge of shifting from a work-for-hire and games-as-product model to a games-as-service market environment.^{xxvii} He suggested that while the fundamental skills of programming, art and good design were still crucial, new skills sets and expertise in digital retail now needed to be integrated with the production process and studio culture. Australian development studios were still lacking in the skills crucial for successfully making the shift to games-as-service. Fidler commented that the work-for-hire origins of many Australian studios and developers meant that they perhaps had not gained the market discipline of focusing on a core competency or on a core market. Speaking of the games-as-service shift, Fidler concluded that for Australian developers ‘it’d been tough to create those kinds of games early in the cycle, because the expertise simply wasn’t there’. By expertise, he clarified the product manager and producer skills required to combine and balance retention, monetization and engagement. He said, ‘... we’ve got thousands of game designers in Australia. No problem at all, but we have very, very few experienced product managers, and that’s meant most of the attempts have fizzled out, because if you think of the build, measure, learn cycle, we built, we didn’t quite know what we were measuring and we learned nothing’.^{xxviii}

Precariousness as a function of policy and industry cultures

In the overwhelmingly nonunionized games industry, advocacy for the sector is largely conducted by professional associations and support is offered through state policies and programs.^{xxix} This section of the chapter considers the extent to which states of precariousness are a product of policy, advocacy and industry self-governance, while in the Conclusion, we canvas ways of addressing the issues raised.

A key feature of the games industry is that it is poorly understood by the political class. This is despite its size and growth rates globally dwarfing anything remotely comparable, and is an outstanding example of creative content and use driving technological innovation and take up, not the other way round as is usually constructed in innovation policy and business strategy. It tends to fall between the ‘stools’ of cultural policy, industry and innovation policy, while its main interface with the political class and the wider populace is around social and educational policy concerns (violence, game playing addiction, claims and counterclaims about educational benefits). Inconsistent or non-existent policy support, particularly when compared to other cultural industries such as film and television, contributes to precariousness. Such policy inconsistency between different countries contributes to the hypermobility of games creatives, as well as policy entrepreneurship or arbitrage between countries in bidding for the services of this high skill component of the ‘creative class’.

In Australia, federal policy and programs supporting the industry had been ‘piecemeal’,^{xxx} and had sought to fit games into the established cultural template that had been developed over decades for the arts, film and television. They had required developers to articulate their games proposals as forms of storytelling as a way to measure the ‘cultural significance’ of the game. The long march toward a more realistic balance between cultural

and industry policy for the creative sector was accelerated by the industry transformations of the last five to seven years. Government accepted that very little original IP was being created; that Australian developers were locked into a system fee-for-service; that the country was no longer attractive for licensed IP; and that overseas competitive incentives were ‘luring’ talent away from the country. A significant \$A20 million package was developed, the Australian Interactive Games Fund, whose objectives were to: promote industry growth and sustainability; support the development of new intellectual property; encourage skills retention and renewal; and maximize the creative opportunities of fast broadband.^{xxxii} With a change of government, however, the initiative was cancelled with only half the money spent.

At a state or provincial level, the policy rationale for support has been equally uneven, with equal or perhaps even greater impact on precariousness for the labor force. The state of Victoria has been most consistent in its approach to games as it is recognized as a core component of the state’s industrial and employment base in the ICT sector. Effective advocacy for the sector forestalled a cost-cutting attempt to close down support in 2012. Funding and programs in support of the sector are administered through a mainstream screen agency. The approach in Queensland was exclusively industrial and remained positive while the industry was generating jobs as mid-size small businesses proliferated in the pre-GFC period. The collapse of several of the larger companies effectively eliminated games from a standard industry development policy logic as pursued within a department of state development and saw the policy focus narrow to a minor part of the screen agency’s remit. Government did little to arrest the collapse of the industry in the state, and has done little since. New South Wales, the most populous state and the one with the largest slice of GDP, had rarely focused policy and program attention on games, leading to the irregular ‘doughnut’ shape of the industry’s geography.^{xxxiii} The effect of such policy variability is clear – Victoria has seen strong 15-20% growth year-on-year in the last few years, while

Queensland has not grown strongly out of the downturn. The mobility and associated uncertainties faced by games workers is often forced on them by the volatility of an industry whose profile with government is equally volatile.

Policy fluctuation and failure contributes to precariousness; so does the industry's reputation for poor management. Some of its notoriously poor working conditions can be sheeted home to the immaturity of the industry and the need for self-governance reform. The industry's still overwhelmingly male-dominated production base needs to change if it is to attract the best talent, improve balance and sustainability, and capture value in a rapidly evolving consumption environment. Women and girls now account for 48% of all gamers. The high skew towards men and boys - more than 78% in the console core demographic - underlines women are still in the majority in the more casual gaming areas of the market.^{xxxiii} GDAA survey data for 2014 suggests that, of the about 800 people now working in the industry, approximately 26% are women and most of these are programmers and artists. This is beginning to look aligned with the most recent survey results of the IGDA which report 22% women employees globally in September 2014.^{xxxiv}

Management deficit is by no means confined to gender. Casey O'Donnell's loving but forensic description of the 'secret world of videogame creators' does not spare the industry.^{xxxv} Tacit knowledge has been very poorly converted into transferable knowledge. This is a critical shortcoming because the daunting complexity of bringing together engineers, artists, designers, marketers and managers in intense iteration can lead to crunch, 'intense and extended periods of socially mandatory overtime, and a seemingly perpetual start-up environment again development companies'.^{xxxvi} There is very little industry formalization and representation. Invoking the analytical work of Gina Neff and David Stark, he asserts it is in a state of 'permanent beta'. Cross disciplinary collaboration – which causes such unremitting creative tension at the level of the firm and poses some of the most

challenging project management tasks in contemporary industry practice – is absolutely necessary for the industry's future. The tendency is for the industry, because of its closed opacity (as well, as we have seen, because of its extreme volatility), to continually reinvent the wheel. O'Donnell stresses the great breakthrough represented by Unity because it made transparent authoring knowledge of great value, for example, for developing country industries.^{xxxvii} All of these factors contribute to working cultures and conditions that see 50% leave with up to 10 years exposure.^{xxxviii} On the other hand, Australian industry, GDAAClaims, is rare in the way it shares knowledge and resources amongst industry players now that the industry is composed overwhelmingly of indies. This is not typical of U.S.-based and owned companies, and was also not common when Australian developers were producing licensed IP due to nondisclosure agreements.

Finally, a better articulation of the broader value of the industry to society and economy can address precariousness. Principal industry advocate Antony Reed asserts 'this industry could make such a huge contribution if only it was understood better'.^{xxxix} Advocacy, he argues, should seek to raise awareness of, for example, the value of game design input into health and education; the transferability of games skills into mainstream IT or the burgeoning apps industry; and the highly skilled entrepreneurial games workforce which any country should seek to retain as part of its creative class. This draws on evidence that uncertainty of work in games is mitigated to some extent by the capacity to work outside the sector (due to the high transferability of skills, particularly of programmers). There is also some evidence that companies and individuals manage precarious original IP development with sourcing licensed IP opportunities within the growing domestic apps industry, so-called 'serious' (edutainment) games, and a small range of domestic purchasers of games products and services (sourcing licensed IP domestically can be more sustainable because it is not subject to currency fluctuation).

Conclusion

Deuze, Martin, and Allen stress the importance of mapping what they call ‘gamework’: ‘the key issues informing and influencing the working lives and professional identities...’ of developers in the global computer and videogame industry.^{xi} Deuze et. al. were writing at a time when the dominant model was developers working for large studios making games for publishing conglomerates such as Electronic Arts. However, as we have seen in the case of the Australian industry, several options for making games, and different workplace models, confront developers. Some developers celebrate the creative freedom they experienced with a shift towards original IP games for mobile platforms, while others caution about the compromises associated with in-app monetization mechanics. The turmoil transforming the Australian games industry exemplifies precariousness. But it also includes adaptive experimentation in studio culture and associated changes in professional developer identity so as to continue the craft of making games in the midst of this uncertainty. Analysts who have been very close to the industry and its developer culture, such as Casey O’Donnell,^{xli} suggest the current situation presents an opportunity to recapture the craft basis, the sustaining heart of the developer culture, stressing that games is not just a software industry. Creative destruction in the Australian games industry has been extraordinarily two-edged. As Gina Neff comments in the broader context of creative labour, ‘The trick for future media and business revolutions will be to find ways to support venture labor, so that innovative and creative jobs can also be stable and good jobs’.^{xlii}

To achieve this, programs designed to support the industry need stability and predictability. Turning the public support spigot on and off according to political whim and policy fashion escalates precariousness. Furthermore, the industry needs better management practices. In addition to providing a much more welcoming workplace for women and

managing the crunch, it needs to learn how and when to cooperate as well as compete, and how to identify and incorporate new skills sets to deal with ‘runaway’ innovation. Advocacy needs to articulate the wider value of the industry to society and economy, and viable career structures within it. Precariousness, we have suggested, is an addressable matter. – one that governments, the industry as an associative entity, as well as those who *still* make games, can work on together.

ⁱ Guy Standing, *The Precariat: The New Dangerous Class* (London, UK: Bloomsbury Academic, 2011).

ⁱⁱ Joseph A. Schumpeter, *Capitalism, Socialism and Democracy* (New York: Routledge, 2006 [1942]).

ⁱⁱⁱ ABS, “8515.0 – Digital Game Development Services, Australia, 2006-2007” last issue April 8, 2008

^{iv} ABS, *ibid.*; ABS, “8679.0 – Film, Television, and Digital Games, Australia, 2011-2012” last issue June 18, 2013

^v Antony Reed, CEO, GDAA, interview with the authors, Melbourne, August 28, 2014.

^{vi} *Ibid.*

^{vii} Antony Reed, e-mail message to authors, September 30, 2014

^{viii} Rachel Parker, Stephen Cox, and Paul Thompson, “How Technological Change Affects Power Relations In Global Markets: Remote Developers In The Console And Mobile Games Industry.” *Environment and Planning A* 46, 1 (2014), 168-185.

^{ix} John Vanderhoef, and Michael Curtin, “The Crunch Heard Round the World: The Global Era of Digital Game Labor,” in *Production Studies: The Sequel*, eds. Bridget Conner, Miranda Banks, and Vicki Mayer, (forthcoming).

^x Larissa Hjorth, “Games: Mobile, Locative and Social”, in *The Media and Communications in Australia 4th edition*, eds. Stuart Cunningham and Sue Turnbull (Crows Nest, NSW: Allen & Unwin, 2014), 281.

^{xi} See John Banks, “The iPhone As Innovation Platform: Reimagining The Videogames Developer. In *Studying Mobile Media: Cultural Technologies, Mobile Communication, and the iPhone* eds. Larissa Hjorth, Jean Burgess, and Ingrid Richardson. (New York, NY: Routledge 2012), 155-172.

^{xii} John Banks, and Stuart Cunningham, “Games and Entertainment Software” In *Handbook on the Digital Creative Economy* eds. Ruth Towse, and Christian Handke (Cheltenham, UK: Edward Elgar Publishing), 416-427.

^{xiii} “Number Of Available Apps In The Apple App Store From July 2008 To September 2014,” last modified October 12, 2014; “Most Popular Apple App Store Categories In September 2014, By Share Of Available Apps” Last modified October 12, 2014

^{xiv} Innovation, captured in Schumpeter’s powerful phrase ‘creative destruction’, can have extraordinarily two-edged social, economic and cultural effects. Runaway innovation occurs when change outstrips even its progenitors’ comfort and control. See, eg. David Lane, ‘Towards an agenda for social innovation’, European Centre For Living Technology. http://www.insiteproject.org/wp-content/uploads/2014/02/Social-Innovation-Manifesto_INSITE.pdf, 2-3.

^{xv} The research on which this chapter draws includes semi-structured interviews conducted in Q3 2014 by the authors with 16 developers from 8 development studios and with leaders in the games association and in government program support.

^{xvi} Dean Ferguson, interview with John Banks, August 21, 2014.

^{xvii} Morgan Jaffit, interview with John Banks, November 27, 2014.

^{xviii} Trent Kusters, interview with John Banks, September 24, 2014.

^{xix} For a short history, see Banks, “iPhone As Innovation Platform.”

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- ^{xx} Wicked Witch CEO Daniel Visser, interview with John Banks, September 23, 2014.
- ^{xxi} "Armello Press Kit" accessed on October 31, 2014
- ^{xxii} Trent Kusters, interview, *ibid.*
- ^{xxiii} *Ibid.*
- ^{xxiv} *Ibid.*
- ^{xxv} Simon Joslin, interview with authors, August 29, 2014.
- ^{xxvi} *ibid.*
- ^{xxvii} George Fidler, interview with authors, September 10, 2014.
- ^{xxviii} *Ibid.*
- ^{xxix} The Media, Entertainment & Arts Alliance (MEAA), the largest and most established union and industry advocate for Australia's creative professionals, has no section for games
- ^{xxx} Christian McCrea, "Australian Video Games: The Collapse and Reconstruction of an Industry," in *Gaming Globally*, eds. Nina Huntemann, and Ben Aslinger (Basingstoke, UK: Palgrave Macmillan 2012). 203-207.
- ^{xxxi} "Australian Interactive Games Fund Industry Consultation: Objectives and Context" accessed October 10, 2014
- ^{xxxii} Queensland, the major northern state and Victoria, the major southern state, have been the twin centers of the Australian industry; while the largest state located between them (New South Wales) has had a smaller proportion of the industry.
- ^{xxxiii} Entertainment and Software Association "2014 Sales Demographic and Usage Data: Essential Facts About The Computer and Video Game Industry" ESA 2014; "Casual Games Demographics" accessed on October 30, 2014
- ^{xxxiv} "Press Release: IGDA Developer Satisfaction Survey Results Are Released", accessed November 1, 2014
- ^{xxxv} Casey O'Donnell, *Developer's Dilemma: The Secret World of Videogame Creators* (Cambridge MA: The MIT Press, 2014)
- ^{xxxvi} *Ibid.*, 28.
- ^{xxxvii} *Ibid.*, 74.
- ^{xxxviii} *Ibid.*, 161.
- ^{xxxix} Antony Reed, interview with authors, August 28, 2014.
- ^{xl} Mark Deuze, Chase Bowen Martin, and Christian Allen, "The Professional Identity of Games Workers" *Convergence: The International Journal of Research Into New Media Technologies*, 31 (2007), 336.
- ^{xli} Casey O'Donnell, "This Is Not a Software Industry," in *The Video Game Industry: Formation, Present State and Future*, eds. P. Zackariasson & T. L. Wilson (New York, NY: Routledge, 2012), 17-33.
- ^{xlii} Gina Neff, *Venture Labor: Work and The Burden Of Risk In Innovative Industries* (Cambridge MA: The MIT Press, 2012).