

Co-creating Videogames

John Banks

B L O O M S B U R Y

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*Dedicated to my three special ones –
Elizabeth, Charlotte and Ivy*

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Introduction: Co-creating matters

Gamers do not just play videogames; they also make them. The boundaries between playing and producing and consuming are blurring. By collaborating and cooperating with each other and with professional developers, gamers design, produce, circulate and market compelling videogames. I call this process co-creative.

Over the past few years we have seen the rise of user-generated content and user-led innovation as significant cultural and economic phenomenon (Benkler 2006: 60; Bruns 2008; OECD 2007; Shirky 2008; Burgess and Green 2009a; Hartley 2009; Jenkins 2009). In December 2006, *Time Magazine* celebrated 'You' as the person of the year, saluting the millions of people who use and contribute to social networking platforms such as YouTube, MySpace and Wikipedia. These media consumers are now sometimes also media producers who make and circulate media content and experiences. Co-creativity occurs when consumers contribute a non-trivial component of the design, development, production, marketing and distribution of a new or existing product. As Prahalad and Ramaswamy (2004) propose in *The Future of Competition*, value is increasingly co-created by both the firm and the customer (see also Foster 2007; Grabher et al. 2008; NESTA 2008). Henry Jenkins and Joshua Green (2009: 213) write:

By the early twenty-first century, fans have been redefined as the drivers of wealth production within the new digital economy: their engagement and participation is actively being pursued, if still imperfectly understood, by media companies interested in adopting Web 2.0 strategies of user-generated content, social networks, and 'harnessing collective intelligence'.

Recognizing these potentially significant shifts in the conditions of cultural production, we now need to think carefully about this phenomenon. How should we understand these emerging co-creative behaviours and practices? How do these co-creative relations play out at the grass-roots level of media

industry workplaces? What are the implications of these changes for the jobs and identities of creative professionals? In what sense can we say that co-creativity matters? This book is about how consumers and media professionals in the context of the videogames industry grapple with the challenges and opportunities of co-creative media. These participants' diverse understandings, motivations and incentives collectively contribute to making co-creativity. The pressing challenge is to better understand the conditions in which these collaborative and creative energies can be coordinated for mutual benefit.

This book draws from just over a decade of ethnographic participatory-observation research, commencing in 1997, undertaken with videogames development companies in Australia and the United States. I draw on, for example, interviews undertaken in 2009 with staff at leading US-based games company Maxis, the developer of *The Sims* series and *Spore*. I also draw on extensive ethnographic research undertaken from 1997 to 2005 with Brisbane, Australia-based Auran games. This book describes and analyses the co-creative relationships between professional developers and the networks of gamers that provide developers with extensive play-testing, feedback, creative design input, provision of digital art content and marketing support. It describes the key actors (programmers, designers, producers, online community managers, marketing managers, gamers, technologies and business people) who contribute to making this emergent culture and who are, in turn, shaped by co-creativity. Games scholar T. L. Taylor (2006b: 159–60; also see 2006a) argues that players are co-creative 'productive agents' in the creation of videogames and asserts that we need 'more progressive models' for understanding and integrating players' creative contribution to the making of these products and cultures (also see Postigo 2003, 2007; Humphreys 2005a, b). Written from a front-line ethnographic perspective, this book provides behind-the-scenes details of how game developers grapple with the challenges of making co-creative culture to propose such a model.

From June 2000 through to 2005 my research relationship with Auran shifted when I accepted employment as the company's online community relations manager. This role largely involved managing Auran's relations with an on online rail-fan community that formed around the game development project, *Trainz* (www.auran.com): a train and railroad simulation released in 2001. From 2001 through to 2011, Auran released some 14 different product iterations for the *Trainz* simulator series and grew a global online community to well over 200,000 members. Over 1,000,000 *Trainz* units sold to gamers in Australia, United States and throughout Europe. Auran and the *Trainz* project provides an ethnographic case study for this book.

Throughout 2007, I also undertook ethnographic research with Auran, following the final stages of the development and launch of its competitive

player versus player (PvP) massively multiplayer online game (MMOG) *Fury*, which was released in October 2007 and ultimately commercially failed. I worked closely for extended periods throughout 2007 with members of Auran's online community relations team, *Fury*'s developers, and Auran senior management. I also participated in pre-release play-testing of *Fury*, joining in extensive play and feedback sessions with *Fury* gamers, as well as interviewing gamers participating in this co-creative relationship with Auran.

Drawing from this ethnographic participatory research of daily work practices at Auran that I have recorded in field work notes and journals, and from extensive semi-structured interviews undertaken with Auran staff (well over 30 interviews), Maxis staff and members of the gamer fan communities forming around the game development projects, I describe the challenges of incorporating these co-creative relationships into the very heart of the development process and the impacts these shifts have on conventional firm structures and cultures, including the identities and roles of media professionals and creatively engaged citizen-consumers.

Co-creative cultural production is close to Joseph Schumpeter's (1950) account of the restless and unsettling gales of creative destruction that drive capitalist innovation. In the course of this book I provide accounts of how these emerging relationships also contribute to business failures and uncertainty about the jobs of creative professionals. These co-creative relationships unsettle existing business models, modes of project organization, legal frameworks and regulatory regimes. This is not a study then of the smoothly hegemonic operations of big media enterprise as it finds yet another source of profitable surplus value. In a Schumpeterian sense these changes emerge from within market capitalism to provide the seeds for often unanticipated, uncertain and difficult to govern and manage instabilities and innovations.

Co-creativity is not only a bottom-up and peer-to-peer dynamic among amateurs. Co-creativity requires the craft skills and knowledge and commitment of professionals and experts. My understanding of co-creativity focuses on the connections and relationships among amateurs and professionals. This book is oriented by the ethnographic impulse to describe the lived experiences of creative industries professionals and citizen-consumers as they explore together the opportunities and challenges of this emerging co-creative culture. As Paul Rabinow (1996: 17) proposes in his ethnographic study of Cetus Corporation, a biotech company: 'The anthropologically pertinent point is the fashioning of the particularity of practices'. To meet this goal I include extensive interview extracts and description of daily work practices to foreground the participants' (both professional and amateur) diverse understandings and experiences of co-creative practices. As we shall see, the professional videogames development teams are often far from united in their understanding of and support for this co-creative production process.

Producers, designers, programmers, artists, marketing and community relations managers, and CEOs, have very different understandings of these co-creative relationships. But it is from these uneven practices that co-creative culture is made. There are irresolvable tensions and conflicts at the very heart of co-creativity.

The first three chapters of this book are heavily ethnographic descriptive with the aim to illuminate the practices of making co-creative culture. But ethnographic research is also about theory building. The point and value of the detailed case-study descriptions is not just ethnographic verisimilitude but also to inform an analytic framework and model that Jason Potts (Banks and Potts 2010) and I call *multiple games* in the context of *social network markets* and that I develop over the final few chapters. This model aims to provide an analytic foundation to better understand co-creativity. These two ambitions of ethnographic description and model building align uneasily. The participants' accounts do not always seamlessly integrate with our model building ambitions.

Multiple games in the context of social network markets, the idea and proposition at the heart of this book, models co-creative culture as co-evolving markets and non-markets; this dynamic and emergent process is partly about the emergence of new, unstable and disruptive market relations. Social network markets draw attention to a demand-driven dynamic in which the agency and *choices* of creative citizen-consumers and their social networks, together with professional expertise and skills, are fundamental. This is a model of *distributed learning* over a complex and uncertain environment that changes as and because agents explore it. It is a social and emergent learning process because it is a discovery process that builds upon itself. The agents, both professional and amateur, are engaged in learning processes that are heavily networked and emergent. These agents' choices are influenced by the choices of others. But they are making and exercising choices in contexts of quite profound uncertainty about the pay-offs and incentives at stake in these co-creative transactions. This model, however, is not about reducing cultural practices to economic or commercial imperatives as these choice contexts are often simultaneously about both commercial and non-commercial values or intrinsic *and* extrinsic incentives. A multiple game, we propose, is the basic analytic unit when focused on social learning and emergent behaviour in contexts of co-creativity. The basic idea is that agents navigating a world of behaviours in overlapping incommensurable contexts (both commercial and non-commercial) will find negotiated rules and norms for actions, and these rules and norms will mostly be sourced from and negotiated with the social environment itself. This is adaptive and experimental play.

What do these multiple games and social network markets look like? My thinking about this mix of commercial and non-commercial motivations and

incentives, professional work and expertise coordinating with consumer hobbyist passion and dedication, that seemed to be at the very heart of co-creativity coalesced for me in a particular moment of my ethnographic research and employment with Auran. I glimpsed the potential of co-creativity for changing how we generate knowledge and learn. At the same time questions about the terms and conditions in which the value generated through these activities is shared and distributed troubled me. In July 2002 some six months after *Trainz's* commercial release I attended the National Model Railroad Association (NMRA) convention held in Fort Lauderdale, Florida. I was attending this convention with Auran colleagues to promote the game. In the lead up to this convention *Trainz* fans were eagerly awaiting the release of an update that would support steam locomotives. This was a much-requested feature that Auran's developers had not completed in time for the release. However, an ad hoc group of *Trainz* content creators had figured out through adaptive trial-and-error experimentation how to include steam locomotive content in the game. This distributed user-led innovation effort looked like it might beat Auran's professionals to introducing steam. Although I was also aware that many of the Auran developers were assisting these amateur developers with information and guidance about how best to advance this steam project. I provide a more detailed account of this steam locomotive project in Chapter 3.¹ But at this introductory stage in this book an account of this convention event where I encountered one of the early outcomes of this steam project usefully brings together the various threads of co-creativity that are at the core of our idea of multiple games and social network markets.

Rail-fan enthusiasts and associated businesses and clubs from all over the world attended the convention. Members of the online *Trainz* fan community also joined us. We had arranged for Badtrash to fly to Fort Lauderdale from his home in Georgia so that he could assist by both demonstrating and selling *Trainz*. Mutey, Bitstorm and Amethyst had made a four-hour-plus drive late at night, to arrive at the hotel in the early hours of the morning, bringing their PCs and monitors to help out by demoing *Trainz* to the model rail hobbyists. The volunteer fan team stood for hours in front of PCs, demoing *Trainz's* features and fielding questions. They actively pursued sales, encouraging reluctant or wavering potential customers with comments like: 'Look, this game is absolutely fantastic. I spend hours every week playing it. I just cannot get enough of it. And I'm not even paid to be here.' They would then demonstrate one of their favourite *Trainz* features, showing how easy it is to lay track or create a mountain range and put in a tunnel. The demonstrations often ended with Badtrash or Mutey making the sale.

This sense of co-creativity reached something of a climax on the final day of the show when another member of the *Trainz* fan community, Gumby,

arrived to help out. Gumby was a quite well-known and talented member of the content creation community. Together with a small team of creators, he was working on a series of locomotive models whose release through their website, Digital Roundhouse (www.digitalroundhouse.com), was eagerly anticipated by many in the growing *Trainz* online community. Shortly after arriving at the show and introducing himself, Gumby handed me a CD, prompting: 'Take a look, you've got to load this, I think you'll be impressed.' I handed the CD to Bitstorm who loaded it with the comment, 'Oh yeah, I saw that this baby had gone up on Download Station.' 'There she is,' announced Badtrash, and I heard a few wows and noises of appreciation from the rail fans clustered around the monitors. One elderly man I had been discussing the features and merits of *Trainz* with (we had worked out that his PC really wouldn't support *Trainz*) tapped me on the shoulder, pointed at the screen and said: 'I thought you said *Trainz* didn't have steam, that P10 is a beautiful beast, if it has steam then I want a copy.' After paying the \$40 and writing down our recommendation for upgrading his PC hardware, the man stood back for a half-hour or so with a growing crowd of appreciative onlookers glued to the image of the P10 steamer chugging around a layout up on the screen.

I recall an Auran colleague whispering as he passed by, completing another sale: 'Wish we had steam from the start of the show, would probably have got us a good few more sales.' He requested that we turn up the speakers' volume, so the steam sound effects would grab attention and maybe sales. This mixing of technologies, fan investment, capital investment and commerce, DIY practices and skills and histories with professional developer skill and expertise blurs the boundaries among agents and enterprises. The P10 entangles the commercial and the non-commercial, the proprietary and the non-proprietary in an uneasy alliance.

Multiple games are what each of us plays every day when we need to make choices to act in the overlap of sometimes complex, conflicting and uncertain multiple environments. The value generated by and thorough co-creativity emerges from the frictions and tensions among these incommensurable and often contending domains. Co-creativity is not a situation in which we must or should decide on privileging one over the other: the commercial over the non-commercial or vice versa. Instead, we are experimenting and adaptively learning how to harness these practices for mutual benefit. By proposing this, however, I am not suggesting that discovering what constitutes mutual benefit and how best to pursue that is straightforward. As we will see throughout this book – it is difficult and perplexing and potentially rewarding.

Chapter 1, 'Situating co-creativity', identifies and describes the key issues, topics and challenges of co-creative cultural production by engaging with the work of Henry Jenkins (2006), Yochai Benkler (2006) and Axel Bruns (2008),

among others. I also introduce co-creativity in the context of videogames by discussing games such as *Spore* and *LittleBigPlanet*.

This chapter then draws on the ethnographic research I have undertaken with Auran games (Brisbane, Australia) and semi-structured interviews with staff at Maxis (San Francisco, United States) to contextualize my argument about the significance and characteristics of co-creativity. I draw on interviews with developers and managers at both companies to identify the key issues and challenges confronting media professionals as they grapple with co-creativity. This chapter describes how the developers and managers endeavour to articulate what is at stake in these co-creative relationships.

Throughout this ethnographic research the technologies that contribute to the making of these co-creative relations became a pressing issue. What is the status of game engines and software editing tools in the making of co-creativity? Most recent studies of participatory culture and user-generated content, while acknowledging the significance of Information Communication Technologies (ICTs), then often black box the role of technologies in shaping these relationships. Chapter 2, 'Co-creative technologies' explores this question of technology by examining Auran's efforts from 1998 through to 2001 to build an open-architecture game engine. Drawing on interviews with Auran's programmers, designers, producers and graphic artists, this chapter examines how the game engine reconfigured relations within the Auran development team. I use the actor-network theory (ANT) of Bruno Latour, John Law and Annemarie Mol to argue that the game engine is a complex object that in its very multiplicity coordinates different competing and conflicting agendas. The different versions of Auran's game engine, although often incommensurable and incoherent, do hang together. Incommensurabilities are not necessarily obstacles to the successful performance of a game engine technology development project. Game engines and editing tools are important in the making of co-creative culture. While emphasizing the role of both humans and non-humans in the making of networks such as co-creativity, ANT however loses analytic traction when we try to understand the nature of these dynamic relationships. I turn to the evolutionary theory approach of W. Brian Arthur (2009) to understand how *technological evolution* shapes co-creativity.

Chapter 3, 'Co-creating *Trainz*', provides a descriptive case study of how Auran increasingly involved train and rail fans in the process of designing and making *Trainz*. This chapter covers the production and commercial release of *Trainz* from June 2000 to 2004. Over this period Auran came to increasingly rely on the *Trainz* fans' content creation. Using editing tools provided with the game, users make their own 3D rail world layouts and import 3D models of locomotives, and then share them with other users through the Auran website. The value generated through these co-creative activities contributed directly

to *Trainz*'s commercial success. Fan creators were effectively embedded throughout the design, development of *Trainz*. I question, however, the tendency to frame these relationships through oppositions between the commercial and the non-commercial. I argue that such stark oppositions are not helpful in understanding the complexities and opportunities that shape this emerging landscape.

Chapter 4 'Co-creative labour?' (with Sal Humphreys) considers games developers' reliance on the value generated by train and rail fans as a form of user labour. It explores work by Tiziana Terranova, Andrew Ross and others who argue that the creative industries increasingly rely on the free labour of consumers and that this co-creativity may also contribute to the precarious employment conditions of professional creative workers. Working from the ethnography of Auran's co-creative relationship with the gamer fans and interviews with Maxis staff, this chapter explores when the actors themselves deploy the discourses of work and labour to shape their understandings of these relationships.

Although corporate developers extract value from these co-creative relationships, I argue this is not simply the case of exploiting unknowing fans as a source of free labour. These entanglements of the proprietary and the non-proprietary, the commercial and the non-commercial, are not necessarily an appropriation of fandom or the work of media consumers by corporate bottom-line agendas. Is the labour theory of value the best approach for understanding these emerging modes of organizing production, which rely on a fabric of often incommensurable loyalties, incentives, motivations and logics that often nevertheless work for mutual benefit? The very success of such co-creative game development projects relies on embracing the incommensurabilities among the actors participating in the making of this network. I argue that co-creative culture may not simply be a source of cheap content or unpaid and exploited labour.

Co-creative culture relations are hybrid and radically distributed collectives of amateur and professional, expert and non-expert emerging from the increasing reliance of the creative industries on user-led innovation and user-generated content. Co-creativity moves creative industries production and project practice from a closed industrial model of expertise toward an open and dynamic innovation system (Chesbrough 2003; Von Hippel 2006). User co-creation is a dynamic mechanism for coordination and change that potentially transforms business and consumer practices towards open innovation networks. Chapter 5, 'Co-creative expertise' draws on ethnographic research undertaken throughout 2007 following the final stages of Auran's development and release of *Fury*, a competitive, PvP, massively multiplayer online game, released in October 2007. I explore the relationships between Auran's professional developers and a network of game players who provided

Auran with extensive feedback and design input. I examine this problem of expertise as it unfolded, disrupting the development of *Fury*.

The final chapter, 'Modeling co-creativity: Multiple games' (with Jason Potts), elaborates our model of co-creativity as multiple games in the context of social network markets. Co-creativity is approached as a dynamic of co-evolution between markets and non-markets.

Defined by Potts et al. (2008) as markets in which consumers' choices are determined by the choices of others, the social network market model challenges the reductionist behavioural rationalism of traditional neoclassical economics. Social network markets explore and model co-creativity in the context of making choices. These choices, however, aren't exercised within the narrow behavioural incentives and motivations described by traditional microeconomic theory. This model is based on the notion that this is neither an economic nor a cultural phenomenon in itself, but rather the outcome of a co-evolutionary process between both economic and cultural domains. The ethnographic data that this book draws on suggests that *both* economic and cultural factors, intrinsic and extrinsic motivations, commercial and non-commercial incentives are simultaneously shaping co-creativity. This concerns not just how these domains provide the conditions for the others, but in terms of how they transform into each other. It is precisely this co-evolutionary dynamic in which cultural and economic opportunities are reconfigured simultaneously that gives rise to social network markets as an analytically meaningful approach to understanding co-creativity. This allows a complex interaction between the two domains and their associated motivations and incentives. I argue that it is precisely this co-evolutionary dynamic that help us to understand these co-creative relationships works and how they can work for mutual benefit. Rather than framing co-creativity in political economy terms by insisting that firms such as developers and publishers are exploiting gamer co-creators for surplus value and asking whether gamers are therefore in some sense unaware of, or perhaps misguided, about the conditions of these exchanges, we explore the conditions and characteristics of the often informed and canny choices that both developers and gamer consumers are exercising. However, these choices are not simply narrowly and economically reductionist 'rational choices'.

The book concludes with an interview with leading games designer Will Wright in which we discuss some future directions for co-creative culture and the challenges associated with understanding and crafting this emerging phenomenon. I argue that many of the challenges and dilemmas arising from co-creative culture may be best addressed through trial-and-error evolutionary mechanisms – adaptive and emergent, experimental and playful.

1

Situating co-creativity

Auran and *Dark Reign*

I was made aware of Auran in mid-1997 by gamer fans forming around *Dark Reign*, a then forthcoming real-time strategy (RTS) game co-produced by Auran and leading videogames publisher Activision, and published in September 1997 by Activision. The fans were in the process of establishing websites focusing on the game that included preview content, news and descriptions of game features; they were enthusiastic about the level of Auran's involvement with the online fan community. Auran was heavily promoting the fact that the game would include user-friendly editing tools, enabling players to create and share add-on maps. Auran had also committed to releasing an extensive user guide or manual, available for download from its website, providing detailed information about how to modify various game features.

Auran was experimenting with various methods of establishing and maintaining relations with the *Dark Reign* fans. Part of this effort included both Auran and Activision staff participating in a weekly Internet Relay Chat (IRC) meeting on the 'Dark Reign' channel. In these sessions, organized by a key figure in the fan community, programmers and designers would answer questions and discuss game features. Now, these discussions were obviously a promotional and marketing vehicle – it was a way of generating interest in the game. In discussions with me, gamers indicated that they were well aware that this strategy was part of the 'ramp-up-to-release hype'. But they were also encouraged by Auran's participation: they believed or hoped that the game developers were listening to them, and that their ideas might perhaps even influence game design decisions. The company impressed fans at the time with its willingness to enter into open-ended exchanges about the forthcoming *Dark Reign*. Since then, hard-core gamers participating in the online communities have increasingly come to expect that game

development companies will now actively listen to, engage with and support the fan groups that form around game titles. Fans expect to be increasingly involved in the game production process. In short, they expect a collaborative and co-creative relationship.

Auran's effort back in 1997 to build closer relationships with the fans can be viewed as a canny strategy adopted by an emerging small-to-medium enterprise developer as it attempted to increase its profile in the global game marketplace. This peer-to-peer marketing initiative certainly raised Auran's profile among the hard-core gamers of the online RTS fan community.

With all of this in mind I approached Auran and negotiated an opportunity to visit them and research the relationships they were exploring with online fan communities. At my first visit to Auran's inner-city Brisbane office in mid-1997 I recall noticing a cluttered open-plan layout. Auran was obviously quickly outgrowing its office space, as workstations were crammed together. In this initial meeting Auran's CEO, Greg Lane, was summing me up in an effort to decide whether to provide me with access to Auran and on what terms. I was nervous and Lane made an effort to put me at ease by discussing our common background as gamers. We discovered that we shared a boyhood hobby of playing board war games and the role-playing game *Dungeons and Dragons*. Lane had been very active in the Brisbane role-playing scene and had organized a large role-playing club in the mid-1980s. He pointed out that it was this involvement with role playing and gaming generally that provided him with an appreciation of the value and importance of fans.

The Auran development team had just returned from a trip to the United States where they had worked for a number of weeks with the Activision team, *Dark Reign's* publisher, putting the final touches on the game. *Dark Reign* was approximately six weeks from release.

It seemed to me that the discussion was going well, as Lane discussed *Dark Reign* and Auran in a reasonably open way. Lane then said: 'I guess you'd like to see the game'. He demonstrated various features that were standard in the RTS genre and a few new functions, then said: 'But I think this is probably one of the coolest things about *Dark Reign*'. He switched to the editing tools package and demonstrated how easy it would be for gamers to create new maps and modify various parameters. He spent a lot of time showing me how the game could be extended and modified – how the editor toolset could be used as a paint program to create new maps, and how players could access configuration scripts to change or modify various variables (including AI routines). He commented:

From the start of the project, developing the Tactics Engine [the games engine used to develop the *Dark Reign* design], we've wanted it to be as extensible and customisable as possible. The idea and importance of

a configurable game kind of emerged as we worked on the engine. I'm looking forward to see what the users do with this, what kind of content they create.

For the remainder of the meeting, we discussed the relationship between game developers and the online fan communities. Lane said:

Extensibility or customisability of a game engine is very important, I think, to attract the hard-core gamer group, particularly those whose gaming activities are internet based . . . We're not sure exactly how important our involvement with the fans will be to eventual sales of *Dark Reign*. But we do believe that it is important; it is something that we are very committed to . . . I think that the hard-core online gamers do have an influence, particularly the ones who run the major fan sites. They are opinion leaders. They influence the level of presence and credibility that a game title has online. The more fan activity around a game title (creating websites, making additional content), the greater is the title's credibility with gamers who are online. We believe that online gaming activity will only grow in the coming years. So yes, we do believe it is important to listen to the fans. But how important our involvement is for sales is anyone's guess at this stage. What's our return on investing in all of this – who knows really? I have a view that it will extend the shelf-life of games. Games have a relatively brief period in which to make their sales. Maybe fan activity, like content creation, can extend the interest in a game. But apart from that, it is a lot of fun. The fans obviously enjoy it and the guys here also have fun with it.

An important feature of the emerging gamer fan culture, and one which is now supported by many titles, is user-created content – extensions and additions to the game software (often described as 'mods' or 'add-ons'). This opening of the game architecture to the end user contributed to the success of ID Software's break-out title *Doom*. In *Joystick Nation*, J. C. Herz (1997: 90) observes that *Doom* marked a potential transformation in how games are made, becoming open-ended processes in which end users participate. ID released the source code of *Doom* in December 1997 under a not-for-profit license, allowing fans with programming skills to modify the game: 'They could create custom soundscapes, tweak the game's configurations, or even create new levels, entire episodes of the game . . . Players became a part of *Doom's* world not just because they played the game but also because they constructed bits of it.'

Game development companies now routinely include editing and modding tools with their game release software package. These are often the software tools that the game designers and artists use in the production of the release

title, and enable users to modify or produce new material for the game. Skins or textures modify and alter the graphics of elements and models in the game. More extensive modifications such as 'total modifications' include the ability to create new game levels or game units and objects that can be shared with other players. Games researchers recognize the value and significance of modding for the videogames industry and games culture (Banks 2002; Postigo 2003, 2007, 2008; Dovey and Kennedy 2006; Kerr 2006; Nieborg and van der Graaf 2008), often citing the multiplayer modification *Counter-Strike*, a counterterrorism themed first-person shooter, developed by amateurs Minh Lee and Jess Cliffe in 1999 for Valve's popular *Half-Life* (1998). As Nieborg and van der Graaf (2008: 178) note,

The success of *Counter-Strike* eventually surpassed that of *Half-Life*, and gamers started to buy the original game just to play the mod. Foreseeing a great future for *Counter-Strike* and its developers, *Half-Life*'s original developer Valve responded by offering the mod team a spot on Valve's professional development team and in so doing, acquiring *Counter-Strike*'s valuable intellectual property.

Commercially successful titles such as the retail phenomenon that is *The Sims* (Maxis and Electronic Arts: 2000) franchise rely heavily on gamers creating and sharing content. In 'Learning from the Sims', J. C. Herz (2001) suggests that the success of the popular phenomenon of *The Sims* is perhaps explained, at least in part, by Maxis's efforts to involve its customers directly in the process of developing and evolving the product. This reached 'the point where customers not only do a large portion of the innovation and marketing but also produce as much intellectual capital as they consume'.

The success of the Maxis developed and Electronic Arts published *Spore* (2008) thrives on user-created content. Players use 3D editors to design creatures and other in-game content, guide their creatures through stages of evolution and then share their creations with other players. Maxis harvests this player-created content to populate other players' games through a system they describe as 'pollinated content'. Since *Spore*'s release in September 2008 well over 100,000,000 items of player-created content were uploaded to the online Sporepedia repository within the first year. Players can also upload directly from within their game videos of their creature creations to the *Spore* YouTube channel. Creating and sharing content is such a core feature of *Spore* that the game is perhaps best understood as a social network generated from player creativity. The puzzle-platformer *LittleBigPlanet*, developed by UK-based Media Molecule and released in October 2008 for the PlayStation3 console, and its sequel *LittleBigPlanet2*, also rely heavily on user-created content. Players can use drag-and-drop level editors embedded throughout

the game to create and edit new levels. They then can share these creations with other players through the Playstation Network online service. LittleBig workshop, the game's official online community website, allows players to share their level designs and in-game videos. The site also provides video tutorials that help players as they learn to use the level editors and create their own levels. Since *LittleBigPlanet's* release over two million player-created levels are available and the Game of the Year edition includes 18 of these levels.

The particular significance of titles such as *Spore* and *LittleBigPlanet* is that they integrate co-creative media culture into the very core of the gaming experience and the videogame business. *LittleBigPlanet's* tag 'Play, Create, Share' foregrounds the centrality of this co-creativity.

Back in 1997, however, as I interviewed Lane and visited Auran, I was just glimpsing the potential of user-created content and its implications for transforming producer-consumer relations. After securing Auran's agreement to participate in the research, regular visits to the workplace were arranged, including the opportunity to interview programmers and designers working on *Dark Reign*. I was aiming to obtain a programmer's perspective on the open-architecture game engine design that Lane had been discussing with me. My fieldnotes record that on one of these early visits I approached a young programmer asking, 'what he was working on', and he gestured at the screen replying, 'You know, tracking down the last few bugs.' When I asked further about *Dark Reign*, the open-architecture Tactics Engine and Auran's plans to support the fan community's efforts to create add-ons and modifications, he appeared to be uneasy about how to respond. He said:

Yeah, the fan stuff is really cool and important. We want to put some effort into that area of the game. Like how we do the chats with the fans.

I then asked about the Tactics Engine technology behind *Dark Reign*, and how Lane had described it as being open and modifiable by the gamers. The programmer appeared to be somewhat uncomfortable, and said, 'I should be getting back to it, it's crunch time here and there's still heaps to do'.

On that note our discussion abruptly ended. As I left the main workspace area, I noticed that he was sitting back down in front of the PC, obviously back at it, whatever 'it' was. I assumed that he meant working on fixing bugs. The real action for him was there, working at the PC, coding. From my initial visits and similar discussions with the developers, I came away with the problem of how to engage with what the young programmer was doing when he was sitting in front of the PC coding.

Before I left Auran, Lane said: 'Take a look at this' and as on previous visits brought up on the screen the *Dark Reign* editor tools. 'We've done some

work on it since you last saw it, based on feedback from some of the beta testers. You know Leviticus and Hokkies from the community, right, they're beta testers as well.' He then demonstrated how quickly and easily a new map could be created. 'I really want to see what the gamers do with this. I think the editor and our support for the fan community post release should help to differentiate us from the competition. What do you think?'

What did I think indeed? This question raised uncomfortable dilemmas concerning my positioning between Auran and the gamer fan community. Lane clearly viewed the research relationship as a mechanism through which Auran could more effectively monitor and manage the fans. The fans, on the other hand, viewed their relationship with me as an opportunity to gain insider information about Auran that would then potentially improve their standing in the fan community. At the same time that I was undertaking the early interviews and dialogues with Lane, I was also actively involved in the *Dark Reign* online fan community. I participated daily in chat sessions on the *Dark Reign* IRC. I was in regular email contact with many of the community members who hosted fan websites such as 'Dark Reign Chronicles'. In these exchanges, it became apparent that members of the community viewed me as a mediator and contact point with Auran. I was regularly emailed questions about *Dark Reign* and the Tactics Engine on which I was asked to obtain information and responses from Auran. Lane would from time to time provide responses that I was then permitted to pass on to the fans. The issue of how academic research colludes with a range of agendas, both business and non-business, when undertaking ethnographic research in digital media commercial environments and sites – such as a game development company – is a problem and dilemma for this book and I am not sure that I manage to resolve it. However, it is not a problem that can be overcome or avoided by adopting a reflexive methodology. Nevertheless, the troubling question remains open: is participating in such research a case of co-optation to business agendas? I argue that logics of co-optation or opposition are not at all useful or helpful when negotiating how we participate in these networks.

I was increasingly aware that my research visits to Auran had also become an opportunity for both Auran and the online fans to explore potential relationships with each other. Initially, it appeared that I was caught up in a process of explaining or reporting on one to the other, and vice versa. For example, in December 1997, shortly after *Dark Reign's* release, one of the leading local fans, VR_Bones, contacted me expressing interest in my research about players creating modifications and content for *Dark Reign*. He visited me at my home to provide me with a 'demo of what we're doing so you have that perspective when you're discussing stuff with Auran'. He travelled a good hour or so by train with his PC box to show me various maps he had made with the editing tools and maps created by other players. He also

demoed for me AI scripts he had written to change the behaviour of various units in the game. He said, 'guys in the community are working on some great scripts, it won't be long before we've done the AI better than the devs [developers]'. It became clear though that he was also pointing out problems and limitations with the editing tools that 'needed fixing'. He commented:

It is great this open approach and giving us the tools. But if Auran really wants to see good content come out of this, they really need to fix these things. They're just getting in our way. Auran seems really responsive so maybe you could tell them about this next time you're in there. Who knows maybe they'll make the fixes we want.

Dark Reign was released in September 1997 and quickly became commercially successful, eventually selling over 700,000 copies. It received favourable reviews from online game-site press and offline game-review magazines. Auran released the *Tactics Engine Manual* that explained in detail how the Tactics Engine could be modified, and how users could access, modify and create game scripts to change and alter various key game parameters. Shortly after the release, new game maps created by users started to appear for download on the fan websites. Lane was hopeful that this was just the start of a growing source of fan-generated content that would support *Dark Reign*. However, fan content creation activity was lower than anticipated and never became a significant feature of the player activity around *Dark Reign*. Lane felt that a number of compromises had been made in the design of *Dark Reign* that made it somewhat difficult for players to modify or create add-ons. He commented in March 1998:

We learnt from that, it really needs to be simpler, easier to use, the barrier has to be lower, because we know if it is too difficult to use then, well most people won't give it a go, or they'll give up. All except the really hard-core guys . . . I still think the open architecture engine approach is the way we want to go. Involving fans, the gamers in the process is going to be increasingly important. It may well change how we make games and an open engine is important here. It amazes me what groups of fans are achieving, and the developers need to tap into that.

The new participatory culture?

My fieldnotes from these visits to Auran throughout 1997 and into early 1998 pose the question was I witnessing a significant change in the relations between consumers and producers that went beyond the cultural studies and

media studies active audience thesis? Were the very conditions of participatory media culture transforming? And if so, how were these changes being made. What precisely were the programmers, designers and producers doing that contributed to these changes? The term 'participatory culture' can be traced back to the subtitle of Henry Jenkins' influential 1992 study of fan cultures, *Textual Poachers: Television Fans and Participatory Culture*. Through a series of ethnographic accounts of media fans' 'troubled relationship to the mass media and consumer capitalism' (1) and following Michel de Certeau's notion of active reading as a mode of 'poaching', Jenkins foregrounds the activity of media fans in appropriating and reworking the resources of commercial culture according to alternative and at times even potentially resistant agendas.

But Jenkins' work also emphasizes the conflictual relationship between fans and official media producers:

[Fans] lack direct access to the means of commercial cultural production and have only the most limited resources with which to influence entertainment industry's decisions. Fans must beg with the networks to keep their favorite shows on the air, must lobby producers to provide desired plot developments or to protect the integrity of favorite characters. Within the cultural economy, fans are peasants, not proprietors, a recognition which must contextualise our celebration of strategies of popular resistance. (27; also see 31–2)

Jenkins reminds us throughout his study that, although fandom's poaching, producerly, active modes of appropriating cultural texts are significant, we also need to acknowledge that they do 'not provide an adequate substitute for access to the means of cultural production and distribution' (27).

Did these emerging relationships between Auran and the *Dark Reign* fans indicate a profound shift in participatory culture relations between producers and consumers in which consumers were starting to enjoy access to the means of cultural production and distribution? This did not so much concern just the fact that the gamers were making and sharing content but more so the nature and character of the relationship, the *co-creative relationship*, with the developer company within which these participatory media practices were made and negotiated. How was this changing the conditions of cultural production?

In *Fan Cultures*, Matt Hills (2002) provides a persuasive critique of Jenkins's figure of the fan. He argues that cultural studies' academic agendas have carefully shaped the figure of the acceptable, desirable fan: 'certain aspects of fandom are emphasised and other aspects are downplayed . . . in the polemical defence of fandom mounted by Jenkins' (8). According to Hills, Jenkins's work is structured around a 'moral dualism' of good producerly fans and bad

consumerly non-fans. As a remedy, he proposes an approach grounded in a factual basis that offers a 'more complex and less celebratory model of fandom' (9).¹ Hills encourages us to articulate a more complex understanding of the relationships between fandom, corporate commercial culture and academic researcher. He argues, for example, that Jenkins's version of fandom is designed to 'act upon particular academic and institutional spaces and agendas' (10). Jenkins's fan is not a cultural object to be understood and represented. Rather, it is modified into a 'shape which will allow it to act on the academic community'. Here the fan functions as a screen against which the political values of the cultural studies academic are projected (10–11).² Hills then poses the troubling question: what happens to these notions of the fan that have tended to dominate cultural studies research such as Jenkins's 'when fan cultures are themselves directly targeted as a niche market' (27)?

These criticisms of cultural studies work on fandom and the active audience thesis are not particularly new. Nor is the observation that fandom offers a tempting niche market for corporations (Ang 1996: 10–11; Nightingale 1996: 95–100, 126–30). Hills adds the concern that such an understanding of fandom also relies on an assumed separation between producers and consumers. Producers own the apparatus of production while consumers poach on the production space by appropriating the end products. He questions this reliance on de Certeau's work, observing that 'it seems too rigid to deal helpfully with any blurring of consumer and consumer-as-producer identities. It effectively cannot come to terms with the possibility that consumers can actively seek and adopt strategic positions in the official, production space' (39). Here Hills brings to our attention the fact that the conditions through which fandom is shaped are in the process of a significant transformation. We see this playing out in my initial research with Auran. Jenkins's work has also moved on from the *Textual Poachers* position to grapple with the implications of these changes for his understanding of participatory culture.

In 'Interactive audiences?' (2002) Jenkins takes up the work of Pierre Lévy to think through the transformed relations among interactive audiences and media industries. Lévy argues that, in economic terms, 'the production of added value is shifted to the consumer or, rather, the notion of consumption should be replaced by that of the coproduction of merchandise or interactive services' (80–1). For Lévy, these trends indicate 'the emergence of a qualitatively different transaction space in which the roles of consumer and producer are undergoing profound change' (78).

In *Convergence Culture* (2006) Jenkins develops an understanding of these changes in participatory culture that avoids an oppositional logic that sees consumers as either resisting or co-opted by the media industries. He unsettles such either/or logics – refusing to see media consumers as either totally autonomous from or totally vulnerable to the creative industries. Instead,

Jenkins approaches media users as pursuing complex and contradictory alliances and suggests that fans seek to open and explore possibilities for participatory alliances within these commercial networks. Problems then become those of access, and the terms and conditions of this participation, rather than opposition or resistance.³ This is a framework in which fan communities are not understood as either resisting the culture industries or being seamlessly incorporated to corporate interests and agendas. Instead, these participatory culture negotiations and alliances are perhaps becoming 'part of the normal ways that media operates' (246).

The particular strength of Jenkins' analysis is that it foregrounds the dynamic relationships between media consumers and media industries that define participatory culture. But is his work still open to the criticism levelled by Hills that it overly valorizes the productive activity of media consumers? This becomes clearer perhaps in recent work that picks up from Jenkins's work such as Bruns's (2008) idea of *produsage*. In an exemplary study that canvasses the increasing role of users and consumers in making and creating media content, from open source software development, news blogging and Wikipedia, through to Flickr, YouTube and the videogames industry, Bruns argues that the very term production is itself a problem as it locks us into industrial model understandings of production. What he describes as 'produsage' so thoroughly involves and integrates users in the process of making content in their own right that it exceeds and fundamentally breaks from industrial modes of organizing production. But in the effort to foreground this productive agency of media users and consumers does Bruns perhaps too quickly overlook that much of this activity still predominantly occurs through commercially owned and produced platforms and tools. Furthermore, media professionals remain central to creating and making the various media products and practices that he discusses.

The level of abstraction of a concept such as *produsage*, while its very strength, perhaps overly abstracts it from the very relationships and media production practices, which make many of the activities possible in the first place. It also postulates production as something of a static form rather than itself a complex and evolving set of relationships that are not necessarily and finally defined by a particular form of industrial fordist organization. Bruns is describing an evolving *production-consumption relationship* and perhaps too quickly rejects categories such as producer, consumer and user as unhelpful and outmoded, commenting 'the role of "consumer" and even that of "end user" have long disappeared, and the distinction between producers and users of content have faded into comparative insignificance' (2). When Bruns analyses the videogames industry as an 'outright trailblazer of these processes' (289), briefly referring to *The Sims* and touching upon Auran's *Trainz*, he acknowledges this is somewhat problematic as these are commercial products and platforms in which the 'producers' making the content are also

consumers purchasing the game software. Professional game developers and the work they do also figure prominently in the practices that Bruns describes. The very generality of the concept of produsage starts to get in the way of describing and analysing the precise characteristics of these changing production and consumption relationships as they emerge and are negotiated across different media industry sectors. There is no sense, for example, that the specificities of the videogames industry may require us to revisit the idea of produsage for some fine-tuning – it provides another example to illustrate the general principles detailed in the book's second chapter. But that said general principles are important and in the concluding chapter I will offer some general principles about these emerging modes of cultural production myself. However, I hope that productive tensions will remain among the empirical detail of the ethnographic case studies and the proposed principles.

We need closer and more detailed accounts of how these co-creative relations work and of how they are negotiated in creative industries workplaces. Important studies such as Thomas M. Malaby's (2009) *Making Virtual Worlds: Linden Lab and Second Life* point us in this direction by offering a richly textured ethnographic account of how the employees of Linden Lab grappled with the challenges and complex processes of making virtual worlds such as *Second Life*. I am offering these observations, however, not to reject either Bruns's or Jenkins's foregrounding of consumers' increasing role in making and circulating media content and experiences – this is certainly fundamental to the idea of co-creativity. But my starting point with the idea of co-creativity is not in such a rush to leave behind categories such as production and consumption; it is rooted in the uncertainties and controversies about how these emerging cultural and economic relations are made. Malaby's account of Linden Labs is significant precisely because it foregrounds the Linden designers' uncertainties as they attempt to craft a virtual world that at its core and in its very usability sought to encourage users to creatively make the world of *Second Life*. Malaby describes this as a 'contrived architecture' (8) in which the somewhat top-down design intentions and goals of the Linden staff meet and collide with the often-unanticipated practices of the users. As Malaby notes, 'Second Life depends on unanticipated uses by its consumers' (8). However, as he describes so well, the efforts of Linden designers to control or direct user practices often have quite complex and unintended consequences. Malaby's ethnography then is an account of what this user co-creation activity means not simply for the users themselves, the participatory culture and produsage emphasis of Jenkins's and Bruns's work, 'but for the increasing number of such architects of digital environs, all of whom may be charting a new way to design this open-endedness' (8). He carefully foregrounds the craft skills and practices of the professional Linden Lab employees in making these worlds and rigorously describes their diverse understandings of these emerging practices.

Malaby explains that control and authority over cultural production are at stake here. To craft these open-ended worlds the professional developers need to give up some aspects of control. By embracing the contingency of these relationships they are remaking cultural production firms and organizations in a less hierarchical, less top-down fashion. This concerns the changing conditions of cultural production and the implications of these changes for professional cultural producers and cultural production firms and organizations. Malaby argues that Linden Labs and its employees are pursuing a mode of governance that rejects the traditional control imperatives of business management. He hopes that his book contributes to our being

in a better position to understand the emerging institutions that are ever more able to shape and govern our increasingly digital lives. It explores how an organization that set out to create a deeply and complexly contingent environment is then itself remade by its creation through that domain's emergent effects, in a constantly reiterative process, but without losing its position of greatest influence. (9)

This also is the ambition of this book. The themes that Malaby identifies of architecting open-ended contingency and the associated dilemmas of limiting control are also central to this book, as will become apparent throughout the ethnographic material, including the interviews with game developers that are the centrepiece of this chapter.

Professional game developers – programmers, designers, community managers, animators, producers and managers – contribute to the crafting of co-creativity. The co-creative choices and behaviours of the gamers that I briefly mentioned in the introduction and develop more fully in the final chapter are configured by these designed 'choice architectures'. However, I would add that the players themselves contribute to the architecting of these domains. The players and the professional developers are in a co-constitutive relationship.

The ethnographic accounts in the remainder of this chapter, and indeed throughout much of this book, foreground the practices and understandings of professional developers. I provide the detailed accounts and at moments quite lengthy interview extracts to emphasize these professionals' diverse understandings of crafting co-creative media. I also try to draw out the uncertainty and indeed contingency that characterizes their understanding of these emerging relationships. Greg Lane, for example, observed in many of our discussions in late 1997 and early 1998, his uncertainty about the merits and aims of exploring these co-creative relationships with gamers. He acknowledged that there is a 'bottom-line' here: 'This needs to contribute to selling game boxes, that's why we are doing it, and I'm still unsure if it does

that or how it contributes to that, but look the guys (gesturing around the office) are having fun with this, the chats and so on, and the fans are having fun with it too, but where it all goes from here and how far we can take it, who knows?’

This ethnographic material does not provide a comprehensive account of Auran from 1997–2007 nor is it a comprehensive study of the games industry over this period. I draw on the ethnographic material to illuminate the complex processes and practices of co-creativity. Many of the following chapters descriptively foreground the various ways that games developers and gamers wrestle with the opportunities and challenges of emerging co-creative relationships. Other chapters, especially the final three, draw on this material to propose and develop an analytic model of co-creativity. I want to be clear here on the relationship between ethnographic description and theory building. The thick detailed description and interview extracts should not be reduced to simply exemplars for the analytic and theoretical propositions. The ethnographic material informs and guides my theoretical account but there is a necessary tension between the ethnographic material and the theory. It is a tension that cannot be overcome through appropriate methodological reflexivity. Furthermore, although I have carefully selected the interview extracts from the many hours of recordings and hundreds of pages of transcripts, (ethnographic accounts are as the earlier Rabinow quotation suggests ‘fashioned’), I do not think this material is seamlessly reduced to my accounts. Drawing on Meghan Morris’s (1988) work, John Frow (1995) warns that the ethnographic object of study (he is examining the category of the popular) can become ‘the textually delegated, allegorical emblem of the critic’s own activity. Their ethnos may be constructed as other, but it is used as the ethnographer’s mask’ (69). The risk here then is that the interview and descriptive material from these game development workplaces may be my mask. However, I do not think we are stuck in a stark opposition between representational ethnographic verisimilitude and theoretical or critical analysis. Nor do I think that is what Morris or Frow are necessarily getting at here. I am not, I hope, appropriating these game developer accounts as a stand in for my academic discourse that ‘denies its own expository and analytic – its intellectual status’ (Frow 1995: 69). My aim is that this ethnographic account builds from this constitutive tension and dilemma. The analytic risks Frow and Morris identify are not necessarily an impediment or objection to undertaking ethnographic research. I think it also a mistake, however, to reduce ethnography to what Frow calls ‘its intellectual status’. My position in the making of this account is far more diverse and multiple than an academic proposing theory. It also comes from my experience as an employee of Auran games in the role of online community manager seeking to both understand and participate in the craft of making co-creative media relationships. This

employment opportunity came out of my dialogues with Greg Lane and other Auran staff as we sought to better understand their co-creative relationship with gamers. So in this book I seek to provide room for the voices and accounts of professional games developers. There is the possibility for constructive dialogue here.

In his recent book, *Together: The Craft and Politics of Cooperation*, Richard Sennett (2012) explores the craft of cooperation by focusing on people's responsive and communicative skills. He worries that conditions of contemporary labour – short term, project-based and precarious – weakens our capacity to cooperate. I think co-creativity may provide an opportunity to learn and experiment with new ways of cooperating, including in workplaces. Co-creativity may be up-skilling people with the skills and craft needed to make our complex, increasingly networked and distributed society work (Sennett: 7–9). Sennett suggests that the craft of cooperation requires dialogic listening skills, which he contrasts with dialectic, assertive forms of conversation. Dialectic, he argues, on the one hand seeks to reach a common understanding and establish common ground. Dialogic discussion on the other hand does not seek resolution by the imperative to find a common ground or to reach shared agreements. Sennett (22–4) also notes that the pleasures of dialogic interaction and exchange are often experienced in ethnographic fieldwork. I hope the following interview extracts, from my fieldwork with games developers invite dialogic listening as an interpretive activity that encourages a kind of discussion and exchange that perhaps also characterizes the cooperative potential of co-creativity.

Visiting Maxis

The research for this book culminated with visits in June 2009 to Maxis in San Francisco and Will Wright at his new company, Stupid Fun Club, also in San Francisco. Wright had recently parted ways with Maxis to pursue new possibilities for advancing co-creative engagement with audiences in the domain of cross-platform media. Wright described Stupid Fun Club as an R&D lab to experiment with co-creative media across toys, comics, film and TV, mobile devices such as the iPhone, social network platforms such as Facebook, and game platforms such as consoles and the PC. In my time at Maxis and with Wright I had the opportunity to conduct semi-structured interviews and informal discussions with some nine staff including Lucy Bradshaw, general manager; Morgan Roarity, chief operations officer (COO); Caryl Shaw, senior producer; and, Dan Moskowitz, lead engineer. I want to take care with not claiming too much for these interviews, as they certainly do not amount to anything like an extended ethnographic case-study

engagement with the daily work practices of these professionals. From my more extensive research with Auran games, I have learnt that what is shared in semi-structured interviews and how those ‘big creative ideas and visions’ play out in day-to-day workplace relationships can be very different. I am not saying that the interviewees deliberately set out to mislead or misinform – it is more that interview settings tend to elicit certain kinds of response and also certain expectations on behalf of the participants about the kinds of information and commentary they believe will be of value to the researcher. I will draw on this material at various points in this study, particularly over the final chapters and conclusion, as I think it helpfully contextualizes various claims that I will make. It also advances a somewhat different perspective from that provided by the Auran games case study.

The opportunity to visit Maxis and Will Wright happened because of a meeting with Caryl Shaw (senior producer propagated content on the *Spore* project), when she visited Australia in December 2008. As part of her time in Australia, Shaw spent a few days attending a workshop seminar with Australian games researchers at which we focused on the significance and challenges of emerging co-creative relationships between game developers and gamers. At the time *Spore* had been recently released and were witnessing the phenomenal growth in the amount of player-created content for the game. Shaw expressed the Maxis development team’s surprise at the amount of content created by the players over such a short period – a matter of two months. She also said that the designers were surprised by the speed at which the players were discovering unexpected applications and uses of the tools – Malaby’s (2009) unanticipated contingency:

They were very quickly discovering things that we missed or even knew were in there, but you know considered to be bugs [laughs], and then picking-up on that and coming up with creative uses to makes this really cool content. So these bugs become features that we then have to think about supporting or developing further.

An illuminating aspect of these informal discussions with Shaw was how she highlighted and personified all the *professional work* that supports the making of co-creative media culture. She discussed, for example, the challenge of designing and making editing tools that enable the players to create and enjoy all of the *Spore* content. She also raised the difficulties of scaling-up and rethinking their web and server infrastructure and systems that enabled the player-created content to be shared:

OK, so now that we’ve got this massive amount of content and we’re populating the players’ games with it, how do we help them sort through it

all and find that exact item that best suits their version of the *Spore* world? This is a big problem and it is getting bigger [laughs]. Then on top of that, how do we give all that content a meaningful and fun context or game play environment? The players don't want to just create; they also want to play with it and do stuff with it. With *Spore* I think we got the creating part right, the team really nailed that with the editors, they did a brilliant job. But I think we've got some way to go with figuring out how to provide meaning and value for all that content and then to give players' some kind of creative involvement in that.

When I visited Maxis in San Francisco from 22 to 26 June 2009, the team was dealing with the release of *Spore's* first expansion pack, *Galactic Adventures*. This expansion provides players with a set of tools that they can use to design their own mini-game adventures or levels with supporting stories, incorporating content they have created or has been created by other players. They then upload and share these adventures with other players. The following extracts from interviews with various staff provides a useful overview of many of the issues and challenges that characterize co-creative relationships in the videogames industry and that form core topics and issues in the following chapters. These include: the technologies and tools that contribute to making and shaping co-creative relationships; the nature of the value exchanges and transactions among the players and professionals; the players' creativity in exploring the potential of content creating tools; and, the role of professional developers in supporting and enabling these co-creative practices.

Lucy Bradshaw – Studio head

'The relationship'

Bradshaw started out the interview by emphasizing that these co-creative practices in the games industry have a history. For Maxis this goes back to Will Wright's *Sim City* series:

I think it was 97 or thereabouts. The first game I worked on was *Sim City 3000* and that was still at a time when there wasn't as much user generated content. But *Sim City 2000* had actually included the *Sim City* urban renewal kit (SCURK), a tool-kit that people were using to create their own content. So we were seeing little bastions of people starting their own sites, building creations for the game and they were sharing them. And I reached out to that particular community of players to understand what it

was they wanted out of the next *Sim City* and how could we engage with some of the things that they found interesting because I also looked at them as a sort of word of mouth channel . . . I felt that a word of mouth channel would actually be a very good thing because experiencing *Sim City* is a magical experience. It's this game that kind of pushes back at you and you create something just by playing the game, not even by using the tools that we made as ancillary products to go along with the game like SCURK. So I tapped into that web community and even hired one of the people who was doing that and he still works with Electronic Arts and he works on some of the *Sims* titles.

I asked Bradshaw to expand on this relationship Maxis was exploring with the content creators:

Well from there we embraced this idea that players really did make incredibly great content if we could give them tools that enabled to do so and if we kept somewhat of an open mind as to how they would get those assets into the game. So when we did *Sim City 3000*, the way we made the building tool, we revealed the way they could adjust the files to incorporate them with the game. And we made it about sharing content; we embraced it as a feature of the game. And really we've gone on from there exploring that relationship with the players. In *The Sims* back in 2000 or so we continued along that vein, we had people sharing content, houses and such, before the game even shipped. We created a tool called the Transmogrifier, which allows people to further adapt and customise objects in the game. It is kind of a creativity tool that lets you change the appearance of objects in the game. But this time it was different from *Sim City* – a lot more large scale. OK, it was still only you know a small percentage of creators doing this content-creating, whether it was story-telling or making skins, but they started to organise more so than they had on *Sim City*. They were creating websites like *Sim Resource* and *Seven Deadly Sims*, all sorts of websites, and they were organising the content of multiple creators in a way that Maxis hadn't done. These creators also started specialising in the types of content they created and people started going to their sites to source content and they started making ad revenue money from that. All this changed the relationship yet again with our user creators.

I queried how precisely did this relationship change and what did she mean by 'the relationship'. She replied,

Well what's the status of these assets because the assets really were derived from tools that we created? Hence you have this very sort of odd

intellectual property and trademark issue. Where did we draw the lines? Basically the legal position stated, in the end-user license agreements and so forth, that all the content is essentially *Sims* content, Maxis and EA, but we therefore now have a moral relationship with our user base and creator base. We don't use their content in the sense that we don't ship it as our own; we don't use it as our own. It was out there on websites, attracting people to these content aggregation sites, and they were able to ultimately monetise those websites by advertising revenues . . . So when *Sims 2* came out, we made an even more advanced version of the content creator tool called the Body Shop and we launched that prior to the game and they were able to really go in there and make unbelievable content . . . Then the relationship changed again with *Spore* when we built the tools for making content right into the game. We embedded them so tightly into the game that we kind of changed the way that players generated content. These are the tools that our own team use and we wanted to put this into the hands of everybody and make it core to the game play experience.

When I asked Bradshaw to elaborate a little more on how the relationship with the players changed with *Spore*, she again returned to the topic of the tools commenting:

We had to really work hard on those editors. We tried hard to emphasise the players' creativity, but to enable that under the hood through our procedural animation approach. It makes it easier for players to see their ideas come to life. So there's this handshake kind of relationship between the underlying technology and enabling player creativity in the broadest possible way. Then there was the pollinated content side of things – how we developed systems for the sharing of content. We do it behind the scenes so when you share something it goes up to our servers and it goes to other players' games even though they're playing on their own client, entirely solo, their content is constantly refreshed with whatever is on the Sporepedia on Spore.com. But this also gives the content creators control on when they want to publish the content, so they can finesse and fine-tune it. Then we put in place systems so they can see the sort of attention their content is getting and the kudos they get from that . . .

I think we made this making and sharing of content really seamless with the core game. But then the share amount of content the players made and wanted to share caught us by surprise [laughs]. But then we didn't take advantage of all those assets and give players a context and environment for exploring what they could do with those assets, you know really playing and exploring those creations – all that content, now over a 100 million assets, you know, the planets, the buildings, the vehicles and

the creatures, all become the actors in your set and you can choose from anything that you want and all of a sudden it's like, you bring it to life with the meaning and the import and the game play that you want. It is that whole thing you mentioned earlier with that quote from Will Wright, about the players' feeling like they are George Lucas rather than Luke Skywalker; I don't think we quite got there with *Spore* but we're addressing that side of things with this expansion *Galactic Adventures*, we're going deeper in enabling that player creativity.

Bradshaw evaluated the success of what she described as this 'tough project' in terms of the 'unexpected' and 'surprising' results the players achieved with the tools. Bradshaw comments:

With the editors and the creativity, I think that's what I'm most proud about what the team accomplished here, making sure that those things stood at the fore and making sure that we didn't compromise on any of that. I continue to be surprised and amazed at how ingenious the player community is. They find bugs that we didn't find, they find bugs and they turn them into absolute features.

Asking for an example of this, Bradshaw (the community manager, Therese Durringer, also offered this example in her interview with me) described how players developed their own in-game communication network, abandoning as inefficient and clumsy the Maxis designed feature of adding comments to individual player-created assets. Instead, a player used the editing tools to make a 'mailbox creature', requesting other players to 'leave comments and messages here please'. Very quickly other players followed or replicated this example, making variations of the mailbox creatures. Bradshaw commented:

All of a sudden there were these creature mailboxes, and they actually looked like mailboxes, popping up all over the Sporepedia. One guy actually used it to propose to his fiancé and then created a building with a billboard on it that said 'she said yes' and so communicating back to the community of players. So they are using the content to kind of tell their story and then get it populated to other people's computers as a means of communication. It is fascinating and also well just almost surreal at times.

After recounting this same story about the creature-mailboxes, the community manager, Therese Durringer, described how players were using the tools to create content that conveyed their protest about particular features in the game they wanted changed. If the content became popular through the game's rating and approval system, it conveyed a strong message to Maxis

that the community supported the requested change. Both Bradshaw and Duringer were clearly impressed by this method of lobbying Maxis for changes. Duringer commented: 'Look it got our attention a lot better than just the standard forum post', and Bradshaw said, 'you've got to pay attention to that, it is artistic and after all – what a creative way to get our attention'.

Throughout our discussion Bradshaw often returned to Maxis's 'changing' and 'evolving' relationship with the player community. She commented that this had a 'moral dimension to it'. I asked her to clarify and she responded:

Maxis has a real respect for the player community . . . it's interesting because they are so passionate and I think that's something that we respond to and many of them are creators who have helped the word of mouth about the games. They also go beyond the boundaries of what it was that we shipped. We feed that but they feed it back to us, so it really is this sort of two way street. So we listen, we also really do try to make sure that we're playing by what I would say are a balanced set of rules. Obviously we have an IP that we need to own and defend and yet there is this relationship where they're adding something and we benefit from that, so you know, how do you ultimately respect that?

Dan Moskowitz: Lead engineer

'It's a trick'

Dan Moskowitz, the lead engineer working on the editors, described in some detail the technical and design difficulty of making editors that 'were accessible to people who had never built anything in 3D before but that could also be powerful enough for an expert to create something unbelievable'. He emphasized that the challenge was giving the player a strong sense of creative possibilities and yet also putting some parameters and constraints on that. He said:

That was the balance we were dealing with, a lot of our focus as toolmakers was thinking about how far you can turn off the constraints and allow the player to essentially build whatever they want. But that also had to be balanced with game play needs; you know like what did we want the content to do.

Moskowitz also described in some detail the technical achievement of ensuring items of content were of a small data size so they could be quickly

and seamlessly uploaded to the Sporepedia and downloaded to other players' PCs. He said,

For example, when you want to paint your creature with the editor it's really just six pieces of data that we store, there's basically three coats of paint that you can select and each one has a colour associated with it. So all we end up storing is like this six bytes of data that gets sent up to the server but what happens when we actually reconstitute the creature is that we say, oh this paint script, and it's actually a text file that one of our technical artists make, that has the instructions for how to like drip paint down the spine of the creature so that you can have these stripes appearing in the right places, following the contour of the creature's vertebrae. And that's just one small aspect of the technical and design achievement. After all that I think these tools that we've made really opened up a lot of people's imaginations as they had been more used to tools where things are a bit more static, you know you have a main character and you can kind of strip them down and the dress them back up. But what we did that was really different was let you actually define the body, the body shape and the limbs and so on of your creature. And then on top of that is this whole other system that Chris Hacker was involved in, which is procedural animation. The editors we created were one thing, but without the procedural animation they'd just be this static creature, the fact that it actually walks around and moves is a whole other technical feat that the procedural animation team handled. Well you see the achievement of *Spore* I see it like this, it is a sort of union of making 3D modeling really, really accessible to people and the decisions about how to do that so the creativity of the players is unleashed when the tools get into their hands.

I commented that this was 'obviously successful because of all that content players are making' and Moskowitz interrupted,

But it's a trick, it's a great trick right, I mean because we sort of define this possibility space and what people can make and it's really large so people feel like they have complete freedom to sort of do whatever they want, but there's lots of things you can't make in this world with the creature creator. Then it is about getting these great tools out there so everybody can start using them without necessarily having a certain level of technical expertise. But then that trick thing changes because very quickly after we released the creature creator tools, you know the players they start finding their own tricks and start using them to make this fantastic content; within weeks we're seeing them do things with the tools that took us like three years to figure out [laughs] and we would look at our own content and

laugh and say this is such crap as the players' are creating stuff that's so much better. And that's it; you know that is so satisfying. I'm a big proponent of that, I mean basically we've made a good tool and just like unleashed it on the Internet; they're going to make amazing stuff with it that you could never even imagine. So there's a cost-benefit to that, taking your tools and polishing them to the level that they can be released to the public. That's the mindset we have, that the team has while developing it. These hundred million assets, the number gets so big it becomes kind of meaningless, but the mindset is seeing and supporting how people will then take that to the next level.

I asked if he would clarify why he meant by 'it's a trick':

OK, so when we are designing that possibility space you also need to constrain all that, you need to cut and prune. It cannot just be like OK here you go, do anything you like . . . ummm [pause]. But for the programmers there are these moments when we were like, OK if I remove this line of code I'm basically pruning an entire possibility space of things that I know could happen when the players get to exploring it. So it's like you feel this weird responsibility, and you had to be very careful about what things you left in and what things you took out. So some of the things we left in were these kind of awkward keystrokes that you can use to do certain things with and we just knew that someone would figure it out and, you know maybe that one percent of people, they would find it and appreciate it and build some cool things from that. But then you know those techniques spread so quickly. The content using it gets voted up to the top and becomes popular and then you see heaps of people using it. Then you see these YouTube clips, like tutorials showing people how to do it. There were a bunch of cases like that and some that really surprised us.

By trick Moscowitz did not mean dishonest. It is interesting that he struggled somewhat to describe the dynamic relationship between the professional technical skills that engineer these tools and environments and the gamers' often unexpected and creative uses of them. This is very close to Thomas Malaby's (2009) account of Linden Lab and *Second Life* that I discussed earlier in which he foregrounds 'unanticipated uses by its consumers' (8). Malaby (14) describes the work of architecting these environments and tools as 'new institutional techniques', noting that the 'apparent freedom' perhaps 'belies a significant innovation in techniques of governance' (14). It is here that I depart somewhat from Malaby; the dynamics and creative relationships the Maxis developers describe are not just an '*apparent freedom*' (my emphasis). Nevertheless, the creative freedom offered by *Spore* requires the craft skills of the programmers, designers, producers and community managers. These

professionals are most certainly innovating to craft and co-ordinate 'new institutional techniques' that in collaboration with the gamers co-creatively make products and experiences. The fact that this is 'contrived' (Malaby 2009: 86), or in Mosowitz's terms 'a trick', does not mean it is misleading or manipulative.

Morgan Roarity: Chief operations officer

'We haven't got it all figured out, we don't know'

Morgan Roarity, the COO of Maxis, emphasized the development team's passion and excitement for what the players were achieving with the editors:

There's really great satisfaction as a producer when you see something made in the editors because its almost as if, I don't know what a good analogy is, but I was partly responsible for creating the tools that made that possible, it's a really cool feeling. It's just a great satisfaction to see what people make; we've given them that ability to express themselves . . . It's just a different relationship when you see the content people are creating and the enjoyment and expressiveness in that. All that feeds back into development and that really drives guys like Dan [Moskowitz].

Morgan then discussed the various roles and skills that contribute to this player creativity, particularly foregrounding the importance of embedding the 'community perspective and feedback' across the development teams:

Our community managers, you know the Theresa Duringers and Meghan McDowells, they have that interface daily. They're very interactive across our teams. Theresa is a great story, she came in through a testing background then worked her way into the community manager role and now she's an assistant producer. And you know she's on the various internal team email lists and so she sends that perspective from the community to *Spore* engineering. Having people like that embedded through the development yeah that's a whole part of it. It is huge actually.

I discussed with Roarity the 'cost-benefit' of the player-generated content. He responded:

The interesting rub here is that the games industry is a big business right. You know EA [Electronic Arts] is a business, we want to make money

you know, I mean we want salaries so we can continue to work here. So I can buy my house and feed the kids and all that. Then there's all this community stuff kind of for free and the ideas that come out of the community for more features. But this takes a lot of work and resources from our end as well; like all of the work going on at the moment around asymmetry. Do you think all that is selling any more copies of *Spore*? I think we're trying to still figure all that out and with these sorts of games, like *Spore*, we are going to start figuring it out. I mean it's really expensive to do a patch or update – by the time you add testing and the launch it's really expensive. It's this sort of engineering balance as well, yeah we can put in more features, yeah we can do all this stuff responding to the community but at the end what does the business look like? All this is still kind of evolving and we're still kind of figuring it out.

I asked Roarity if there were anything he would like to add to our conversation about user-created content and the development team's relationship with the player community. He replied, 'I hope you take away that it's still evolving. We haven't got it all figured out, we don't know, OK we've put some plans down with *Spore* and then learnt from that, from what the players are doing, and we're trying out some things with *Galactic Adventures* but you know it will change'. Roarity helpfully reminds us that all of this co-creative activity occurs in the context of a broader videogames industry involving major publishers such as Electronic Arts. There is a political economy to this. But I do not want to rush to such an analysis that perhaps forecloses describing and understanding the professional craft of making co-creativity, including the uncertainty and experimentation that Roarity alludes to.

Stone Librande – Lead designer

'I really hope it becomes kind of an education in game design'

Similar to many of the Maxis staff I interviewed, Librande expressed his surprise at the amount of content created by the players and the speed with which they uncovered unexpected uses of the tools:

First of all everything surprises us. When, from the very first day we started seeing stuff that just amazed us. Like 'oh we didn't even think of that', the players you know figured all the tricks quickly that we thought might take them weeks or months to get to, because it took us sometimes months to figure that you could do something.

I asked him for a specific example of this:

Oh OK, well like mounts. Like you could make a creature that another creature looked like it was riding on top of. But in the editor it is just one creature, it just happens to look like two. Before that people had asked us for mounts in the game, to make that a feature. We're like 'no, no it's too expensive, we can't really do it, you know we don't have the engineering and animation resources to get to that right now'. One of our testers internally here came up with a mount, how to do that and published it around the office, everybody was like 'oh look we have mounts in the game now'. It took us months to figure that out but the players uncovered that very quickly. And then these mounts started appearing all over the servers [laughs]. You get this sense of like 'oh we're really cool, we're ahead of everybody else' when we figured out the mounts thing, *Spore* wasn't even released at this point right. So it will probably take our users a few months maybe to find these same tricks, but really it took them days to figure that one out [laughs].

Librande explained that the speed at which players were innovating created challenges for his job designing the expansion pack. The team was on a tight schedule of some nine months or so from prototyping to getting the expansion on the store shelves. As he explained, this limited 'our reaction time' to what the players do with the game. He commented that the original idea for the expansion was very different and Maxis changed direction because of the massive amount of content generated by the players:

While it was cool seeing all that content coming out, there's a feeling like what are they going to do with all that content. You know we were slurping it down and putting it back into other player's world, but it felt kind of atomized; just these individual models and items of content being thrown together.

With *Galactic Adventures* the idea is the player can mix and match from this hundred million items of content and make their story from that. So we kind of end-up with a game creator. It is kind of like what *LittleBigPlanet* is doing so well. But as a game designer, I know it's really hard to make a game, it seems like it's fun and easy to do, but when you really start working on it, it's a lot of effort. But almost everybody wants to tell a story; you're capable of telling a story. So this tool [pointing at the screen], it really needs to be about the story. Not about games even or about movies like making a machinima or something like that, it's just telling a story, something about your creations. It is basic and open and flexible – you're just using the models to give some kind of solidity to the experience. So

we'll see how that one works, letting people tell stories, you know *Spore* as a galaxy full of stories.

But this is also about kind of teaching people by playing with *Galaxy Adventure* and putting their stories together with all the content, teaching them how to design a game. I teach a class in game design, mostly for students with no experience of game design at all. It is a series of 15 lectures over the course of a semester. So a lot of that knowledge, that approach to teaching design, I've tried to get it in there into *Galactic Adventures* because here we're not just making a game we're making a tool that lets people make their own games. So how do I make that knowledge you know part of the UI [user-interface] so that as you start playing around with and exploring the 'goal palette' like this – you drag goals in the world and order them- well as you're playing with these goals you're now a video game designer. I really hope it becomes kind of an education in game design. It makes the threshold for getting into this and exploring it a little lower. Maybe *Galactic Adventures* is going to be that thing that lets them make a game or see that they can make a game. It is a set of tools they can explore and play around with in a very easy way, you know compared to something for modding like the Unreal editor, the Half Life editor and things like that. Like it is a little step towards someone using a more advanced tool in the future. That's my hope.

A few days after my return to Brisbane from visiting Maxis, Librande emailed me a link to a YouTube clip showing one of the player-created adventures: a Mario-Cart themed racing game. The players had yet again surprised the Maxis team with the speed at which they generated such content. But as I wandered in and out of interviews over the week that I was at Maxis, as interviews were interrupted by phone calls and reminders of meetings that the staff needed to attend or tasks that needed to be completed, as I overheard snatches of conversations about server and network issues, I was reminded that terms such as user-created content, user-led innovation, produser and even participatory culture can overlook the work of designers, programmers, producers, COOs and community managers as they produce and co-ordinate these co-creative media practices. This is not to deny the creative role of media consumers, but this role is not simply taking over from or replacing media professionals.

Co-creativity is thoroughly entangled with commercial enterprises and the jobs of media professionals. Co-creativity is a site of dynamic and emergent relations between market and non-market, professional and amateur, which are evolving uncertainly.

2

Co-creative technologies

Introduction

As we have seen in the previous chapter, accounts of co-creative culture by game developers at both Auran and Maxis often revolve around the status of games engine and editing tool technologies. These technologies have a quite active and lively status in their accounts. Exploring the potential of co-creativity required these professionals to develop game engines and software tools that would support these emerging relationships. The designers, producers and programmers also eagerly anticipated the unexpected ways in which gamers may take up these tools to explore the possibilities of modifying and adding on to games such as *Spore*. We need to carefully consider the status of these technologies that openly display their contingency by inviting users to modify them.

During my early discussions with programmers at Auran, my understanding of a game engine was rudimentary. But it was proving difficult to disentangle Auran from technologies such as game engines and editing tools. In the videogames industry, the game engine is the research and development component of game production. As first described to me by Lane and one of Auran's lead programmers, a game engine is a software design environment constituted by a range of sub-systems and functionality that can then be used by designers to implement a particular game design. Game engines render the 3D environments that often characterize contemporary games; they also provide the physics routines that govern the movement and interactions of objects and characters, such as collision detection; they manage sound, artificial intelligence routines, networking and tools. It is this tools layer that is particularly important for co-creative activities such as user-created content as it makes the game and engine accessible so that it can be modified by changing various parameters and by importing new content. The game engine

establishes the limits or parameters within which a design team works; it provides the core foundation software systems for the implementation and development of a particular game design.

In *Unit Operations*, a work that seeks to establish a general framework for videogame criticism, Ian Bogost (2006) notes the significance of game engines in shaping and regulating the expressive possibilities and constraints of videogames. Discussing the game engines that enable first-person shooter titles such as *Doom*, *Quake* and *Unreal Tournament*, Bogost (2006: 54) comments:

The discursivity of games is changed by the capabilities of game engines. The kinds of works, and the nature of these works, have material and functional limitations and capabilities . . . These limitations and capabilities influence the kind of discourse that works can create, the ways they create them, and the ways users interact with them.

Technologies such as game engines are crucial participants then in the making of co-creativity. I have already briefly referred to the *Quake* engine's open architecture that supported and encouraged gamers to develop add-ons and modifications. Similarly, the *Half-Life* 'Counter-Strike' mod was made possible when Valve opened its engine to the end-user community by releasing a software development kit (SDK) and supporting documentation. In the previous chapter we saw Maxis's Lucy Bradshaw, trace co-creativity back to tools such as the *Sim City* Urban Renewal Kit, a toolset released by Maxis for *Simcity 2000* in 1994 that enabled players to customize in-game content such as buildings. Buildings made by fan-artists were then shared on the internet.

In 'The mod industries?' David B. Nieborg and Shenja van der Graaf (2008) consider how game-engine technology shapes the relationship between game developer companies and modders. Focusing on the 'Counter-Strike' modification for the first-person shooter *Half-Life* (Valve 1998), Nieborg and van der Graaf note that these modding practices (in the case of 'Counter-Strike' a total conversion that essentially rewrites the fundamental game mechanics) are part of the rapidly changing relationships in which consumers are now involved directly in the production and distribution of media content.¹ They argue, however, that research on these activities has largely ignored the key role of game engines as proprietary technologies in organizing and shaping these innovation practices (179–80). Drawing on interviews with Valve employees they offer insight into how the relationship between Valve and the modders is organized through the use of Valve's engine technology to follow a particular industrial logic or model (180). Setting out from a similar

observation as Bogost's that engines both structure and constrain game development, including modding activities, Nieborg and van der Graaf argue that 'modding is bound to a large extent by the engine's internal logic, which is operationalized through its proprietary toolkit' (184). They add, 'User-driven innovation through toolkits is structured by the engine and therefore takes place within the set, capital-intensive boundaries of the proprietary technology' (187). In short, Nieborg and van der Graaf conclude that modding activity ends up 'following the industrial logic of game developers' (190) in terms of development and marketing practices.

I agree that we need to pay more attention to how technologies such as engines and tools shape these co-creative relationships; after all that is the starting point for this chapter. However, Nieborg's and van der Graaf's reduction to the category of 'industrial logic' may impede a more fine-grained analysis of these complex dynamics. Very little insight is gained, for example, into how the technologies themselves are shaped by these emergent co-creative practices. How do the developers, for example, respond to what the modders are doing with their tools? We need a more fine-grained account that details the varied views and opinions of professional game developers. I become suspicious when the category and identity of 'game developer' collapses the varied and often competing views of programmers, designers, producers, graphic artists, community managers and so on who contribute to developing games and negotiating the relationships with co-creative players.

Co-creative relations in videogames development are far from a static situation in which modding practices and the associated technologies can be reduced to something like 'an industry logic'. They involve dynamic relationships in which such 'industrial logics' are perhaps themselves unsettled by these emerging practices and technologies. Nieborg and van der Graaf hint at this possibility in the conclusion when they briefly raise the tension between modding and the organizational structures of the game development business (192). They do not fully develop their understanding of the nature of the relationships among game engines and the various practices that they reduce to the category 'industrial logics', such as professional identities, business models, organizational structures, game development processes and so on. Technologies do not simply express these 'industrial logics'; they are also materials and practices that shape and change these various logics. We also need to pay attention to the various participants' (both professional and amateur) understandings of the meanings and usages of these technologies. All of this is much clearer in van der Graaf's (2009) important PhD thesis completed at the London School of Economics and Political Science, 'Designing for mod development:

User creativity as product development strategy on the firm-hosted 3D software platform'. In this study of Linden Lab's *Second Life*, van der Graaf emphasizes the complex dynamics of the firm-user interactions and the growing significance of involving users such as mod communities in knowledge production and innovation practices, which are fundamental for firms such as Linden Labs. Although recognizing the significance of the tool kit and engine technologies, the question of how technologies shape and contribute to these emerging user-participatory relationships is not a primary focus of her PhD study.

Auran's game-engine project

In early 1998, Lane believed open-architecture game-engine technologies and sophisticated but user-friendly editing tools would transform game development. Game engines were becoming more complex as they moved towards modelling 3D environments. Developing an engine that could support a cutting-edge game was becoming a challenging long-term project that required a team of programmers working for at least two years. It was a multimillion dollar undertaking. This created an R&D barrier to entering the game industry. By early 1998, it was increasingly unlikely that a small team of enthusiastic programmers working from their garage would be able to develop a game engine that could then support the design of a commercially competitive game. The alternative was to license a game engine from another developer, and then modify it based on the requirements of the game design. But rapidly escalating licence fees for the high-end engines were again prohibitive.

Auran urgently needed an engine to support its next game project. Lane believed that there was also an opportunity for Auran to become a technology provider, licensing an open-architecture engine to independent game developers seeking to break into the industry. Auran management needed to work out a business model that could effectively take advantage of this opportunity. Building on the success of *Dark Reign*, Auran had developed a significant profile within Australia and the wider international PC games industry. In this environment, the company managed to attract significant investment from both private investors and Australian federal government R&D grants. The aim from 1998 through to 2000 was to raise the local and international profile of Auran by developing an engine technology that could be licensed to other game developers, then to produce a game and secure a publishing deal to cement Auran's position as a top-tier developer, and to promote Auran's technology.

Auran's senior programmers explained to me in early 1998 that the SAGE engine concept involved enabling game designs that were open to end-user content creation. Lane explained:

The extensibility, the customisability, of the engine supports all the add-ons and mods that the fans will create. We headed in this direction with the Tactics Engine for *Dark Reign*; the extensible engine idea grew as we went along. It has now become more important, more significant, as we progress with the new engine. But now it isn't just for the fans. There is an opportunity here, if we get it right, to really open up the game production process. But this will be a big task. It is kind of like trying to build the game engine to do everything. If we want it to be useful for game designers at a generic level, as a general game creation tool or environment, then we need to keep it open so that they can do things with it that we haven't even thought of. It has to be modular and flexible so that designers and their teams can add on to it based on the requirements of their project.

Drawing on discussions and semi-structured interviews with Auran management, programmers, designers and artists, in this chapter I follow the making of SAGE from 1998 through to 2000. This engine (renamed Jet in 2000) also provided the core technologies for the development of Auran's *Trainz* train and rail simulator. This game technology is therefore an important actor in the making of the co-creative networks that I discuss in the following chapters. In engaging with the materiality of objects such as game engines by describing them as 'actants', and thereby attributing to them agency that is often restricted to human actors, I am drawing on ANT. ANT is generally associated with the work of theorists including Bruno Latour, John Law, Annemarie Mol and Michel Callon.

Actor–Network Theory

ANT asks what happens if we refuse the starting-point assumption of a divide between the human and the non-human? By focusing on the process of construction, on the diverse materials that contribute to the making of technical artefacts, Latour questions the assumption of a stable divide between humans and non-humans. For Latour and ANT theorists generally, the social is an outcome – an effect that is made from heterogeneous materials. It is not, in itself, a sufficient explanatory category (Latour 2005: 4–9). As Latour (1999: 109) comments in *Pandora's Hope*, positing an external domain of the social can have an effect of cutting or distancing the complex web of relations that we are seeking to describe and account for

from the 'very things that they connect and assemble'. In *We have Never Been Modern*, Latour (1993: 54) argues that 'before projecting itself on to things society has to be made, built, constructed. And out of what materials could it be built if not out of non-social, nonhuman resources?' (Law 1994: 2; also see Latour 1999: 198–214). Agency or action is never purely human but mediated and translated through artefacts (Latour 1999: 190–3). By pursuing the implications of anti-essentialism to question the human/non-human dualism, ANT also raises the implication that agency is an emergent and distributed quality (Macgregor Wise 1997: 31–2; Latour 2005: 52–8). It is radically externalized through networks rather than residing in the individual human brain or mind. In short, mind is externalized into a collective and emergent intelligence.

Law (2000: 4) describes this unsettling of the human/non-human divide by ANT as a semiotics of the relational. All entities 'achieve their significance by being in relation to other entities. This means that in ANT entities, things, people are not fixed. Nothing that enters into relations has fixed significance or attributes in and of itself'. This approach pursues the implications of a 'radical relationality' or a 'relational materialism' that does not set out from any essential divisions or distinctions. When such distinctions are encountered, they are viewed as complex outcomes or effects, and the task is to determine how such networks of order have been constructed. What are the relations among the heterogeneous materials? How have these relations been articulated and achieved?² As Law suggests, it is 'the analyst's job, at least in part, to explore how those relations – and so the entities that they constitute – are brought into being' (Law 2000: 4). In pursuing this relational project, nothing should be reduced to anything else. ANT often describes this as the principle of non-reduction or irreduction.³

The metaphor of a heterogeneous network is at the core of ANT: society, organizations, enterprises, technologies and agents are effects that emerge from relations among diverse materials. The networks are not so much nouns as verbs, the outcomes of contingent dynamics. The process of bringing materials together to form relatively stable patterns, entities and objects, such as game-engine technologies, game development enterprises or even ethnographic projects, is described as 'heterogeneous engineering'. The ANT approach works to focus our attention on the '*material* character of the networks of the social' in which agents and agency are relational effects, outcomes of ordering struggles enabled and emerging through these heterogeneous networks of materials (his emphases. Law 1994: 100).⁴

In the context of researching videogames, T. L. Taylor (2009: 332) adopts an assemblage theory approach to suggest that games and play are constituted by precisely such interrelations. As she (2009: 332) suggests, 'In the space of interrelations lie the dynamic processes of play'. Yaneva (2009: 277) also

draws on ANT to better understand how designed artefacts enact the social. For Yaneva this concerns,

how objects with their scripts and incorporated programs of action compel and rearticulate new social ties, how the way they are shaped and designed is related to specific ways of enacting the social.

But a problem with such ANT-inspired approaches is that in the effort to describe such relational networks one can end up trying to encompass everything and therefore analytically explaining nothing. What kind of dynamics constitutes these interrelations? In *The Culture of Connectivity: A Critical History of Social Media* (2013), José van Dijck (2013: 26–9) adopts ANT as a theoretical approach for understanding how social media platforms increasingly inform and construct people's sociality. She suggests that ANT usefully allows us to consider 'the co-evolving networks of people and technologies' (26). It allows us to approach platforms such as social media and game engines not simply as artifacts but as a set of relations constituted by humans and non-humans that 'constantly need to be performed; actors of all kinds attribute *meanings* to platforms' (van Dijck 2013: 26). van Dijck, however, argues that although ANT offers a helpful ontological starting point with this refusal to distinguish the social and the technological, it may still be important to make these distinctions for analytical purposes. Here she questions the analytic traction that ANT provides. She argues that such distinctions may be important when we want to understand the changing relationships between technologies and sociality (van Dijck 2013: 26). To overcome this difficulty van Dijck combines perspectives offered by ANT with a political economy (drawing especially on Manuel Castells' work) approach to get at the 'dynamic intricacies of platforms' (van Dijck 2013: 28). ANT enables her to systematically approach platforms as socio-technical constructs while political economy frameworks allow her to highlight platforms as socio-economic structures and consider questions of ownership, governance and business models. van Dijck comments that by combining ANT with political economy, which she acknowledges is an uneasy alliance, she wants to understand the 'coevolution of social media platforms and sociality in the context of a rising culture of connectivity' (2013: 28). van Dijck is raising the right question here. This question is at the very heart of this book – the nature and characteristics of these *co-evolving dynamics* are crucial for understanding co-creativity. I agree that a co-evolutionary approach provides the analytic traction that van Dijck seeks. However, there is also a problem here. van Dijck does not have or propose an evolutionary theory-grounded model of these dynamics that she is trying to understand as co-evolutionary. ANT does not propose such a theory and political economy does not offer

anything like an evolutionary theory-based approach to understanding these dynamics. As van Dijck observes, political economy focuses on structures and not dynamics. I return to this question of evolutionary and co-evolutionary dynamics in the final chapter. For now though I propose that an evolutionary theory-grounded approach to technology and technological change might also provide the analytic traction that ANT is missing. I take up this possibility towards the conclusion of this chapter.

At this stage though I still want to see how far ANT can take us with understanding game engines. Throughout my research relationship with Auran, I certainly noticed the importance of the diverse technical materials that contributed to the making of the growing enterprise, particularly the information technology hardware, infrastructure and software. Without this material there was no Auran. ANT allows us to consider how these technologies participate in the making of assemblages that unsettle the human/non-human divide. Game-engine technology is an important part of the material assemblage that is Auran.

In early 1998 Lane explained to me that Auran was 'back at the drawing board', developing the core engine technology required to create a new game. Lane and other Auran programmers told me in early 1998 that their aim was to expand on the ideas of building a very configurable and extensible game engine. Lane said:

Gamers are modifying games themselves. This is really important, I think, providing the gamers with tools so they can make modifications and add their own content . . . I believe that the extensible, configurable engine approach may well revolutionise the entire game design process, like we've talked about before, involving the gamer, the fans, more in the actual design production process and in creating additional content for the game. Who knows where it will end up taking us.

This definition of the game-engine technology is just a starting point. The status of this artefact is quite elusive. My awareness of the game engine's significance emerged through the dialogues with Lane about Auran's plans for making and managing co-creative relationships with the gamer fans. Lane repeatedly emphasized the importance of the design philosophy and engine architecture that would support the development of these co-creative relationships. At various stages I was shown large, detailed design documents that I was informed 'outlined the architecture of the engine'. I really had no way of assessing these comments or documents. In discussions with Lane and lead programmers, various cues such as body language, hesitations and silences told me that they were working hard to describe a game engine in terms that a layperson with no programming background or knowledge could

follow and understand. They were translating the engine into a framework and a form – reconfiguring it, if you will – to make it useful for me. Was this engine that appeared in the dialogues I had with Lane and the lead programmer the same technology that a programmer would be dealing with in their daily work at Auran? Was SAGE a singular object or was it perhaps multiple? Was I dealing with competing and conflicting perspectives on one engine technology? Or was I encountering multiple engines here?

A game engine is a complex object. It is not singular, but a network of programming modules that can be plugged together to support a particular game design instance. The process of constructing a game engine also requires a lot of material: a network of PCs at which programmers work, sharing their results as the object is constructed; a workspace in which all this material is brought together; and diverse disciplines, professional skills and knowledge, including programming, project management, administration, marketing and financial practices. In my visits to Auran I noticed conference and meeting rooms in which I would glimpse text, flow charts and diagrams that appeared to relate to the game-engine project, but which I had difficulty deciphering and understanding. Intellectual property is also crucial to the network of relations forming around a game engine. As Nieborg and van der Graaf (2008) note, game engines are proprietary technologies and the details of end-user licence agreements carefully regulate the terms and conditions of their use. The questions of who or what owns this software, and the terms and conditions under which others may have access to it, provided a regular topic of discussion at the meetings I sat in on. These intellectual property issues also involved business models that would shape how the engine would be released on to the market and circulate. A game engine is part of and emerges from the complex material organization that is the enterprise network of Auran.

Theorists insisting on the importance of maintaining the boundary between the social and the technological do so because they worry that following ANT's refusal of this divide may give up important territory that has been won through the theory of social construction. In a debate with Latour and Callon, H. M. Collins and Stephen Yearley (1992: 10) argue that ANT's challenge to the separation between the human and the non-human retreats from the position that scientific and technological knowledge is socially constructed. By removing the centrality of the human social world in constructing scientific knowledge and technologies, Collins and Yearley fear that ANT may reinstate the authority of scientists, technicians and engineers. They argue that the sociology of scientific knowledge is 'no longer subservient to the accounts of the work of the scientists and technologists' (321). In conclusion, they suggest that the implications of ANT are far from radical and, if anything, conservative, as 'a poverty of method [makes] it subservient to a prosaic view of science

and technology' (323). Their debate with ANT is driven then by a political concern with the status of the humanities relative to those of the sciences and engineering. This objection would certainly seem to apply to my research situation, in that I was relying on Lane's and the lead programmer's accounts of the game engine in order to construct my research description. In my more recent interviews with Maxis employees I also relied on the programmers' and designers' accounts of the tools and technologies that constitute *Spore*. Everything that I have described so far about Auran's game-engine development has relied on interviews and discussions with Lane and the Auran programmers. But how is it possible to avoid this criticism? Collins and Yearley's point here is that ANT offers *no more* than technologists' account, that Latour and Callon are simply repeating those accounts rather than questioning or challenging them. In short, they are raising questions about the situatedness and politics of research. So am I giving up ground to an entrepreneurial-technologist version of the world that I should instead contest by insisting that technology is shaped by social interests such as those of business or a narrow technicism of software engineers? Further – and this is a point not covered, although I think it is implied, by Collins and Yearley – by just reporting and relying on Lane's and Bradshaw's accounts, is my research participating and colluding in the making of a particular entrepreneurial version of technology projects? What other versions of a game engine and the relations surrounding it are being marginalized here?

Callon and Latour (1992) insist that they are doing more than just relying on the technologists' accounts. The difficulty is that, in empirical fieldwork, when following what scientists and technologists *do*, or even in discussing with them what they do, they 'simultaneously entertain dozens of ontological positions' (352; see also 361). Non-human entities and objects constantly enter the scientists' and technologists' struggles and debates. For researchers to effectively follow and describe these activities, 'it is impossible to take only one of many ontological positions in order to account for the way scientists bring in nonhumans, we the analysts have to entertain the whole range' (Callon and Latour 1992: 353). Annemarie Mol (2002: 33–4) argues that an insistence on maintaining the separation between the social and the technical seeks to assert and protect a domain of knowledge and authority for the social sciences and humanities. The fear is that if the divide is not respected, then other modes of knowledge and disciplines will take over.

Making SAGE

Throughout 1998, I regularly visited Auran, following the development of the game engine technology, SAGE, and the game designs that it would

support. Over this period, Auran moved to a larger inner-city location. Auran's new premises certainly conveyed an impression of a successful and rapidly growing company. Auran was hiring staff needed for the new projects. The company was rapidly growing from a team of some 20–30 to a peak of 60 staff. The programmers' area in particular expanded as the team grew to develop the game engine. Auran employed programmers from Australia, the United Kingdom, the United States, Sweden and Russia. It was an impressive display of people and materials. Off the back of *Dark Reign's* success Auran had attracted considerable investment capital. This included securing an Australian federal government grant of more than AUS\$1 million to support the development of the SAGE game-engine technology.

In mid-1998, on one of my research visits to Auran, Lane introduced me to a young designer recently employed to work on the new game project. The designer explained that Auran had recently licensed the intellectual property to a fantasy role-playing world loosely based on medieval Europe. He was working on a game design that would immerse the gamer in a 3D environment and an epic fantasy narrative. The designer appeared to be excited by the promise of the game engine and the tools that it would make available to create this fantasy environment.

Throughout 1998 I regularly visited Auran and discussed the fantasy game design with the lead designer. However, by late 1998 he appeared to be frustrated with the process. I raised this impression with him and in reply he gestured at a thick document sitting on his desk. He said: 'Look, that is [the game] at the moment, but it isn't a computer game. Well I've got some interesting ideas in the game design docs, but there is no point to it, I don't know what I've got until I see things actually happening on the screen, then I'll have something to show you.' He was frustrated that the SAGE engine and the associated software tools had not yet reached the stage at which he could use them to start implementing the game design:

I really want to get a prototype up and running, then we can see if it works. How does it feel to play, that is the big question. I've got this big, epic story [pointing at the document on his desk], but the important question with [the game's] gameplay will be integrating this story with the experience of playing the game. The story will emerge as you play, in the process of playing. The engine will allow you to do this seamlessly.

He again pointed at the document on his desk: 'All of these systems, how they relate to implementing the design are in there. But I don't actually have the tools or the engine to do anything with and that is the test for me.'

In constructing ethnographic accounts of technological projects, we necessarily rely on what informants tell us. It is often difficult to assess

the status of this information, as we may not have the required technical background. Further, the accounts that we are building and circulating may be contributing to the making of the objects and networks. This is not a disabling condition that can be overcome by deploying a more rigorous methodology or interview technique. It is a mundane and routine part of researching and working in these sites. But is this a simple case of different and even competing perspectives on the SAGE game engine? For the humanities researcher, it offers an opportunity to examine how technologies are reconfiguring relations among producers and consumers. I tended to focus on any comments about the engine's open architecture. For Lane, SAGE concerned business models and intellectual property. For the designer, the engine project presented problems and opportunities for implementing a game design. For the programming team, SAGE was a technical software problem to create 3D environments. They struggled with how objects could interact in these places, how physics would be modelled, and how to achieve all of this within the constraints of limited hardware resources such as memory, graphics capabilities and processor cycles. Is SAGE, then, being constructed from these competing agendas and interests?

I discussed with the designer Lane's views on the extensibility of the engine that aimed to support end-user modifications. He replied: 'Yes, that is an important part of it. They want these systems that I'm describing to you to be open and modifiable.'

He then said there was an issue I should probably be aware of:

This is all big picture. It is all fine in theory, this engine supporting all these systems. It would certainly support some great game designs. But it has to run . . . The programming team are planning on implementing a lot of impressive 3D and graphics effects, using the latest capabilities of the 3D videocards. If it can support all the things they're aiming for it will certainly be impressive. Cutting edge graphics are important. They sell games. But cutting edge 3D graphics come with a cost. My concern comes down to gameplay. As we've discussed before, my approach to game design, to gaming, is that it all comes down really to gameplay. How it feels to play. And this all depends on decent frame rates. And I won't compromise on this. The worry is that all this work going into impressive graphics will result in frame-rate problems and then risk the gameplay.

My interviews with Lane, the designer and the lead programmer were part of an internal debate concerning the relationship between the game-engine development and the game design. The designer was well aware that I would discuss his comments with Lane. I disclosed this before undertaking any interviews with him. He was also aware that all interview transcripts were

provided to Auran senior management for approval before I was permitted to utilize it in my research. Largely to identify any potential commercial in confidence issue. I should note that Auran management on only very few occasions insisted I not use material.

On this particular occasion the designer was clearly trying to communicate an important point to me. It seemed to be important to him that I 'get it'. He continued:

All I'm saying is that this whole generic engine idea, the big vision of an engine that will support all sorts of different game types — the game engine that can do everything — I think there will be a cost to do that. To make a cutting edge game, I really think you need a game engine that is tightly coded and dedicated to the particular type of game that you have in mind. This SAGE, the game engine that can do everything, it is ambitious.

In this discussion with the designer, what SAGE is and will do is an important issue. It was a site of controversy and tension at Auran. In building this account the designer draws from a broad range of materials: hardware specifications and resources, game design principles, business considerations, game-engine technology design and frame rates. How these materials relate and interact is central to what SAGE is. An important point I want to make at this juncture is that the ethnographic account of SAGE that I was compiling is not separate or distinct from the process of building and developing SAGE. The interviews and discussions were yet another material used by those involved, jostling and articulating with frame rates, processor cycles, game design philosophy and business models.

Over the same period (1998–9) I was encountering a very different SAGE in Lane's office. As he described it: 'The engine will radically revolutionise how games are produced and designed.' Lane explained that the important thing for me to understand initially was that 'the methodology guiding SAGE is fundamentally, at the base level, all about redefining what a game is, and what the game design production process involves'. He described a feedback loop in the game production process between programmers and designers. Lane believed that this development loop and the conflicts it generated between designers and programmers often constrained the creativity of game designers, and tended to 'result in a game production process that is too heavily focused on technical code issues rather than the design of an immersive and creative environment that offers good gameplay'. With SAGE, Lane and the team of programmers hoped that the designer and overall design process would be 'freed up from the programmer and code-related issues'. Lane commented that SAGE's open-architecture and tools would potentially shift the game design process from a designer-programmer to a

designer-player relationship: 'It is almost as though the player will collaborate in or even co-produce the game – well to an extent anyway.' This SAGE was a very different object from the one that I encountered in my discussions with the game designer. It aimed to open the game design process to a participatory, co-creative relationship between designers and gamers. Yet the designer at Auran was frustrated that the engine could not yet be used to implement his design to even an early electronic proof-of-concept stage. Are these competing and conflicting representations of the one object? Or is there perhaps more than one SAGE circulating at Auran?

Interviewing Auran: Multiplying SAGES

In June 1999 Lane commented that he thought it was necessary for me to gain a broader perspective on what was going on at Auran by interviewing a cross-section of their staff. He observed that from my discussions with the designer and himself I was probably aware of tensions and conflicts in Auran around the SAGE project. He suggested that I needed an opportunity to put this into context as these kinds of tensions and problems were part of game development. Lane also indicated that he was keen to discuss my views and opinions on what emerged from the discussions. I disclosed to all staff participating in the interviews that the transcripts would be read by senior management, including the CEO. The interviews were conducted across a week in late June 1999 and involved eight Auran staff members, including senior programmers and artists working on SAGE and related game development projects.

Auran's chief operations officer

Auran's COO discussed the importance of SAGE as a open-ended and modular engine technology. He commented, however, that this open-endedness raised problems, as the team – particularly the lead programmer – needed to know where to set the limits:

So we set them a problem, as I put it to the programmers, you have to come up with the answer to a question that I cannot give you. The engine has to be far-reaching. It is a challenge as we want it to be this open, generic technology and yet for it to work at all well, of course there have to be limits to what the systems model.

I asked the COO about his role in managing such an open-ended project. He replied that the most significant challenge was 'setting limits, working out

where the limits are by putting a cap on the features that will be implemented . . . Drawing a line, and saying that will do, it is done, and being able to get that through to people’.

I asked him about his views on the designer’s frustration with the delays in having the engine available to implement the game design:

We’ve got designers and artists who came here to work on making games. They’re eager to be building something. They have the design documents finalised, but everything is on hold because of SAGE. A lot of resources here are going into SAGE at the moment and [the designer] is questioning this. These levels of frustration and even anger are understandable.

He also thought the tensions and conflicts were signs of a growing company heading in a direction that no longer suited some employees.

SAGE team lead programmer

I asked the lead programmer what his views were on the SAGE open-engine concept. He replied:

The game engine that can do everything, yes, when I started Greg [Lane] said we would be building a game engine that could support 3D applications, particularly a fully 3D landscape. They also said it is a game engine that ‘has to do everything’. I knew that was kind of ludicrous because of course any engine technology has to have limits. But my attitude was, ‘sure let’s do it. Let’s see what we can do’.

I asked him whether the amorphous nature of the project presented problems or challenges with managing the team. He replied:

Yes, most definitely. For a while there it was a real mess. Everyone heading off on their own little side projects and directions, doing their own thing around what ‘it has to do everything’ actually is. But now we have refined this down, set some limits on the systems and modules, while at the same time building in the ability to extend on it, keeping it open.

The lead programmer commented that working on SAGE in the lead role had been difficult:

It has been like having two masters. There’s the upper management, the people with the money and the investors. Then there’s the code itself. The

upper management guys may have one idea of how it should turn out and when it should be ready. I understand that, they have their target dates that impact on their break-even points. Some of the guys, the programmers and artists, resent that. They get angry about the pressure or demands from business. But when you think about it, without that, the business, well we wouldn't all be here, doing this, would we? But then there's the code itself, and it is done when it is done. It cannot be half-done as then it just won't run and sometimes, well it does not fit into the business schedules and deadlines. Managing that relationship with the business demands can be awkward. . . This can really frustrate management from a business perspective. They don't like things to be so uncertain.

SAGE team programmer

I asked the programmer for his views of the SAGE project:

The idea of working on a game engine like SAGE really excited me — it was something I wanted to do. The configurable engine idea that carried over from *Dark Reign*, we liked that and saw potential in it . . . The best thing is when one of your ideas, a feature, makes it into the engine. I make a demo of it first, to prove it, that it will work with the engine. Then I need to convince the managers that it should be in there. I've had disappointments with things that didn't get approved and that can be hard. Some of the features I work on at home, for up to ten hours a week or so, even after a 60 hour week here. But I like working the long hours. It isn't even like you're doing a job.

I asked: 'What do you think about the SAGE approach generally.' He replied:

When I first came here and heard the 'game engine that can do everything' idea, well I thought it was too big, too ambitious. Of course I kept that to myself. But now that we have more focus with some limits in place I think it will be good. But the 'do everything' thing is more about marketing. It is hype. Well I think it is.

This programmer spent considerable time describing the challenges of programming the Artificial Intelligence (AI) system for SAGE. He discussed in detail the path-finding AI system that he was working on, checking my notes as we proceeded to ensure that I had got it right. He added: 'Working on this stuff is a childhood dream. We work very long hours, often twelve hours or

more a day. But I would probably go home, sit in front of the computer and do it anyway, it is wonderful work.'

It became apparent that, for this programmer, the interview process provided him with an opportunity to communicate his views about the AI system to Auran's senior management. When I asked directly if he was 'OK with all of the comments that he had made being passed on to Greg', he replied: 'Most certainly, I would like them to know my views.'

The programmers I interviewed seemed to be reasonably happy with the situation at Auran. They all commented on the very long working hours, but then almost without fail would add comments such as: 'But this is a dream job, long hours are part of it and I would be doing it anyway at home. It is not really a job.' The programmers seemed to be strongly invested in the particular technical problems that they were working on. They all questioned the 'game engine that can do everything' descriptor, but considered it more than anything to be a challenge to place some limits and scope on the engine whilst maintaining the extensibility and modularity. Finally, all the programmers interviewed commented that there had been significant delays and problems with the SAGE project that were impacting negatively on the artists and designers. The strongest impression that I took away from my time with the SAGE programming team was that they considered it to be almost a privilege to be working at Auran on games technologies, and that it provided them each with a significant opportunity to work on something that mattered to them. This sense of vocation, of participating in a project that enabled them to work on AI, path-finding, 3D world systems and physics problems compensated for the long hours. I return to this important question of professional identity and work conditions in Chapters 4 and 5.

The graphic artists

The interviews with the artists at Auran were very different in tone from those with the programmers. They were all, to varying degrees, critical of Auran management and expressed strong doubts about the SAGE engine approach. Many of them commented that they had come to Auran on the understanding that they would be working on cutting-edge games. But all added that, for months now, they had not been working on a game design at all. The word 'frustrated' was very common throughout the interviews. They all questioned the generic 'game engine that can do everything' approach driving the SAGE project. The artists and designers felt that if the aim was to develop cutting-edge titles, then this would require a core

engine technology dedicated to a particular game type or genre. One artist commented:

You need a really fast, optimised engine. If that engine is trying to be everything for everyone, well the performance I believe just won't be there. The whole thing is being driven by a programming focus; it is being technology-led and that is a big mistake if you're a games development company.

Another artist commented:

When you work here, you're made to feel that you're very lucky to be in here at all, that only the best work here. To an extent that is so, there are very talented guys here. So you believe it. But then you see all this unnecessary control in the management. They treat us like kids really. Then some of the guys here who questioned the whole game-engine vision, well they are called whingers and told to leave. The atmosphere is of a company trying to be big, a big business and that is not for me. I want to make games.

This frustration came to the fore in my final interview with the lead game designer. He commented:

My concern is the whole project is being driven by the programmers and their objectives. This is about the difference between game design and programming philosophy. It is annoying me, as the decisions they [the programmers] are making now are more about game design, they are intruding into game design areas.

Now don't get me wrong, SAGE is really important and it is an excellent idea. OK, yes SAGE has enormous potential but it runs like a dog and at the moment is hard to program for and design with . . . OK, that's not quite fair. It is better than that and I'm overstating to make a point, to get my point across.

Multiple engines?

The interviews show that there are many different competing and conflicting, even incommensurable, versions of SAGE at Auran. At one point the lead game designer questioned whether the game engine even existed, as he did not have it available to him at the time to build the game design that he was working on. The programmers' versions are a series of technical problems concerning movement systems, AI, 3D world physics and open

modular architecture that they were excited to be working on. Then we have Lane's CEO version of an engine technology that would radically change the way games are designed and developed. He believed that SAGE had the potential to open game development to collaboration between the game design team and gamers. This engine development is also entangled with issues concerning work conditions, authority and relationships between different forms of knowledge. Are these different versions of SAGE, then, conflicting perspectives on a singular thing that contribute to the process of its construction? Is this, after all, a story about competing interests seeking to shape and own this technological object and its role in game development? Is SAGE then socially constructed? For example, we have here quite an interesting story about internal tensions and conflicts at Auran surrounding the development of a technology: designers and artists in conflict with programmers, and both groups questioning the broader corporate strategies and direction. But, as many of the participants at the time pointed out to me, such conflict and disagreement are a common feature of game development. My experience working at Auran on different projects from 2000 through to 2005 and then researching the *Fury* project in 2007 certainly supports this. But by relying on the information provided by Lane and the programmers, am I at all in a position to question or challenge the validity of the versions that they displayed for the ethnographer's gaze? Have I perhaps ended up handing over too much authority to their visions and versions of the world? Are Collins' and Yearley's criticisms of ANT therefore relevant here?

In deploying ANT to briefly follow the making of SAGE, we see that a diverse and heterogeneous network of materials – from designers, programmers and code, to CEOs, intellectual property agreements and PC hardware specifications – went into its construction. SAGE, then, mixes the human and non-human; it involves the production of hybrids. Following the work of Michel Serres, Latour (1993: 50–5) describes them as 'quasi-objects' that so thoroughly mix the human and non-human that it makes little sense to describe them as socially constructed or simply an outcome of human agency and practice. The materials constituting SAGE mediates the various relationships and activities that are foregrounded in the interview extracts – from design and programming practice to workplace relationships (Yaneva 2009).

SAGE is an object that is 'simultaneously real, discursive and social'; it belongs to both the collective and discourse (Latour 1993: 64). These shifting objects with their variable ontologies are not just intermediaries, linking separate and independent things or subjects. SAGE is not only a device or exchange point for coordinating the respective interests and agendas of CEOs, programmers, videocards, AI and 3D world physics modelling systems, processor cycles, 3D art objects, designers and their

game designs, ethnographers and their research projects. More significantly, Latour's approach suggests that they are mediators – 'actors endowed with the capacity to translate what they transport, to redefine it, redeploy it, and also to betray it' (Latour 1993: 81, 2005: 37–42). This is an important uptake of the fundamental ANT assertion that objects are relational effects. This commitment to a relational or semiotic materialism not only focuses our attention on the nature of the diverse materials that constitute a network from which objects emerge; it works to foreground the strategies that enact and extend the network, holding it together as a particular pattern (Law 1994: 23–5). John Law (Law 2000b: 2) describes these coordinating strategies as 'modes of ordering'. Agency and agents are relational effects, outcomes of ordering struggles in which agency is far from secure and centred, and is very much a 'precarious achievement' (Law 1994: 100–1).⁵ In a detailed account of the work of translation in network-building, Latour (1987: 103–6) observes that in enlisting others, both human and non-human, the network builder works to strengthen and extend the network: it is a collective process. But the action of enlistment is never neutral; the object is modified, transformed and reconfigured as it moves through and along the network. The concept of translation articulates the problem and task of enrolling others so that they participate in the work of construction while controlling their actions to ensure that the network retains coherence. There is a tension here. The very process of enrolling others carries the risk of losing control of the network, and of its materials and objects heading off in unexpected directions and taking on different configurations and shapes. Translation describes the tactics employed to tie others' interests to the project of extending the network while maintaining control and coherence. In short, translation strategies are deployed to ensure that the objects and networks remain yours (Latour 1987: 108–21).

SAGE changes as it moves through the network: a CEO's business model can also be a tool for implementing a game design, a physics modelling machine, an AI system, and a problem in the coordination of Auran staff and resources. For example, Lane's entrepreneurial stories are an attempt to impose an order on these materials, that of the go-getting development studio from Australia pursuing opportunities in the United States, making good and securing the required publishing deal and investment capital and then releasing a successful game title. This tale of the heroic entrepreneur embraces a particular way of organizing Auran as a collective of heterogeneous materials. It performs and enacts a particular type of agency and overlooks others.

In building these accounts about the Auran enterprise and the objects such as SAGE that surround and emerge from it, ANT asks us to consider how we participate in the construction of these networks and objects.

The methodological problem then does not only involve how ethnographic objects are constructed as objects of knowledge, but also how they relate to and intervene in other versions of the networks and objects that are being studied. But, in making this point, it is also important to maintain the ANT understanding that the ontology of these objects is variable and multiple. Mediators such as SAGE are far from singular or settled; these quasi-objects 'are collective because they attach us to one another, because they circulate in our hands and define our social bond by their very circulation. They are discursive, however; they are narrated, historical, passionate, and peopled with actants of autonomous forms' (89).

John Law and Annemarie Mol have pursued the implications and potential of this thinking about variable ontologies to question the network logics and metaphors of ANT. In *The Body Multiple: Ontology in Medical Practice* Mol (2002) argues that her ethnography of medical practices surrounding the disease atherosclerosis is not a study of how 'medicine *knows* its objects' (vii), but rather concerns how medicine enacts realities. These objects are multiple and need to be coordinated (vii–viii). She carefully describes how atherosclerosis is enacted through the patient-doctor interview, through the technical practices and diagnostic tools in a vascular laboratory, and in the practices of radiologists and pathologists, as well as in the work of vascular surgeons and the materiality of a haematologist's research laboratory. By drawing on interviews with the medical practitioners, patients, scientists and laboratory technicians, and on descriptions of the laboratories, technical equipment and general practitioners' offices, is Mol simply providing us with different perspectives of a singular object? She argues that by focusing on these diverse practices and heterogeneous materials through which atherosclerosis is manipulated and made, the object multiplies. We are not dealing with a single object waiting to be discovered or disclosed by these various knowledge practices. It is not so much a matter of knowing as it is of doing: we find objects coming into being through these practices. The atherosclerosis that is enacted and made visible beneath the microscope in the department of pathology is very different from that in the general practitioner's office or the outpatient clinic. The techniques, equipment and practices that make the disease visible, knowable, treatable and manageable in these places often exclude one another. Mol's ethnographic methodology seeks to attend to this multiplicity of the object. She then asks how the different versions of atherosclerosis are coordinated, as they need to be: diagnosing and treating the disease requires coordination and cooperation across divergent and at times even conflicting versions of the object:

The practices of enacting clinical atherosclerosis and pathological atherosclerosis *exclude* one another. The first requires a patient who

complains about pain in his legs. And the second requires a cross section of an artery visible under the microscope. These exigencies are incompatible, at least: they cannot be realized simultaneously . . . The incompatibility is a practical matter . . . In the outpatient clinic and in the department of pathology, atherosclerosis is *done* differently. (Her emphases, 35–6)

Now this understanding of the multiplicity of objects marks a break or development from the work of Latour and the ANT of the 1980s and 1990s. The focus now is not so much with the work to construct or stabilize the identities of networks and objects and the difficulties encountered in challenging these materially entrenched networks. Instead, Mol's work suggests that these objects are fragmented and multiple, spread across sites. Coordination across and between these multiple versions of an object becomes an achievement that requires a continuing effort (Mol 2002: 42–3; also see Law 2002: 32–7). Mol describes in detail the resources and work required to coordinate the multiple versions of atherosclerosis that emerge in clinical practice. She examines the establishment of hierarchies, the privileging of one version over another. She is interested in how, in practice, these competing, incommensurable versions of atherosclerosis are organized and coordinated through the health care system (43–8). Atherosclerosis multiplies as Mol follows it across different sites, from the outpatient clinic to the department of pathology. She argues that different ways of enacting the disease coexist across the sites: 'The fact that there is multiplicity stays the same, in every site, on every scale' (50).

We have seen this multiplicity in action at Auran with SAGE and at Maxis in the various accounts of the editing tools for *Spore*. Mol maintains, however, that such a multiplicity is not necessarily fragmented. There are connections and coordinations between versions. As she puts it: 'Atherosclerosis enacted is more than one – but less than many. The body multiple is not fragmented. Even if it is multiple, it also hangs together' (55). Mol describes the forms of coordination that occur across the hospital. Equipment and technologies play an important role in this. A hierarchy may be established and institutionalized between laboratory findings and the patients' 'complaints' (63). We have also seen this work of coordination at Auran as the programmers' SAGE, a problem in modular architecture and a generic, open game engine, was prioritized over the designer's version of a game engine. As Mol comments: 'One of them wins. The other is discarded. Thus a single patient ends up with a single atherosclerosis' (66). In the case of Auran, then, do we end up with a single SAGE – the generic, open-architecture game engine? But is it that simple? Of more interest is how incoherencies between different objects are added or combined as a powerful way of creating singularity as a composite object (67, 69–71). The point here is the various contestations

and misunderstandings among the various participants are not an obstacle to performing and making the game engine but instead are a condition of possibility. In the context of an ethnography of a new media start-up, David Stark (2009: 108–11) describes this dynamic as a ‘discursive pragmatism’ in which collaboration and coordination *requires* such unsettling frictions. He refers to this as ‘the friction of competing performance principles’ and ‘the friction of multiple evaluative frames’ (109). I return to Stark’s work in some detail in the final chapter, as these dynamics are crucial to my understanding of co-creativity.

The versions of SAGE that I encountered at Auran are not a fragmented pluralism. Although often incommensurable, they do hang together in a performance of a software engine technology, business model, complex, composite object. Mol describes the process of enacting atherosclerosis:

Clinical findings, pressure measurement, social inquiries, duplex outcomes, and angiographic images are all brought together in the patient’s file . . . This, then, is what I would like the term *multiple* to convey: that there is manyfoldedness, but not pluralism. In the hospital *the body* (singular) is *multiple* (many). The drawing together of a diversity of objects that go by a single name involves various modes of coordination. (Her emphases, 84)

Incommensurabilities then are not necessarily obstacles to the successful performance of a game-engine development project. Nor are tensions and conflicts between corporate entrepreneurial agendas and academic humanities research or between the market-driven incentives and motivations of game development firms and the non-market values and motivations of gamers obstacles to the successful enactment of co-creative relationships for mutual benefit. Mol carefully argues that the different ways of enacting the reality of the disease need not be reduced to a contradiction. The incommensurabilities that she describes are not a flaw that needs to be mended or overcome. I will return to this challenge of coordinating apparently incommensurable materials and actors as it is a central dilemma for co-creativity. The challenge then becomes understanding the specific conditions in which such relationships can be constituted for mutual benefit. The know-how and communicative craft skills to work comfortably across incommensurabilities, holding terms together without reducing them to a contradiction – are a much-needed resource for negotiating the complexities of these emerging relationships.

In pursuing the implications of this approach, Mol takes up Susan Leigh Star’s theory of boundary objects. Here she is interested in how the movement and circulation of objects may blur and reconfigure the boundaries between social domains and worlds. Star argues that, although different fields of social practice have their own codes, habits, instruments and practices,

they may share a boundary object. The different fields will then attach different meanings and values to this object. We have seen, for example, that a game-engine technology can be very different to programmers, a game designer, graphic artists and a CEO. Mol (2002: 138) comments that 'as long as nobody stresses these differences, the boundary object doesn't seem to be two or three different objects. It remains fuzzy enough to absorb the possible tensions . . . Thus, it facilitates collaboration across boundaries and thereby makes these boundaries less absolute. It blurs them. Blurring boundaries is a way of contesting them'.⁶ However, Mol questions the reliance of this understanding of the boundary object on 'the idea that there are different regions. Adjacent to one another. With a lot of fuzziness between them, but separable, separate, all the same' (139). For Mol, this conception of the boundary object cannot quite get at the uncertainty or undecidability in the movements between difference and similarity. Instead, she uses the term 'fluid' to describe 'transient situations where there is *both* difference *and* similarity' (142). This image works to stress that transitions are not always clearly defined; we cannot always be sure where the boundaries are. They move and are reconfigured.⁷

This is a crucial argument in Mol's work and marks her departure from – or perhaps more correctly reworking of – the network metaphor and logics of ANT (142–3). Different versions of objects are not connected in a seamless network; they blur and flow over and around their others. But the point being made here is not just one about blurring divides. More importantly, it concerns the 'coexistence of what is markedly different'. Mol is articulating different forms and strategies of coexistence, including incorporation and inclusion (143). Instead of things and objects that we may want to oppose to one other taking up settled positions in a Euclidean conception of space such as a network, Mol asks us to consider how they may also '*depend* on one another' (145). She suggests, 'what is opposed may also collaborate' (145). Mol describes these patterns and relations in the following terms: 'Coexistence side by side, mutual inclusion, inclusion in tension, interference: the relations between objects enacted are complex. Ontology-in-practice comes with objects that do not so much cohere as assemble' (150).⁸

The call to participate

Law (2002: 88) raises the concern, however, that this cultural strategy of emphasizing partial connections, discontinuities and multiplicity may be open to the criticism that it colludes with neoliberalism as 'an expression of the cultural logic of late capitalism' (88). There is an important and difficult question being raised here. ANT is certainly open to the criticism that,

although telling us a lot about relational materiality, the network metaphor may also tend to follow too closely rather Machiavellian, managerialist and functionalist strategies of ordering (Law, 'After ANT': 5).

Let us return for a moment to Auran as a site of the emerging creative industries. SAGE is almost the ideal multiple object. Its mode of interpellation, if you will, is *add-on*. It is modular and open, promising through its customizability that it can be remade according to your agenda: use me, link up with me, to make *your* game design and enter the business of game development. What is more, as an end user, you are no longer just a consumer. You too can participate in the process of game development as a producer, a maker of digital content. In their very ontological status, software objects such as SAGE invite us to participate in their making.

In late 1999 Lane again returned to the topic of the importance of SAGE's configurability. He said:

We are exploring the idea of releasing the toolsets that our designers use with the engine to the community; this will assist them with creating the content for mods and add-ons and so on. The extensibility of the engine means that the games we build with it will be very customisable by the end-user. *Dark Reign* did not really support this as fully as we would have liked. It really was too difficult to use and the manuals that we released were too technical.

An extended discussion followed about the relationships between game developers and online gamers. Lane suggested the need to integrate fan content with the core game platform:

At the moment they are kind of separate. You have to leave the game, the game environment, and then use your web browser to surf fan websites and search for new content. You then need to figure out how to integrate that fan-created content with the game. This process can be tricky. But what if we can seamlessly integrate all that right into the game? There is probably a business model here and that needs thinking through. Then there's all of the IP issues around distributing the content to think about. But that's the direction we're thinking in.

Here Lane envisions the close integration of user-created content that we now see with games such as *Spore* and *LittleBigPlanet* some nine years before the release of these titles. In an interview I conducted with Will Wright (designer of *The Sims* and *Spore*) in June 2009, Wright commented that the progression from games such as *Sim City* through to the *Sims* series and *Spore* was fundamentally about the closer integration of user-created

content with the gameplay experience. But the point here is not that Lane is a design visionary. It is more that Lane was thinking through the potential and opportunities afforded by open-architecture game engines and that this generativity is interlinked with questions about the changing relationships between producers and consumers, intellectual property and business models.

Lev Manovich (2001) argues that a defining feature of new media digital objects includes a mode of representation in which we are interpellated as users rather than just viewers or readers (16–17). Manovich tells us that new media function to ‘turn a viewer into an active user’ (183). The digitization of new media objects also enables a reproduction that involves variability and customizability. The same PC hardware technologies and software tools that are used to make and produce these objects are also employed in their consumption and use. This use often involves variation and customizing. Manovich suggests that this is enabled by the modularity of new media objects. He describes this as the ‘fractal structure of new media’ (30)⁹ and suggests that this logic follows or expresses post-industrial logics of ‘just in time’ and ‘production on demand’ modes of production and distribution that value individuality and customization (36; also see 41–2).¹⁰ He refers to computer games as providing a strong example of this trend (120).

Manovich observes that these new media objects indicate a shift in the production process which makes end users feel that they are not just consumers but participants in the process of creating and making a new media object or experience (125). He argues that these objects materialize or reflect this mode of post-industrial capitalism: a ‘set of social and economic practices and conventions is now encoded in the software itself’ (129; also see 131). However, should we follow Manovich’s view that new media objects materialize and reflect the logic of post-industrial or informational capitalism (131)?

Manovich’s understanding of the fractal and modular characteristics of new media and ANT’s approach to technologies both offer important insights into the significance and role of technologies shaping co-creative culture. But perhaps what is missing here is a more precise analytical framework for understanding the mechanisms that coordinate the dynamic relationships associated with technological innovation and change, including how these changes relate to the economic and cultural domains. In *The Nature of Technology*, W. Brian Arthur (2009) offers a theory of technology grounded in the evolutionary and complexity sciences. He sets out from the proposition that technologies evolve and arise through combinations with other technologies. These combinations or bodies of technology include methods, devices, understandings and practices. This is close to the ideas of

assemblage and modularity that I have drawn on throughout this chapter. The difference is that Arthur understands this to be an evolutionary process in the sense that these combinatory arrangements function through an algorithmic evolutionary search mechanism involving processes of adaptation in which new technologies descend from collections that preceded them. He calls this 'combinatorial evolution' through which 'technology creates itself out of itself' (18–23). Arthur contends that if we can understand these evolutionary mechanisms then we can begin to understand the processes of innovation. These combinatory and co-evolving processes are at the heart of dynamics of cultural and economic change, such as co-creative culture.

Arthur suggests that the changes we are seeing associated with digital technologies are precisely about a shift or evolution from fixed industrial-process technologies that characterize the manufacturing economy towards arrangements of technology elements that can be combined and reconfigured for different purposes – a process of 'continual combination' that characterizes genetic engineering and, I would argue, the co-creative media culture assemblages that this book is about. From Arthur's 'combinatorial evolution' perspective then, technologies are not so much independent means of production and more are 'becoming an open language for the creation of structures and functions in the economy' (25). In this framework technologies do not express or reflect a singular 'industrial logic' as such, nor do they determine economic and cultural change. Instead, Arthur argues, as the economy '*encounters*' these technological combinations it reacts by changing and transforming 'its activities, its industries, its organizational arrangements – its structures' (146). As a result of this encounter new processes, new technologies and even new industries emerge.

As these combinations of technologies encounter the economy the resulting commingling and recombining with existing practices and activities can form a new domain of possibilities. Co-creative culture is precisely such a domain. He describes these encounters as a process of 'creative transformation' and 'redomaining' through which industries and cultural practices adapt themselves to the new technologies. This is a co-evolutionary process of 'mutual change and mutual creation' (155). The significance and value of co-creative culture and the associated technologies (in the case of the games industry the engines and editing tools) arise from these co-evolutionary dynamics through which new processes, arrangements, ways of doing and making things emerge not just in one area of application such as the videogames industry but, as Arthur observes, all across the economy.

Arthur's theory of technology and technological change is somewhat close to an ANT approach. The difference and merit of Arthur's work is that

it provides us with an analytical framework grounded in the evolutionary and complexity sciences for understanding these dynamic relationships. In this sense he offers the analytic framework that van Dijck (2013) seeks after noting the analytic limitations of ANT. Rather than just insisting on the relational he offers a rigorous and refined framework for understanding the nature and characteristics of these relational dynamics – they are evolutionary in the context of complex, adaptive systems. I pursue this evolutionary turn in more detail in the final chapter.

3

Co-creating *Trainz*

From ethnographer to online community relations manager

My research with Auran became a dialogue about how to create and manage relationships with online gamer fans. At a meeting in June 2000 Lane challenged me: 'It is one thing to study these things, how about actually applying these ideas and seeing how they work out in practice.' I accepted a position as online community manager and commenced working at Auran on a part-time basis; a few months later this became a full-time job.

Managing fan community relations is now an integral part of games development companies' innovation, product development and marketing practices. Gamers increasingly expect and demand that developers will not only listen to their views, but also enter into active dialogue with them. Developers like Auran and Maxis actively solicit feedback from consumers and audiences.

What are the implications of taking up the community manager position at Auran and participating actively in the making and management of a gamer fan community, and being paid for it? Does this irredeemably compromise the research with a sell-out to commercial imperatives and objectives? At best is this a case of the ethnographer going native and at worst a commercial takeover of academic research? As Auran's online community relations manager, I was directly involved in the process of making a commercially exploitable fan community (Nightingale 1996: 124).

Ethnographic research methodologies are increasingly taken up by commercial enterprises as a tool for understanding and accessing customer and user culture. In 'Anthropology as "Brand": Reflections on corporate anthropology', Lucy Suchman (an anthropologist who spent many years working as a researcher with the Xerox PARC corporation) examines this

trend of corporate anthropology, suggesting that it involves anthropology's taking on the form of a commodity or brand as anthropologists are employed by corporations and engage with the 'worlds of commercial development, research, marketing and public relations' (2000: 2–3). She argues that such anthropologists come to take on a role or identity as 'proxy' for customers and users within the corporate workplace (2000: 4) – as indeed I did as an ethnographer within Auran. Suchman comments that these roles provide a unique intervention 'inside the engine rooms of early 21st century capitalism', but also raise the challenge of how we should occupy such positions. The anthropologist participates in discovering and observing consumer experience that is then addressed by corporate design and marketing, but also simultaneously contributes to constituting consumer experience 'through activities of design and marketing'. I agree with Suchman that these tensions are irresolvable and are the conditions for undertaking such a research and working relationship. These positions offer opportunities to explore and participate in the making of co-creativity. Nevertheless they also carry the risk and danger of 'contributing to, rather than refiguring, dominant forms of commodity fetishism' (4).¹ Part of the challenge of this research then, as Suchman (2000: 5) proposes, is to 'find the spaces that allow us to refigure the projects . . . rather than merely to be incorporated passively into them'. However, it does not follow from this that these research participations are or should be opposed to corporate agendas. As we shall see, co-creative relationships unsettle such oppositional logics.

My job was to encourage and manage the formation of online communities around *Trainz*: a model railroad simulation. Players would be able to collect authentically detailed 3D models of locomotives and rolling stock, purchased individually or as packs from the Auran online shop. *Trainz* would also allow players to drive the trains through fully 3D train-line landscapes from the engineer's cab-view perspective. On first release *Trainz* would include Surveyor, an editor tool set that enabled players to create layouts. Using Surveyor, players can manipulate the landscape and place objects such as trees, buildings, track, bridges and tunnels, to make highly detailed 3D model railroads. The development team put a lot of effort into the design of Surveyor on the premise that the player activity of creating and sharing layouts would provide the foundation for a growing and sustainable online community that would also be the market for collectible locomotive models. The Auran-hosted *Trainz* website would feature forums, chat, the online shop, and hosting of the user-created layouts. Regular releases of content add-on packs covering historical periods, regional railways, famous passenger routes and particular rail companies such as Union Pacific, Deutsche Bundesbahn and British Rail were also part of the *Trainz* product line plan.

Trainz would also enable players to create content such as 3D locomotive and rolling stock models with 3D modelling programs and import them into *Trainz*. User-created content would be important for the product's success. The development team aimed to introduce user-friendly editing tools for *Trainz* that would effectively open the content-creation process to the players.

The train simulator fan network

The *Trainz* development team identified that there already was an active online community of rail fans and enthusiasts. There were hundreds of websites covering all aspects of the hobby, from model railroading through to train spotting. Additionally, a network of websites had already formed to promote train and rail simulation software. One of the early members of the *Trainz* development team, Rob Shaw, was a rail fan who hosted just such a website. Lane approached Shaw with an offer to join Auran and Shaw accepted, leaving his home in Adelaide and moving his family to Brisbane. Bringing to the project his knowledge and passion for all things trains and rail, and computer graphic artistic skills that were refined with training provided by Auran, Shaw eventually worked on the project as a 3D artist, creating locomotive models. Additionally, he brought to the *Trainz* team his contacts with the online train simulator fans. This was of great assistance to the development team as we commenced our plans for forming an online community around the *Trainz* project. By employing Shaw, Lane embedded a deep understanding of rail-fan culture into the very heart of the *Trainz* project.

Shortly after joining Auran in my role as online community manager, Shaw outlined to me the history of the train sim fan network, formed with the goal of creating a fully featured train and rail simulator. He also put me in touch with long-standing and respected opinion leaders who hosted websites that provided a focal point for the community online activities. For example, he brought to my attention that Vern Moorhouse, a long-standing advocate for train simulation software, based in Wales, hosted the site that was possibly most important to the community: TrainSim UK (www.trainsim.org.uk). This site provided reviews of train sim software and a forum through which fans shared ideas and opinions about what they would like to see in such simulation software.

In a series of email exchanges with Shaw in February 2003, he shared with me his involvement in the train simulator community, and his views on the importance of this community to any train simulator project. The emails detailed the history of train and rail simulations emphasizing the close

relationship between the professional developers and the train simulator fans. Shaw writes:

Under the guidance of Vern Moorhouse and myself, and largely out of the *Mechanik* EN57 Simulator community, the 'Global Train Simulator Working Group' (GTSWG) was formed. The purpose of the GTSWG was primarily the creation of a 3D full colour rail simulation with soundcard support, featuring open architecture and a usable route editor. The community had grown to such a size that there was a long list of would-be contributors, who felt there was such a need for this software that they would create it themselves on a voluntary basis.

The GTSWG also petitioned software companies such as Microsoft with requests that they consider the subject of a rail simulation for a commercial release.

The mission statement, the white papers and the early discussions were noticed by more than one developer of a commercial rail simulation, and one of them happened to be Auran's Greg Lane, who was about to start assembling a team to create a game he had been dreaming of for some time.

From my observations, the single most important factor in the success of a rail simulation is good potential for customisation. Rail enthusiasts nearly always have an interest in a particular locality, railroad, era, whatever, and a little potential to model well goes a very long way.

This brief quotation from Shaw's lengthy and informative email provides a strong sense of the rail fans' investment of time and passion in train simulator projects. These projects relied on the voluntary, collaborative efforts of the online rail fans, and blurred the boundaries between commercial development and fandom. Shaw's account of the Global Train Simulator Working Group had a significant impact on Auran's plans to involve the online rail-fan community directly in developing *Trainz*. Auran's managers and developers hoped that the community would provide feedback on the initial design concepts, review early release screenshots and previews of the 3D models, provide the Auran artists with background research material and specifications on particular locomotives, form a beta-test team and, after release, generate content to expand on the product base.

Throughout July 2000 Auran implemented a strategy to attract and involve the existing network of train and rail sim fans. The web team developed a *Trainz* website that initially featured a few pages outlining the *Trainz* design concept supported by a forum discussion board. The forum provided the initial focus for communication with the community and was augmented by

direct email contact with significant opinion leaders such as Vern Morehouse. Then a few months later the web team launched a more expansive website featuring screenshots and other preview content (movies and previews of the locomotive 3D models), together with an IRC server for hosting real-time online meetings between the *Trainz* development team and members of the community.

Auran's plans were somewhat interrupted by Microsoft's announcement that they were also publishing a 3D Train Simulator product (developed by UK-based Kuju) that would feature accurate modelling of train operations (both diesel and steam) and prototypical routes created with the assistance and input of participating railway companies. *Trainz* development team members speculated that we just could not compete with Microsoft. Many on the team believed it was now inevitable that Lane would cancel the project. They waited for Lane to call a team meeting or send out a group email. He ignored these speculations and then called a brief meeting. His view was that Microsoft would assist with establishing awareness of train sims and that there was room for more than just one software product in this space.

However, the marketing and web team recognized that Auran was now competing directly with the Microsoft/Kuju team for the attention and support of the online train simulator fans. In the lead-up to the launch of the *Trainz* website and forum, I emailed rail-fan community opinion leaders, briefly outlining the design concept and inviting them to provide Auran with feedback throughout the development process. This email emphasized that *Trainz* would enable users to create add-on content and modifications. The website also emphasized this call to participate: 'We are inviting you to share your ideas on the forum in each of these areas to ensure that your *Trainz* experience will meet the expectations and express wishes of the train community. Help us to make this the rail software you have been dreaming about!'

How does Auran's invitation to the train sim fans to participate in the design and making of *Trainz* work in the context of game development projects? How does it disrupt and transform organizational and industrial logics?

Lane introduced me to the *Trainz* team at a regular weekly meeting in July 2000, commenting that Auran had a history of developing strong and close relationships with its fan base. Lane outlined my background and research relationship with Auran, and then explained that my role would be to work closely with the web, marketing and development teams to ensure that Auran established a strong and growing fan base supporting *Trainz*. He emphasized his belief that this would be vital to the game's success. My impression at the time, which I recorded in my field notes, was 'strong scepticism' from the producers, programmers and artists, the production members of the

team. This may have been due to my unease at taking on a new role working with technical professionals when I had very little understanding of their skill areas. However, my reservations were confirmed when one of the production team members commented to me after the meeting: 'I suppose this is all just marketing type stuff then.' I described this in my fieldwork journal as a 'bucket of cold water' experience. Just to be sure that I got the point, a producer added – 'I guess you haven't had much to do with developing games before then, you know getting them done and shipped'.

At this early stage of the *Trainz* project my desk was situated in the web and marketing team area. Online community management was physically separate from the development team. I was quickly to discover that opening the production process to co-creative engagement with consumers is hard work. Green and Jenkins (2009: 213–14) argue that the changes associated with emerging participatory cultures are forcing media companies to 'reassess the nature of consumer engagement and the value of audience participation'. They add that the tension between top-down corporate and bottom-up consumer power is 'shaped by decisions made in teenagers' bedrooms and in corporate boardrooms'. I would add however, that these relationships critically concern not just boardroom decisions or CEO strategies but the daily workplace practices and identities of professional media workers. The 'anxiety about the terms of participation' that Green and Jenkins note is not just concern expressed at the top levels about control of media distribution and production but also about unsettling workplace practices, cultures and identities. As I came to learn and will discuss in more detail in a following chapter on 'Co-creative labour', this also was not simply anxiety from media professionals that their job security was threatened by talented amateurs. The anxiety also involved values and understandings of what it means to do a job well and with professional craft skill and integrity (Deuze 2006; Green and Jenkins 2009: 220).

In August 2000, we emailed the train simulator fan opinion leaders whom we had identified with the assistance of Rob Shaw, and invited them to provide us with their feedback on our proposed train simulator design. We advised them that we wanted *Trainz* to be 'their simulator' and that we would 'seriously take into consideration their feedback and input throughout the project'. And they came, bringing with them their ideas and enthusiasm for trains and rail.

The forum was launched on 11 August, and Vern immediately posted asking when we anticipated the first modules would be released ('Release dates'). Over the course of the following weeks, Vern criticized and questioned many of the core *Trainz* project design decisions, including the proposal that *Trainz* would only be available via e-commerce. He was concerned that *Trainz's* design focus on model railroading would not include any prototypical routes

and argued that, unless *Trainz* supported prototypical route creation, it would not be a 'serious' train simulator: 'For those of us primarily interested in driving a train over a prototypical route of maybe several hundred miles, how easy will this be to do in *Trainz*?' ('*Trainz* – initial thoughts', 10 August 2000). By prototypical, Vern meant routes that accurately modelled real-world rail lines. The problem here is that Auran did not want to compete directly with Microsoft in the area of prototypical operations. Auran management felt that, with its user-friendly editing tools and diverse range of locomotive model trains, *Trainz* was better positioned as a model railroad simulation. We would release routes that were distinctively themed to reflect particular regions and routes in the United States, United Kingdom and Australia, but they would not be prototypical of particular routes.

Each post made by Vern over this period was carefully scrutinized and discussed by Auran management and raised in regular *Trainz* team meetings. Field notes I made include entries covering concerns raised by Auran's marketing manager about how representative forum posts were of our target market for *Trainz*. As she put it: 'Are we overreacting to a hard-core here?' There was considerable uncertainty surrounding how we should engage with these community views. To what extent should they influence the actual *Trainz* design and production process? How should this user involvement be integrated with the development and production process? My notes record a heated exchange with members of the development team who argued this 'community stuff' was marketing and web team, and shouldn't be allowed to impact significantly on the project schedule or features. However, I also noted that, in team meetings, forum posts made by fans would be raised from time to time in support of a particular feature change or addition that the developers themselves wanted to make. There certainly was not a single Auran position on how influential suggestions from fans should be on the actual design and project direction.

The role of the rapidly growing and demanding fan community was becoming a topic of controversy at Auran. The web team had a vested interest in supporting the value of fan involvement, and was under increasing pressure to ensure that the website traffic was continually increasing. The team argued that it needed regular preview content releases in order to generate traffic. The forthcoming launch of the *Trainz* website would attract a rise, but in order to maintain traffic levels and expand the fan community they would also need to regularly release preview content. Lane also actively supported the importance of online community development for the success of *Trainz*. Members of the development team, on the other hand, considered it to be more of a marketing initiative that got in the way of the job of making *Trainz*. As the senior producer commented to me, 'This is all a distraction really, it can get in the way of developing the game'.

Although the community-based website was a promotional and marketing vehicle for the game, its overall aim was also to generate useful feedback from train and rail enthusiasts that could then guide and refine ongoing development of the project. It was about engaging lead users in the process that Eric Von Hippel (2006) describes so well as user-led innovation. These early adopter trains and rail fans would respond to and adapt our design proposals based on their interests and requirements. Making contact with the existing train sim fan sites was also, in part, a marketing and promotional exercise. We exchanged links with many of the sites, and this had the effect of increasing traffic to our site from potential future purchasers of the game. Securing endorsement of *Trainz* by leading train sim fan sites was an important goal of the Auran online marketing team. For their part, fan site owners regularly approach game developers for exclusive preview content: an ability to be a source of news about the game development process and to publish exclusive preview content helps them establish and maintain their position as leaders in the online fan community. The relationship with the fans was also fostered to gain feedback on the game's planned features, which the developers would then act on where feasible. But what was feasible was in regular dispute among members of the development team.

Decisions on how fan input may influence *Trainz* design were contradictory and shaped by internal tensions. For example, for commercial and business reasons, we initially resisted fan demands from individuals such as Vern that Auran introduce a stronger element of simulation realism into *Trainz* rather than follow the model railroad route; introducing such a significant change would have required a much longer development time. Members of the *Trainz* team, particularly the project producer, resisted too many significant changes based on fan feedback. This was grounded in project management concerns. The producer felt project outcomes could be at risk if major features were to be introduced or significant changes and modifications made. At team meetings in which the ideas put forward by the *Trainz* community were discussed, he would respond that such 'feature creep' and 'design by committee' introduced significant risk that he was not prepared to allow. His brief was for a model train simulation with detailed 3D models and user-friendly editing tools that were seamlessly integrated with the game, leaving everything else for future releases. The producer argued that the fans often just did not have the information or design understanding to appreciate the implications of their proposals. I will return to this question of the relationship between professional expertise and amateur fan creators in Chapter 5 ('Co-creative expertise').

I presented the views and opinions emerging from the growing *Trainz* fan community at many development team meetings. I would provide printouts of emails and forum posts that I considered representative of the views being expressed. Debate in these meetings was at times quite strident.

As we moved into September 2000, contentious forum discussion continued on the prototypical route issues. The community was also increasingly eager to see some proof or evidence of the *Trainz* project. Thus far all they really had were descriptive posts from Lane and me. As community leader Barney put it:

What worries me is a feeling that the enthusiasm is also getting a bit thin. It is a direct result of not seeing any real stuff from *Trainz* development. I am sure that when Beta 1 comes out we will all be quite satisfied but at the moment I would like to see at least some screen shots. If we can get some little info of what is ACTUALLY going on then we may be able to help development team with further ideas. ('Let's move on', 7 September 2000)

The web team was busy working on a new *Trainz* website, and planned to release a few screenshots with the website launch. The marketing team also wanted regular, if not weekly, updates of preview content. They believed this was crucial in order to maintain the slowly growing community. On the other hand, the development team considered these requests for preview content as something of an imposition that may delay production.

The problem with this was that Auran was promising that the fans could participate meaningfully in the process of developing *Trainz*. A significant and influential group within the fan community were actively lobbying Auran via forum posts and emails to move the design towards the prototypical train and rail simulator software that they had been advocating and working towards for a number of years. The early members of the community expected Auran to listen seriously to their input and views, to respond to their criticisms and opinions, and to change designs and artwork accordingly. After the weekly previews of models, Auran regularly received emails from community members pointing out inaccuracies and mistakes. Some would even provide specifications and photographs to help the team make improvements and corrections. This feedback then helped the artists ensure that the locomotive models were authentic in both specification and livery. In this way the online train and rail-fan community provided the *Trainz* team with research assistance. Information provided by rail enthusiasts greatly assisted the *Trainz* artists as they reviewed the models in the lead-up to commercial release.

However, this closeness made it difficult at times to manage fan expectations of what could feasibly be delivered within the constraints of a commercial game project. The *Trainz* project was not funded by a large publisher. Tony Hilliam, a significant Auran investor, had contributed to funding *Trainz* since the beginning, on the understanding that it would be taken to market quickly, generating the revenue needed to then support any ongoing development – and

of course a profitable return on his considerable investment. Without Hilliam's backing, *Trainz* just would not have happened. Of course, it is often difficult to provide the fans with full details: much of this information was commercially sensitive, directly involved negotiations with potential publishers and investors, and was often protected by non-disclosure agreements. Auran's responsiveness to fan questions on many issues led to an expectation that this would be the case on all issues. The early release of information also had to be carefully balanced with maintaining Auran's position in a competitive market.

On 15 September 2000 the new *Trainz* site launched with material such as screenshots and previews of the 3D locomotive models. The response was immediate. Barney posted: 'That F7 in Atchison, Topeka and Santa Fe livery is absolutely fantastic. I still have the N gauge model that I purchased way back in 1969 as a little kid. That was my first model'. RogerJ added: 'Give me a Dash 9 and let me rumble!' ('New Trainz web site!', 15 September 2000). However, despite the enthusiasm for the preview content, debate continued about whether *Trainz* should be a model railroad or offer support for prototypical railroads. A forum thread that ran for a few weeks ('Real railroad or model layout?') again brought this to the fore and divided the community. After Auran again commented that *Trainz's* focus would be 'model railroad type layouts', Barney posted, 'Yess!!! I expected that *Trainz* will initially appear as model layout system. That is IMHO very good and wise choice . . . I will finally be able to create model layout that was just too big for my room'. Vern, on the other hand, repeated his request for the ability to create prototypical 'nice long linear layouts' ('Real railroad or model layout?', 6 September 2000).

Over the course of the following months, Auran released weekly preview content (in-game art and preview models of locomotives such as the popular Canadian National SD40). The response to the quality of the preview artwork was enthusiastic and positive, including the following from US_Railfan:

Thanks, it is a grand feeling to have you gentlemen spend the time and effort to share your thoughts and information about *Trainz* with us. I feel as much a part of the project as the members of the *Trainz* staff. ('Trainz insights', 25 October 2000)

By mid-June 2001 fans wanted to see preview movies of the actual gameplay and were questioning whether running such highly detailed 3D models on their PC systems would provide decent performance levels. They generally concurred that the quality of preview art was very high, but were concerned about the possibly high-end PC hardware required to support such 3D graphics. At this stage the team felt it was still somewhat early to release in-game

movies. But Surveyor had reached a stage where Auran could effectively demonstrate its ease of use. An influential community member, 3801, living in Canberra, Australia, had established a reputation through his forum posts as a knowledgeable train and rail enthusiast, as well as a constructively critical supporter of the *Trainz* project. Auran invited him to visit the studio in Brisbane at its expense for a preview of Surveyor. He accepted the offer and, after spending time with the team testing *Trainz*, indicated that he was very impressed with Surveyor's features and user-friendly interface. Throughout his visit, 3801 was also eager to get his hands on the tools and create a route. He immediately identified that Surveyor offered a lot of potential to the train and rail fan for creating their own layouts, and predicted that, immediately following the release of *Trainz*, many layouts would be available for download from fan websites.

3801 sought permission to post his impressions of Surveyor on both his personal website and on the *Trainz* forum. Auran granted permission, on the understanding that certain technical issues could not be publicly commented on, and that he should feel free to express any criticisms he had. His posts about Surveyor were very favourable, claiming that it not only met but exceeded Auran's claims for it as a powerful and user-friendly tool:

People, yesterday I saw the **next** generation of train-simulation and it will be with us **this** year. It is that simple . . . But I can say now that we are in for an absolute treat and Vern, you have absolutely no worries regarding being able to create routes that are as prototypical as you see fit to create. In fact, we are going to have a *ball*!! ('Auran: A place where dreams are coming true', 5 June 2001)

3801's posts generated considerable interest in and enthusiasm for *Trainz*, allaying many of the concerns which had been raised. His visit to Auran included input on Auran's plans to release Surveyor, and the *Trainz* software generally, to a group of the more active and passionate fans for beta-testing and feedback purposes. Auran management envisaged that an outcome of the beta program would be the creation of layouts that we could make available to purchasers of *Trainz* as free downloads. Here, fans such as 3801 were already playing an important role in Auran's promotional activities. His post made a significant contribution to allaying fans' concerns about Surveyor's ease of use. 3801's tinkering and experimenting with the editing tools while he was at Auran also had a significant impact on the views and opinions of the development team, including the lead designer and producer. Throughout the week of his visit members of the team would regularly stop by the desk where 3801 was seated to chat and follow what he was up to. They were somewhat surprised and excited by the quality of the layout

3801 was beginning to produce. The team started discussing how they could better support these user-created content activities and what features they might add with a future update.

After 3801's visit, Auran commenced the ramp-up to the release of *Trainz*. This included releasing further preview in-game screenshots and movies on the website. The team added an episodic series of movies demonstrating how the 'Surveyor' editing tools could be used to create layouts. An episode released on 26 September 2001 demonstrated the ease of laying track using a system that simply involved dragging and clicking with the mouse. The conclusion included a voice-over from Rob Shaw, 'that's all there is to it!' This comment was regularly repeated by the fans on the official *Trainz* forum and other fan site forums to indicate that the *Trainz* editor was user-friendly.

Tony Hilliam and Greg Lane had secured a publishing deal for *Trainz* with Strategy First, a publisher based in Canada. Strategy First would handle the North American release and engage other publishers and distributors for release in Europe. *Trainz*'s retail launch was planned for early 2002. Forum posts and emails from fans seeking further details about *Trainz* significantly increased over the last few months of 2001. One of the challenges confronting Auran was managing and maintaining the levels of interaction with and responsiveness to a rapidly growing fan community.

It would be easy at this point to accuse Auran of cynically manipulating the *Trainz* user community as a marketing ploy in which my research has colluded. But before rushing to judgement we might ask how these relationships are being made. For example, emails received from individual members such as Vern, Barney, CeeBee, 3801 and many others clearly demonstrated awareness that this community initiative by Auran was aimed at creating a market for *Trainz*. However, they also hoped that it was more than just this and that the community input would directly influence the design. These emerging co-creative relationships raise questions about changing markets. What are the transactions and exchanges occurring between these gamer co-creators and Auran? Is this simply about firms and markets taking advantage of the work of unsuspecting gamers?

The potential for *Trainz* to become a successful game very much depended on what the fans would do with Surveyor, their efforts at creating additional content and their efforts to promote *Trainz*. How would they transform it? Would they take it up and play with it to extend *Trainz*? The commercial success of *Trainz* came to rely increasingly on the participation of the *Trainz* fans in the development and production process. Is 'play', then, an accurate description of this relationship between the rail fans and Auran? 3801 took holidays from his full-time employment to spend time at Auran. During his visit he provided the team with useful feedback and eventually contributed to

the *Trainz* manual by writing the foreword – a known, high-profile member of the community, introducing the product to purchasers. He is also recognized in the *Trainz* manual's acknowledgements and credits, for providing additional research – as are over 50 community members who contributed directly to the development project. 3801 also took on a role as community moderator on the Auran forum for a period, assisting with welcoming new visitors and answering common questions. And he made a decision that despite Auran's claims that it was not designed for creating prototypical routes, he would endeavour to create such a lengthy route. In discussions with Auran he commented that he viewed this as a suitable reply and counter to those in the train sim community who wanted prototypical routes for *Trainz*. In short, his view was that Auran had provided the tools to 'do it yourself'. As a member of the beta-test team, 3801 had access to early builds of *Trainz* and he started work on this route, based on an Australian segment of rail, Robe River. The completed route was eventually included in Auran official updates to the *Trainz* release. Here, fan-created content is integrated directly with the official, corporate commercial release. Does this blurring of the boundaries between corporate producer and fan content creator amount to nothing more than the incorporation of fan culture within the networks of capitalism? Or does it provide a strong example of consumer empowerment, and perhaps even a democratizing of fan-corporation relations?

Such stark oppositions are not helpful in negotiating the complexities and contradictions that shape this emerging landscape. Such an oppositional explanatory framework does not so much represent or describe these relations; rather, it is a tool for creating the figure of the fan as an object of academic desire. By engaging with the specificities and particularity of people's encounters with these relations, and providing detailed descriptions of how audiences and media professionals negotiate with media technologies and each other, ethnographic research can help us to get at the ambivalences of our positioning in these networks without necessarily falling back into the banalities of equating this consumer co-creative activity with resistance, or democratic empowerment.

In his study of fandom, *Fan Cultures*, Matt Hills (2002: 27) carefully positions fans within the processes of contemporary consumer capital. He asks what happens to our conceptions of the fan-producer 'when fan cultures are themselves directly targeted as a niche market'. Fans' participation in development and production involves:

mechanisms of market segmentation, in which fans' values and authenticities are . . . sold back to them. And thus who is better placed to produce this material – which by definition must draw on immersion in

fan culture and its forms of knowledge and competence – than the fans themselves. (40)

Hills insightfully argues that the tendency of fan research to foreground fandom's hostility towards commercialization and commodification overlooks the 'potentially curious co-existence within fan cultures of both *anti-commercial ideologies and commodity-completist practices*' (his emphases, 28). This tension cannot be overcome by coming up with better descriptions of fandom or even a better theory of fan practices. Fandom is shaped and made by these contradictions. In fact, the very production and marketing of *Trainz* is enabled by these incommensurable relations. It is here, in this uneasy space, that the dynamics of emerging co-creative relations play out. For Hills the moral dualism of bad fan as consumer versus good fan as producer should be rigorously challenged. The practices I have been describing unsettle and disrupt this oppositional structure. Valorizing of fan production does not engage with the tensions and contradictions that are the conditions of fandom, and is more about creating a figure of the fan, mobilized in academic institutional practice, which can carefully erase the traces and taint of crass consumerism (30–5).² There can also perhaps be a tendency in some media studies research to overly valorize the bottom-up agency and productive activity of the fans somewhat at the expense of considering the work of media professionals that enables these activities.

User-created content and the *Trainz* development project

Over a series of releases from 2001 through to 2008 *Trainz* increasingly foregrounded user-created content. Using the tools provided with the Surveyor module, users made their own 3D layouts and then shared them with other users through the *Trainz* website Download Station. Using third-party modelling tools as 3D Studio Max, players could also make their own 3D locomotive and rolling stock models and import them into the game.

Fan content became increasingly integral to *Trainz* and its commercial success relied on such content. At first commercial release in 2001 Auran did not fully anticipate the extent to which *Trainz* would become reliant on user-created content. This raised questions concerning how Auran would manage the relationship with fan creators. How would this fan content fit within the *Trainz* project? Would Auran distribute the content from its website? Would Auran allow fans to retain ownership of the content that they created? Would fans be permitted to sell the content that they created? How would

the technical challenges of integrating end-user content influence the overall design and architecture of *Trainz*? What kinds of software utilities would be needed to support the fan creators' efforts? Auran envisaged that *Trainz* would be an ongoing project with regular updates. This raised the challenge of ensuring that core *Trainz* code platform updates would be backwards compatible with fan content. The difficulty arises of how this content will fit within the framework of a commercial development project.

Both *Ultimate Trainz Collection* (2002) and *Trainz Railroad Simulator 2004* (2003), as well as more recent releases such as *Trainz 2006* and *Trainz 2009* incorporate user-created content as part of the commercial release package. In effect, Auran relied on a pool of fan content creators and innovators as a routine part of the *Trainz* project. Fans were integral to the design, beta-testing process, content creation and to promotional activities. Auran's strategy to increasingly involve the fans in the development and distribution of *Trainz* was, in part, a contingent response to a difficult commercial situation in which sales were not reaching anticipated levels. If it were not for the continuing support of the fan community, Auran would have stopped the project.

In the first few months after the launch of the *Trainz* website, fans requested information detailing how content should be made to ensure that it could be integrated with the core *Trainz* program. Auran committed to provide documentation and exporter utilities that would support importing models created with recognized 3D modelling programs. Teams such as 3D Train Stuff (www.3dtrainstuff.com), 3dtrains.com and Train Artisan (www.trainartisan.com), formed to produce commercial content for both *Microsoft Train Simulator* and *Trainz*, also approached Auran to seek information about its plans to work with such groups. This immediately raised questions concerning Auran's support for hobbyists working on commercial releases, as against fans providing free content. Should Auran approach these groups differently? Should the developers provide these emerging semi-commercial creators with more support through earlier access to information and builds of *Trainz*? In the lead-up to the late 2001 *Trainz* release, Auran fostered relationships with these groups and indicated a strong willingness to support their content-creation projects. Auran hoped that this support would translate into a steady flow of quality fan content immediately following *Trainz* release. The development team then formalized this arrangement in mid-2001 by inviting the more active, talented and passionate fan creators to join a *Trainz* Official Third-Party Content Creators Program. Participants were asked to sign a non-disclosure agreement before receiving information about importing their content into *Trainz* and access to beta builds so that they could start familiarizing themselves with the *Trainz* features that they may wish to use in their content. An important aim of the program was also to provide the development team with direct feedback from end users,

identifying bugs and problems that needed to be fixed before release. The second aim of the program was to encourage fan creators to start producing layouts and other content that would then be downloadable from the Auran *Trainz* site and fan sites immediately upon the retail release of the game. Throughout 2001, Auran's plans for supporting fan creators were ambitious and included committing to provide them with information and support from the development team, and access to website services such as e-commerce facilities for selling and distributing their content. The response from the creators through emails, forum posts and telephone calls was enthusiastic.

The online fans' efforts to create and share content for *Trainz* reinforced Auran's decision to now concentrate the development effort on a user-friendly editor, and to support the fans' efforts to create layouts and other content for *Trainz*. Auran made commitments to work closely with the third-party fan creators, providing information and documentation on how to prepare their content for *Trainz*. However, the Auran developers were finding it very difficult to respond to the fan content creators with the level of detail and within the timeframes that the creators were expecting. Some of the creators (e.g. the 3D Train Stuff team) were becoming increasingly annoyed that Auran's developers were not following through on commitments to provide the documentation and feedback that they needed to get their creations working with *Trainz*. The development team's time and resources at this stage were fully committed to identifying and addressing bugs that had emerged through the beta-testing process; they just did not have the time to respond adequately on the third-party creator issues. This in turn led to tensions and dissension within Auran. As community relations manager, I felt that Auran now needed to follow through on the undertakings made to the fan content teams, and was concerned that if we did not address their growing concerns we might well lose their interest and support.

In October 2001 Auran senior management decided to release an early version of *Trainz* (the Community Edition), making it available for direct purchase from Auran's online e-commerce shop from December. They hoped that this early release version would satisfy the demands of the rapidly growing content-creator community for early access to *Trainz*. It would also provide a useful final round of testing and feedback before the in-store release, planned for early 2002. Auran announced the Community Edition release and started taking orders through the website, advising that it would be followed by the wider retail release in early 2002. Auran also promised to support the efforts of the content creators by releasing detailed Content Creation Guideline documentation. On 14 November a draft version of this document was released through the newly launched *Trainz* Content Creators forum area. Throughout October and November, builds of *Trainz* were released to the beta-testing group, providing invaluable feedback to the development team and assistance with identifying bugs. Members of the beta-test group, who also happened to be content creators, were in the process of using the

Surveyor tools to create layouts or using 3D modelling packages to make locomotive models that they were then importing into *Trainz*. The draft Content Creation Guide provided them with the procedures they needed. On 16 November we announced that the *Trainz* code has been finalized. Auran then started shipping the online orders for *Trainz* Community Edition on 3 December. The website announcement recognized and acknowledged that this release was made possible only by the support and contributions of the *Trainz* fan community that assisted Auran to mould and improve the software to become 'a great hobby game'. Auran added: 'We look forward to seeing all of the exciting activities and content that emerge from the wider *Trainz* community over the coming months and years. Auran is dedicated to working with the community to make *Trainz* the most extensive PC railroad imaginable.'

However, it quickly became apparent that Auran had not yet released the detailed procedural and configuration information that the fan third-party creators needed. On 12 December 2001, Landrvr1, one of the emerging high-profile fan creators, posted to the *Trainz* forum:

GUIDELINES for creating new Rolling Stock? Okay Auran, you have created a most amazing product. Now, when can we expect some direction on how to create our own rolling stock? This is, in fact, what I've really been waiting for anyway! Are you planning on a tutorial section? ('Guidelines for creating new rolling stock?', 12 December 2001)

The development team were also receiving angry emails from content creators expressing annoyance and frustration that Auran had now released the Community Edition of *Trainz*, and were publicly commenting this was aimed at supporting and encouraging content creation, but had not yet followed through on the commitments to release the detailed guidelines for content creation and provide access to members of the *Trainz* development team. The difficulty here was that immediately following the release a few outstanding problems emerged with performance on particular PC hardware configurations. This needed to be urgently addressed and the team was working on a fix that they wanted to release before the coming Christmas break. Auran just did not have the staff resources available to meet the growing demands of the third-party content creation community.

Auran management had underestimated the resources and staff commitment required to support this co-creative initiative. But this was not just about senior management as the development team was itself divided about support for the fans' activities; many on the team viewed the task of supporting these content creator efforts as an ancillary rather than a core part of their job.

Then, on 26 December, JoshEH, a teenage member of the *Trainz* community from the United States, made a lengthy post to the *Trainz* forum describing in detail how to import and get a locomotive model working in the game. He had figured it out by a trial-and-error process of experimenting and tinkering. He commented in the post: 'DO NOT BUG AURAN if you have any problems because they made it clear they won't release any info on it until the content creation docs are out' ('Content creation info must read!', 26 December 2001). This 'do it yourself' or more correctly 'do it ourselves' ethic started to permeate the *Trainz* fan culture. Pikkabird, another young content creator, also advanced work on his locomotive project, drawing on JoshEH's suggestions. Throughout December and into January 2002, many community members, including JoshEH, Landrvr1, Pikkabird and Hack, collaborated on getting locomotive models and other content working with *Trainz*. JoshEH released a Southern Pacific GP9 locomotive that had been created earlier for *Microsoft Train Simulator* and could now be imported into *Trainz*. He also shared detailed tutorials and guidelines about how this could be done through his personal website. On 20 December 2001, Hack released the popular Santa Fe F7 through his www.3dtrains.com website. This model was of a higher resolution and therefore more detailed than the F7 model included with Auran's *Trainz* package. In January 2002, Landrvr1 released a series of models that included a sawmill, station and platform. Auran's Rob Shaw also released a station that he had created in his own time. These content releases were often also accompanied by helpful forum posts from the creators, sharing tips and suggestions for developing *Trainz* content. This community developed and shared know-how very quickly started to outpace the developers' capacity to keep up with how the fan co-creators were exploring and using *Trainz*. As David Weinberger (2011) describes in *Too Big to Know* here we see the emergence of new institutions of knowledge and as a species we are adapting to this – our knowledge making and sharing institutions are evolving. Weinberger writes,

In a networked world knowledge lives not in books or in heads but in the network itself. It's not that the network is a super-brain or is going to become conscious. It's not. Rather the Internet enables groups to develop ideas further than any individual could. This moves knowledge from individual heads to the networking of the group. We still need to get maximum shared benefit from smart, knowledgable individuals, but we do so by networking them. (45–6)

We see this networking of knowledge and expertise emerging right here among this community of train simulator fans. Sure they are sharing their passion for all things train and rail. They are also adaptively exploring how to


make and share knowledge. Expertise and knowledge becomes externalized and distributed. Pikkabird, for example, regularly posted work in progress previews as he moved ahead with his British Rail model projects. Other members would respond by posting helpful research information such as locomotive drawings, photographs and specifications to assist the creators. On 31 December 2001, Pikkabird posted that he was working on a 101 Class DMU unit and needed assistance with sourcing photos showing underbelly and roof detail, together with various body angle shots. Within two hours, Tolaris from Poland posted links to resources and photos. Pikkabird then followed up a few days later with preview screenshots of the model as the work progressed ('101 Class DMU', 31 December 2001).

In January 2002, working with suggestions offered by Pikkabird and others, JoshEH figured out how to incorporate cabs with working levers for his locomotive models:

Yes! you can look out the back of the cab!!!!!!! ☺ anyway here is another picture to tease you with! the controls are placed well here, I can't believe it! and they are working out good!! . . . That F7ish cab Auran did was nice and everything, but personally I am tired of it having to have it on my engines and it just can't beat a good hooded cab view!!!

I also need details about the brake gauges and stuff and how they work or show data . . . you know just everything about them! because I really don't know much about them ☹ so if you have info and stuff email it to me . . . I will need info about the other gauges also so I can get things right. Thanks for any help anyone can give.

CeeBee responded:

Josh, you are simply amazing ☺ Best thing is it sounds like we got quite a few amazing guys working on things. I won't mention names cause I might miss one, but you all know who you are ☺☺☺ Thanx from CeeBee !!!!!☺
 [drool and drool mop icons].

Landrvr1 then added to the thread:

Another triumph half, another triumph. Did you have to make the reverser, throttle, and brake levels from scratch? I second the motion for a tutorial. Clearly you have a lot of insight into this stuff. ('We could use some new cabs', 4 January 2002)

After Pikkabird posted previews of his British Rail 08 class shunter, Arpster asked: 'Wow, looks pretty damn good! We could do with a few shunters/

switchers in Trainz. What did you use as a basis for the model (measurements, etc.)? It will be interesting to see how it is possible to get the wheels/coupling rods to work! Well done.' Pikkabird answered:

Yeah, the wheels might be a bit of a problem . . . unless Auran releases animation support before I finish this, which is unlikely, I guess I'll just release it with static wheels (with the connecting rods painted black, and at the top, so they're not so noticeable). And then re-release it once animating becomes possible. ('BR 08 class shunter', 17 December 2001)

Amigo also posted: 'I could give you a hand getting that baby out into the Trainz, since I'm playing around with getting models in. That way you don't need to wait for Auran if you want it out soon or just to see it on the tracks' ('BR 08 class shunter', 17 December 2001).

In a further series of posts, the fan creators shared technical details on the accuracy of their models, and tips on configuring the models and exporting them from 3D Studio Max. Here I have described just a few of the many content creation projects that involved the fans' collaborative efforts. They provide a glimpse of the distributed and networked learning creativity on which the *Trainz* project increasingly came to rely.

Throughout early 2002, the Auran team closely followed the efforts of the fan creators. They were often surprised by how quickly quality content was being released through these collaborative efforts, despite the fact that they had not as yet provided comprehensive documentation. Auran's developers were also surprised by the speed at which the fan collaborative networks were figuring out how to get their content running with *Trainz*. We also saw this sense of surprise at the speed with which fan content creators innovate collaboratively to make and share high-quality content expressed by Maxis's developers in relation to *Spore*. Some of the material was of such a high quality that Auran management felt it was better than the models included with the official release package. A few of the locomotive models produced by the Auran team had received critical attention from knowledgeable rail fans, who pointed out inaccuracies in the modelling detail. The fan creators invested far more research and development time into the making of an individual model than the artists on the *Trainz* team could allow. Game projects now require a lot of art assets, and development time per asset must be strictly scheduled and budgeted. As we followed the emerging network of fan content creators forming around *Trainz*, Lane and Hilliam discussed the possibility of increasing Auran's support for the fan creators. Auran was also being approached by teams interested in releasing their content commercially, both independently on their own websites and through future official Auran *Trainz* releases. Auran had no objections to these proposals, and to further encourage the fan

content creation (both payware and freeware), they announced the formation of a third-party content support program, and invited expressions of interest. The aim of the program was to provide creators with direct access email contact and regular online chat sessions with the development team, and early access to information about how forthcoming *Trainz* releases would affect the process of creating content. Auran also hoped that such an initiative would answer criticisms that Auran had been working closely with some groups while excluding others. This yet again came to the fore in emails, and a forum thread started by JoshEH, 'Shaking the tree! where is the big guys?' in which he provocatively challenged:

I've been wondering this for awhile now, and well I would just like to know! I already have a couple locomotives working in Trainz, a couple that haven't been released public yet that are working so far, and I made a caboose with passenger view that is working, so it makes me wonder, what is taking the big guys so long? like TA [Train Artisan] and 3DTrains, I've heard stuff that both groups, that they may be working with Auran already on content creation stuff, so it leaves me wondering even more! why haven't they shown much signs of *Trainz* Life huh? ('Shaking the tree! Where is the big guys?', 16 January 2002)

The content creators were becoming increasingly frustrated that Auran still had not yet released the content-creation documentation. The question of access to information continued to be a contentious issue for the *Trainz* content creators. The difficulty for Auran was that the development team was still updating and improving the code, based on feedback and reports generated from the early release. These changes would then potentially affect the procedures for integrating third-party content. Auran's developers felt that it would be a mistake to finalize the Content Creation Guidelines documentation until the team was relatively certain that no further major changes to the code base would be required. Their concern was that if such a change were to be made, then needed updates for importing and supporting third-party content might not be backwards compatible with existing content. Auran had released *Trainz* in the form of this early Community Edition version to encourage the development and release of fan third-party content. They had announced plans to provide support to content creators, and yet problems with the code had now emerged that the developers needed to be addresses. The team was also considering significant updates to our Download Station system that would also require changes to the preparation of third-party fan content. Auran management were concerned about the anger and hostility that would be directed at Auran when fan creators discovered that the models they had spent many hours creating were no longer supported and would now need

significant reworking. They also worried about the annoyance of users when third-party content they had downloaded and installed would not longer work after they had upgraded to the latest version of *Trainz*.

Auran management were also considering precisely how they would support third-party content creators. There was a series of issues concerning user-created content that the developers were struggling with. Should this support program be open to any creator who emailed an expression of interest? And, following from this, if Auran adopted an open-door policy, did it have the internal resources available to support the number of creators who may want to participate? Or should the developers be more selective, with applications judged on merit (quality of submitted content, their impression that they could work constructively with those involved, current content needs, etc.)? Auran also needed to address the intellectual property issues involved in distributing fan-created content on its Download Station and potentially in future commercial packages. What position should Auran adopt in relation to the emerging conflicts between freeware and payware fan creators? Were the technical systems in place to support such a close integration of fan content with the *Trainz* core code platform in future releases? The developers quickly discovered that both creators and players were having difficulty importing fan content into *Trainz*. The Auran team was exploring the possibility of developing and releasing additional tools that would simplify this process. Posts to the forum and support emails also indicated that a significant number of users were struggling with the download service, which was not yet as user-friendly as Auran had hoped. The support requirements of integrating user-created content with *Trainz* were becoming a growing concern. The development and online team were discovering that supporting a rapidly growing content-creator community was a significant resource, technical and management challenge. Distributed expertise networks such as Auran and the fans were co-creatively building may well produce the benefits that Weinberger (2011) identifies. However, the adaptive challenge of building and coordinating the infrastructures that underpin these networks is difficult and pressing. As knowledge becomes networked 'the smartest person in the room is the room itself: the network that joins the people and the ideas in the room, and connects to those outside of it' (Weinberger 2011: xiii). The challenge and task then, as Weinberger identifies, is how to effectively build smart rooms. These smart rooms include game development studios and I suggest that the making of these smart rooms also needs to be done co-creatively. Auran management tended to focus on the outcome of co-creative media content – the locomotive models and rail world layouts. They underestimated the task of also co-creatively building and maintaining the necessary infrastructure to support this co-creative activity. Indeed, the co-creative activity among the *Trainz* fans and the professional developers was not just producing the

digital content – more significantly it involved co-creating these knowledge making and sharing networks. This organizational transformation required to effectively undertake co-creative production was to prove much harder than simply making digital content.

Auran was already receiving many emails each day seeking assistance with fan-produced content. A user may have registered with the Auran site then downloaded an item of fan content and attempted to install it, only to discover that it would not run. The website provided technical support forum areas and email contact points. Was Auran responsible for providing support for problems with user-created content? Auran developers had not created the content and therefore considered that the Download Station was simply a free hosting service. In the opinion of Auran management, if the developers identified that a problem was related to third-party content then they should advise the user to contact the creator directly for assistance. Unfortunately many users did not accept this logic. They had downloaded the content from Auran's official *Trainz* site that was listed on the box, so Auran should provide the support. Auran management discussed this problem at length with the development team and decided it was just not possible for them to support the rapidly increasing volume of content being uploaded to the Download Station. They did not have the resources to check whether each item of submitted content had been correctly made and configured according to the Auran guidelines.

In the meantime, a number of fan sites had emerged (particularly Amigo's *Trainz.Luvr.net*) that were hosting user-created content. Community members, including highly regarded fan content creators, were commenting that they preferred using these fan sites rather than the official Auran *Trainz* site. The dilemma for Auran was that online sales are a considerable source of revenue. The profit from each sale is fully Auran's and not shared with a chain of publishers and retailers. By having the content on a central, protected server Auran also hoped to discourage piracy. However, if the content was easily available from fan sites there was very little reason for those enjoying pirate versions to convert to a purchased copy. On the other hand, Auran did not want to over-centralize control of the quickly expanding network of *Trainz* fan sites. If anything, Auran wanted to encourage their activities.

There were diverging and conflicting opinions in the *Trainz* development, web and marketing teams about how and to what extent they should integrate user-created content with the core *Trainz* platform and the Auran enterprise generally. This was a sensitive and difficult issue as it involved confronting issues about the quality of the website design and systems, and locomotive art content in comparison to the efforts of the fans. Members of the development team raised concerns about what happened to all the content and the value it held for *Trainz* generally if a fan decided to close their content

distribution site. Such a closure could occur due to the mounting pressures of time commitments and bandwidth costs, or just through loss of interest. Some members of the *Trainz* art team, on the other hand, maintained that relying on fan art content may well result in risks and instabilities that Auran could not manage. The artists argued that fan creators often failed to follow the Auran Content Creation Guidelines. Auran artists were assigned polygon budgets and texturing guidelines to ensure that the models performed well on the broad range of hardware specifications that *Trainz* supported. To achieve the high level of detail that the sim fans desired, however, some content creators were releasing content with polygon counts and texture effects that exceeded the guidelines. This was often not a problem for those hard-core fans with high-end PCs. But for the more casual user with a lower end PC, this would present performance problems.

But others on the team expressed a different opinion. Rob Shaw commented:

Sure the artists here have a point. Poly budgets and optimising, they are important. But often it is small things that they miss, minor details that really matter to a train fan. It wouldn't take much work to fix them. But unless you're interested, unless you know and love trains you don't see it. Or they just cannot be bothered because it doesn't matter to them.

On 25 January 2002, Auran released an early draft of the Content Creation Guide and followed up with a series of art-asset examples (sample *Trainz* model files) to assist fan creators to understand the process of importing and configuring models. We also released Content Dispatcher, a utility to simplify the process of packing, distributing and installing fan content. The third-party creators were generally pleased that they finally had the long-awaited documentation. But many also agreed with JoshEH's post:

Disappointment. Will you include more in the not too long off? Some of us were a little disappointed in what was said, as it left us wondering about some things, like some of the config file settings and such, also when will the sample files be out so we could explore those? Most of the stuff we already knew about though. ☹ ('Third party content creation guidelines now available!', 26 January 2002)

Throughout 2002, quality fan content from creators such as Pikkabird, JoshEH and Landrvr1 continued to be released. The collaborative approach to sharing information and working through problems also persisted despite growing competition and factionalism among the forming content-creation teams. In mid-January, for example, JoshEH had worked out how to model

cab interiors, and offered to make the source files available to other creators so that they could then learn and improve on his efforts. The resulting forum thread included a series of posts offering further suggestions ('What? Think you would want one of these? Nah', 14 January 2002). Other creators also followed this practice of sharing content. When releasing a pack of much-anticipated content (Chicago Traction, Northshore and Southshore inter-urban liners), Landvr1 commented:

In keeping with tradition, all .tga files are included. it's my hope that people will take these and mess with them anyway that they would like. it's really never fun to receive new rolling stock, and someone hasn't included the .tga files! ☺ ('Chicago traction – Pack 1: Released', 17 March 2002)

The *Trainz* project came to increasingly rely on the unruly assemblage of this ad hoc and distributed collaborative fan content-creation network. Here the commercial and the non-commercial, the proprietary and the non-proprietary, are linked in ways that profoundly reshape the networks of work and play. On the one hand we have this fan-based voluntary, collaborative effort, creating content that contributes directly to the promotion and success of a commercial, proprietary product. On the other, this fan network is imbricated with, and relies on, a proprietary support infrastructure.

Now this fan-based producerly activity could easily be read within the tradition of cultural studies as an example of active audience practice. Aren't gamers, in Jenkins's terms, functioning here as textual poachers? Aren't they taking the products of capital and reworking them according to their own agendas, pleasures and enjoyments? The problem here, as we've already seen, is that Auran actively encourages and supports the practice. These participatory collaborations are immanent to these corporate practices and processes. Care must be taken at this point as immanent does not necessarily mean that they are seamlessly integrated within the networks of corporate capital. Further more, these fan practices do not aim so much at disrupting corporate processes as they take pleasure from the products of international capital. To disrupt those flows would be to disrupt the fans own participatory pleasures. But as we've seen this is not just about a banal form of populist pleasure. These activities concern innovations in the growth of knowledge and distributed learning. But these learning and knowledge creating and sharing activities are occurring through the commercial domain. The interests of fans as co-creators, then, must surely lie in not disrupting the source of their benefits. Rather than subverting, fan practices often involve efforts to increase their levels of participation in these commercial networks (Jenkins 2006; Hartley 2009). How are these co-creative networks being made and what is the nature and characteristics

of the transactions and exchanges that are occurring among the co-creators (both professional and amateur)?

Before pursuing these questions further, we need to consider that the very ways in which they are posed can predispose us towards particular frameworks for responses – for example, we could approach them as problems of corporate co-optation and exploitation of fan culture. However, these co-creative relationships are shaped by a complex series of negotiations and compromises. It would be a mistake, I argue, to view these emerging relations as an *opposition* between the commercial and the non-commercial, the corporate developer and the fan community. Rather than being exterior and oppositional terms, these entities that are ‘Auran’ and ‘the *Trainz* fan community’ are immanent to these proprietary–non-proprietary and commercial–non-commercial dynamics. There is no exterior position from which to securely critique these conflicts and compromises. The problem is how to participate in these processes. The more interesting challenge is how to build, in Weinberger’s terms, ‘smart rooms’. What would it mean, for example, to co-creatively build a project such as *Trainz* for mutual benefit? What are the conditions in which that might occur and what are the factors that might disrupt and impede such mutually beneficial outcomes? Fully answering these questions is beyond the scope of the book, but these are the questions that have emerged for me from this ethnographic research. Posing these questions I argue is far more illuminating about the nature of co-creativity than simply asking are these practices exploitative in the context of an assumed opposition between the commercial and the non-commercial spheres.

An uneasy alliance

In earlier discussions with the fan content creators, Auran management had made commitments that it was proving difficult to meet. The online sales of *Trainz*, although growing steadily, had not reached the projected numbers, and the retail sales figures were lower than required for *Trainz* to become a profitable venture. Auran senior management were assessing the viability of continuing the project. Delays with delivering the promised support for the third-party program, combined with the increasingly apparent problems with marketing and distribution, resulted in many of the high-profile content-creation teams such as Trains Artisan and 3D Train Stuff shifting their efforts exclusively to *Microsoft Train Simulator*. These fan creator teams that were pursuing semi-commercial undertakings were understandably attracted to the larger user base of Microsoft. Others, such as the Digital Roundhouse team, continued with their plans to create third-party content for *Trainz*. This

was a difficult period as Auran's developers were not in a position to disclose to the content creators commercially sensitive information that was influencing Auran's capacity to follow through on support commitments. Again rumours circulated that Auran's developers were working closely with a privileged and favoured group of fans while excluding others. Changes being introduced with the forthcoming updates would require fan creators to also update their content. This change was designed to simplify the process of distributing and installing custom content, by integrating the distribution of custom content closely and seamlessly with the core *Trainz* application platform. The issues of what level of detail about the core *Trainz* program update would be released to the content-creation community, to whom it would be released and within what timeframe proved to be a continuing source of conflict and tension within Auran and between Auran and the content creators.

Unfortunately *Trainz* was also running into sales, marketing and distribution difficulties. There were significant delays in the retail release of *Trainz* in Europe. When they did finally occur, the releases had been preceded by very little in the way of a marketing campaign. This in turn led to reluctance on the part of major game retail chains to stock *Trainz* in significant quantities. In fact, one of the more successful retail launch events was organized by a group of *Trainz* fans in Copenhagen working in collaboration with the Scandinavian distributor. The future viability of *Trainz* was very uncertain at this point in mid-2002. But the passionate support of the growing *Trainz* online community encouraged Auran's senior management to move ahead with plans to expand from the core *Trainz* product release. For example, a series of promotional activities undertaken by groups of *Trainz* fans attending model rail club meetings and larger model rail exhibitions and conventions throughout the United States and Europe convinced management that *Trainz* may still have had strong potential to become a successful product.

Despite these difficulties, when Auran released a major update on 10 July it included outstanding fan third-party content including CeeBee's Highland Valley layout, 3801's Robe River Iron route that was supported with a locomotive created by JoshEH, and Pikkabird's popular British Rail Class 37 locomotives. This update included systems and utilities designed to support the making and sharing of user-created content.

How steam came to *Trainz*

The importance and value of this fan content-creator network comes to the fore in the introduction of steam locomotives. I briefly covered this in the introduction and now return to this user-led innovation initiative in more detail. On initial release, *Trainz* did not include or support the creation of

steam locomotives, concentrating on diesels and electrics. The development team decided quite early that, due to the short project schedule for bringing *Trainz* to market, and the programming and art resources available, it was not feasible to include steam with the first release. The problem was not in generating the required art assets (the 3D mesh model, textures and various animation effects for creating a virtual steam model). The challenge was more the coding problem of accurately simulating the physics for operating a steam locomotive. The team considered commencing the necessary code work, then releasing this material and associated guidelines to fan content creators who could then create the art and animation assets. In effect, the plan was to outsource the introduction of steam to the fan content creators. Auran programmers and graphic artists would then help the fan creators to integrate and import the steam models into the core *Trainz* program. Auran's developers entered into preliminary discussions along these lines with content creation groups. Unfortunately, the work required on the various *Trainz* updates again created delays and obstacles for Auran's plans to provide the promised support. This was a difficult and tense period in Auran's relationship with some segments of the third-party content creators. Auran had no support for steam, but the requests for it were growing all the time from both end users and content creators.

In early April, User.RO had commenced work on a project to create the Flying Scotsman steam locomotive. He made posts to the *Trainz* forum that previewed the work in progress as he struggled to implement the animation effects needed for a functioning steam locomotive. He requested assistance with technical background information from other community members. User.RO's previews generated much excitement in the community and encouraged other creators to participate in the effort to bring steam to *Trainz*. As User.RO progressed with the project, his regular preview and update reports shared technical detail on how to make a steam locomotive model for *Trainz*. For example, on 12 April Narrowgauge started a thread requesting assistance with implementing the running gear animation. User.RO immediately responded by posting a link to a download example file demonstrating the animation. Others followed up with further questions and suggestions. Prowler901 provided an example of his work in progress effort at creating the animation effects. User.RO encouraged, 'WOW this place is getting more addictive in every day 😊 Good work Prowler901! 😊 Keep it this way. 😊' ('Steam loco running gear animation', 12 April 2002). The previews of the work in progress, and the collaborative effort to introduce steam to *Trainz*, prompted a passionate reaction from members who were closely following the threads. JFDman posted: 'Just saw this thread, and I have to share my complete and total bewilderment. First, the incredible Flying Scotsman, and now this. I wonder what Auran think about this . . .

you guys are trumping their “steam is coming later” plan! 😊’ (‘Steam loco running gear animation’, 12 April 2002).

As described in this book’s introduction I encountered one of the early outcomes of this steam collaboration at the NMRA convention held in Fort Lauderdale, Florida. While at the convention one of the *Trainz* fans, Gumby, voiced his concerns that Auran was not following through on commitments made to the third-party creator community. He said that the creators were angry, they had invested so much time and effort into supporting us with quality content and yet Auran still had not provided the levels of assistance and information that we had led them to expect. A direct outcome of this support was the P10 steam locomotive that Auran staff were using to promote sales of *Trainz* at the convention, while one of these talented creators was pointing out that many of the content creators felt that although they were a valued part of Auran, the recent falling away of Auran’s commitment to the community was leading to a growing sense of unease and uncertainty. Gumby said ‘they felt disappointed and let down’. He was seeking reassurance that Auran remained committed to supporting the creators’ efforts, and firm details on just when the third-party creator support plans would be implemented. After all, Gumby and a small team of third-party creators had invested a lot of time and energy in creating models that they intended releasing for sale on either their own website or Auran’s e-commerce system.

The P10 steam locomotive emerged from a collaborative effort led by community member Marlboro, which crossed over a number of different steam projects being pursued by various individuals. Steam creators such as User.RO and Prowler shared knowledge and skills about using various 3D modelling software tools and about steam locomotive history and lore. Their progress towards integrating a range of animation effects associated with steam into *Trainz* was very much the outcome of a collaborative, trial-and-error approach, with regular updates on the results being shared among the creators. Throughout this process individuals such as Prowler and Marlboro were moving well ahead of the technical details released by Auran. Narrowgauge posted: ‘What are the CCG [Content Creation Guidelines] naming guidelines? . . . Not happy Auran!’ (‘Steam loco running gear animation’, 9 May 2002). The Content Creation Guidelines had not been updated with the naming conventions required for the animation effects to be successfully imported into the *Trainz* program. Marlboro continued with his effort to introduce the P10 steam locomotive to *Trainz*, running into problems and often resolving them with assistance and input from other members of the content-creation community.

On 9 June, after a further series of exchanges that involved the sharing of information and resolving outstanding problems, Marlboro announced that ‘she’s done’ (‘4-6-2’, 9 June 2002). Then on 17 June he posted that the

P10 was finally ready to upload. Marlboro confronted the difficult question of how to distribute the P10 to the wider *Trainz* user community. He raised this question in a forum post, contemplating the possibility of holding it back and distributing on a CD together with other steam locomotives that he was working on. Should it be payware or freeware? Should it be uploaded to Auran's Download Station or released for download on his own website? Marlboro raised concerns that the impending Auran update release may create problems for the locomotive's integration with *Trainz*. Marlboro also mentioned that he would like to apply for 'official content' status and was concerned that any pre-release of the model may impact negatively in some way on his involvement in Auran's official content creation program. Auran had announced plans to extend support for fan content creators through an official content creation program; interested creators would need to apply to Auran to participate in the initiative.

The P10 poses problems about access to Auran and the potential terms and conditions of that access. It is also potentially subject to legal terms and conditions, such as licence agreements Marlboro would be accepting should he upload the P10 to Auran's Download Station. This achievement that benefited both the *Trainz* community and Auran is an outcome of an open, distributed, collaborative network, freely sharing ideas, know-how and art content. The creation of the P10 has been supported by a reasonably free flow of information, ideas, technical details, specifications and drawing plans, textures, model packages, photographs, forum posts, emails and the exchange of various working versions of the model in progress. In effect, the P10 project was made possible by a *Trainz* community digital commons that encouraged the free use and circulation of resources such as 3D models and knowledge. But at this juncture there is a moment of hesitation about how the P10 should now be distributed. What are the implications of how it continues its journey? Should it be freely available to other users through Auran's Download Station? Marlboro poses the question:

I was first thinking about a CD with a collection (Niagara and Mikado are not all too far out), then pay-ware, then share-ware, then about SP3 . . . then I thought let's forego all this c . . . and load her up (after I figure out dispatcher). What I would like to do, though is to apply for 'official' content. Could I still put her up in the custom content section or put her on my site for download? ('4-6-2', 17 June 2002)

The response was a series of enthusiastic posts urging Marlboro to release the P10. Then later, on 17 June, Marlboro announced that the Union Pacific P10 had been uploaded to Auran. From this point on the P10 was in the hands of Auran, awaiting approval from the web development team before

being made available for general distribution. While waiting for this, Marlboro moved ahead with previewing other versions of his steam models, to much enthusiasm, praise and encouragement. Due to Auran's delay in releasing the P10 because of updates to the Download Station, other members of the community offered to host the model on their fan sites. Marlboro needed to update the P10 model to ensure that it complied with the new third-party content requirements. Auran staff had been following with much interest the fan creators' endeavours and individual team members would regularly take it upon themselves to participate in email and chat dialogues, assisting content creators with information and suggestions about how most effectively to integrate their models with the *Trainz* program. Some team members would often do this in their own time. This again raised the dilemma of who received access to Auran technical assistance and on what terms and conditions.

On 19 July 2002 an updated version of the P10 (with the new sound, steam and smoke effects) was released through Auran's Download Station. The post from Bobo88 announcing that the locomotive was now available acknowledged that the model was the outcome of a collaborative effort. The response from the wider *Trainz* fan community to the release announcement included:

Totally amazing, what a wonderful sight and sound. Just had six of these beasts running round a layout, a real joy. Well done to all those involved in figuring all this out, the door is truly open now for some fine steam additions. (Jetstreamsky, 'Want steam?', 19 July 2002)

As Jetstreamsky pointed out in his post, the collaborative effort involved in working out how to bring steam locomotives to *Trainz* opened the way for others to also undertake steam locomotive projects.

In this account of the P10 and the collaborative, co-creative culture networks through which it emerges and circulates, what are the implications of defining these objects and relationships as objects of exchange and transaction? How should we analyse these relationships that unsettle oppositions such as amateur and professional, market and non-market, growth of knowledge and popular commercial culture?

4

Co-creative labour? (with Sal Humphreys)

‘Working for nothing’

As mentioned in the introduction to this book, in December 2006 *Time Magazine* celebrated the millions of people contributing to social network platforms that draw on user-created content by announcing ‘You’ as the person of the year. But this creative participation was not figured as simply play, consumption or entertainment. The *Time* article noted that these activities position creative consumers as ‘working for nothing and beating the pros at their own game’ (Grossman 2006). By describing this activity as ‘work’ questions are raised about the motivations and incentives of the consumer participants. Why are they contributing content to these commercial platform providers? Are they in effect working for free? Is this an outsourcing strategy through which media enterprises such as Auran and Maxis harness the surplus value generated by the work of these consumers-turned-producers? If so, are such media enterprises exploiting activities that more properly belong to a non-market and non-commercial gift-economy? Should we define these activities as a form of labour and what are the implications and impacts of co-creative practices on the employment conditions and professional identities of people working in the creative industries?

Do we, however, get any further in understanding co-creativity by assuming that the consumers are in some sense blind to the fact that they are working for corporate capital. This idea of co-creative practice as a form of labour often functions as a discourse where capital extracts surplus value and increases profitability by reducing costs and displacing labour. But these changes in the relationships among media producers and consumers, professional content creators and amateurs, may suggest a shift in which frameworks of analysis

and categories that worked well in the context of an industrial media economy are no longer helpful. Co-creative media production sits uncomfortably with our current understandings and theories of work and labour.

Approaching media consumption as a form of labour is not new. Dallas Smyth (1981) and Miller et al. (2001), for example, describe how the attention and activity of consumers generates value for the media industries, and they use the category of labour to ground a critical politics that shapes their analysis of these exchanges. In the context of new media, Lev Manovich (2001: 44, 109) argues that new media objects encourage an overlap between producers and users and asks how these dynamics are perhaps functioning to shift labour from the company to the customer and may therefore indicate a significant change in the relationship between the domains of work and leisure, the professional and the amateur. Manovich, however, does not assume that these changes are in any sense necessarily liberating, democratizing or exploitative. He carefully opens for our consideration a terrain of difficult and demanding questions without finally resolving or settling them.

As we have seen, Auran's and Maxis's pursuit of co-creative relationships unsettles industry production and project practice from a closed innovation model towards a more open and dynamic model. In the context of labour relations, this shifts our focus from concerns with the exploitation of consumer co-creators as free labour and the potential displacement of employed creative labour, which are themes pursued in much of the literature in the area. I argue that co-creative practice may work as a dynamic wrecker of industrial-era modes of production and associated business practices. User co-creation may not be best understood as a source of cheap content or unpaid and exploited labour. It may be more a dynamic mechanism for coordination and change that transforms business and consumer practices towards more open and distributed innovation networks. In short it may provide an opportunity to adaptively and experimentally explore how to build the smart rooms that Weinberger (2011) describes in *Too Big To Know*. Building these smart, distributed, networks requires professional skills and capabilities that may reshape workplaces and professional identities.

We need to move beyond commentary that frames user-created content that becomes commercially valuable as a marker of exploited labour in the mills of neo-liberal capital. These emerging hybrid relations cut across the commercial and non-commercial, social networks and markets. We have seen in the Auran and Maxis case studies that non-monetary, social economies play an increasingly constitutive role in monetary or financial economies: the making and selling of video games. But rather than assuming that the social has therefore become commoditized and reduced to bottom-line economic imperatives, I suggest that extracting economic value from such social relationships is a dynamic process which also potentially transforms

business practices. The rooms that are game development studios may need to look very different from industrial-era workplaces if they are to successfully harness these co-creative opportunities for mutual benefit. The co-evolution of these two economies (the social/affective and business) produce not outright exploitation of unpaid labour by capital, but a terrain of negotiated relations and transactions that are quite different from those of industrial-era production.

User co-creation and labour

The linking of the terms labour and exploitation is common in current literature (academic and non-academic) on the games industry and player labour – usually in ways that position the player creators as unknowing and somewhat blind dupes of the developers and publishers. Games studies scholars such as Yee (2006), Grimes (2006), Garite (2003), Kücklich (2005) and Kline et al. (2003) all suggest in varying ways that users are unknowingly seduced into activities of work. Kücklich (2005), for example, argues that industries' rhetoric of collaboration *masks* their profit-seeking motives (assuming perhaps that players don't understand the value of their contributions). Herman, Coombe and Kaye (2006: 204) conclude that playing in *Second Life* may well be a 'half-life' of 'corporate servitude' in which participants misrecognize their social relations as part of an intellectual property exchange.¹ These approaches assume that players are in some sense unaware that their participation is a productive practice from which firms extract economic value.

Critical scholars propose that rather than only constituting greater consumer agency, this harnessing of user-created content by media businesses extracts surplus value from the unpaid labour of the consumer co-creators as a form of outsourcing, and may therefore contribute to the precarious employment conditions of professional creatives (Terranova 2000, 2004; Scholz and Lovink 2007; Scholz 2008). Andrew Ross (2009: 22) argues that in social network content production platforms such as YouTube, Flickr, Twitter and MySpace 'the burden of productive waged labor is increasingly transferred to users or consumers' and asks us to consider what happens to labour and the labour conditions of professional creatives in the context of amateur created content. Ross comments that this 'free or cut-price content' is 'a clear threat to the livelihoods of professional creatives whose prices are driven down by, or who simply cannot compete with, the commercial mining of these burgeoning, discount alternatives' (2009: 22; also see Allen 2008 and Jarrett 2008b).

These co-creative relationships, however, cannot easily be reduced to corporate exploitation, and critics such as Ross seldom reduce the problem to one of such straightforward exploitation. The strength of Ross's work is that it

foregrounds the participants' complex negotiations of how the meanings and experiences of work and labour are changed and unsettled. In *No Collar: The Humane Workplace and Its Hidden Cost* (2003), an ethnography of Razorfish, a new media company in New York's Silicon Alley, Ross offers a compelling study of the informational economy workplace. He carefully maintains the uncertainties and contradictions in the creative workers accounts of both the potential to reinvent the meanings and experiences of work in a more creative and empowering direction, alongside their realization that this simultaneously may explain the fact that they often work incredibly long hours that encroach on their non-work lives.

The games industry does not have a particularly enviable record in relationship to working hour conditions. Labour conditions are known to be precarious, with workers often doing unpaid overtime, and working 80–100 hour weeks during 'crunch' times (IGDA 2004; de Peuter and Dyer-Witheyford 2005; Deuze et al. 2007). The adoption of co-creative production happens in the context of a labour market where workers often struggle to maintain equitable conditions. Of course these uncertain labour conditions are not just characteristic of the games industry; they are a feature of the creative industries more generally (Ross 2000; Gill 2002; McRobbie 2002).

Even a cursory reading of Terranova's much-cited article 'Free labour: Producing culture for the digital economy' (2000; 2004) in which she identifies and grapples with the increasing reliance of creative industry enterprises on an unpaid, ad hoc network of voluntary labour, finds that she foregrounds tensions and contradictions as these 'productive activities . . . are pleasurably embraced and at the same time often shamelessly exploited' (2004: 216). She carefully maintains the complexities shaping co-creative relations by pointing out that this affective labour is neither directly produced by capital, nor developed as a direct response to the needs of capital. The process should not be understood as a straightforward incorporation or appropriation of the free labour of an otherwise authentic fan culture. Rather, as Terranova proposes, these dynamics reconfiguring relations between production and consumption are played out within a field that 'is always and already capitalism'; they are immanent to the networks of informational capitalism (2004: 80). This free labour has not been seamlessly appropriated but voluntarily given. The relations are much more nuanced and complex than the language of manipulation or exploitation suggests. Terranova writes, 'Such processes are not created outside capital and then reappropriated by capital, but are the results of a complex history where the relation between labour and capital is mutually constitutive, entangled and crucially forged during the crisis of Fordism' (2004: 94).

Here though labour is often used as a category to not so much describe the emerging relations between professionals and amateurs, or to consider

how and in what ways co-creative relations may indeed be reshaping and transforming media workplaces. Instead, it becomes an explanation in the form of critique, which seeks to unveil or disclose social forces that may be at work behind the actors' backs (Latour 2005: 136). I question this 'unknowingness' and suggest from my observations of negotiations within player communities and between players and game industry developers, that players and professional developers most often do know what they are doing and producing and the conditions under which they are doing it. The user-creators are often quite competent and canny participants in the making of these relationships.

A pressing issue in all of this is whether these particular theorizations of labour and work provide us with explanatory traction as we grapple with the various problems associated with co-creative media relations. Changes in the relations among media producers and consumers, as well as between professionals and amateurs, may indicate a profound shift in which our frameworks and categories of analysis (such as the traditional labour theory of value) that worked well in the context of an industrial media economy are less helpful than before. As John Hartley (2008) argues, applying the categories that are appropriate to the context of modern industrial economies with their divisions of labour and closed systems of applied expertise may well be a mistake. Trying to understand the emerging paradigm of knowledge production and circulation from an industrial model, including its categories of political economy, is a parallax error. These new and emerging co-creative relationships and the associated labour relations questions may be incompatible both analytically and practically with these former models and frameworks. Even after taking into account that ideas of immaterial labour, affective labour, free labour and precarious labour have been reworked through an engagement with the work of theorists such as Maurizio Lazzarato and Hardt and Negri, one has to question to what extent such reworkings give us tools to come to grips with the ongoing transformations associated with co-creative culture.² As Mark Poster (2006: 54–6) suggests, neo-Marxist production-based models of the economy may in the end simply and comfortably return the critique of capital to the labour process although that process is now expanded and redefined. Such critical perspectives do not come to terms with flows and exchanges of value that are very different from a simple displacement of traditional labour by unpaid creative labour. The modes of agency, social network practice and market-based enterprise emerging through these new relationships sit uncomfortably with our current understandings of industrial relations and organizations of labour. We cannot assume a labour theory of value in which the productive activity of users is simply exploited by enterprise to displace paid labour. We need models and approaches that can grapple with how economic outcomes sit alongside and co-evolve with significant social and cultural outcomes.

Part of the problem in all of this is perhaps the critical imperative itself. These critical approaches often position consumer participants as in some sense unaware that their participation is a productive practice from which economic value is extracted. If the participants express their pleasure or enjoyment in these exchanges this is then cited as just further evidence of their seduction in which the affective works to perhaps even more effectively entangle consumers in these webs of corporate servitude (Jarrett 2008b; Scholz 2008). In their analysis of the videogames industry, Stephen Kline, Nick Dyer-Witheford and Greig De Peuter (2003) argue that celebratory accounts of the democratization of producer-user relationships too conveniently overlook the complexities and contradictions surrounding the interests of corporations and consumers. In their analysis the gamers are 'at best, only very partially aware' (19) of these manipulative commercial and promotional dynamics. They add, 'Indeed, one of the main objectives of the games industry is to make sure that the player does not reflect on these forces' (19). Their central argument is that any empowering democratizing or participatory potential is 'shaped, contained, controlled, and channelled within the long-standing logic of a commercial marketplace dedicated to the profit-maximizing sale of cultural and technological commodities' (21). In all of this the critic seems to be guaranteed a position above the fray and blessed with an ability that is denied to the participants themselves, of seeing through the charade and identifying the 'real' nature of the unfolding relations. Even the far more nuanced account by Andrew Ross in *No Collar* (2003) uses this rhetoric of blindness – most explicitly in the book's subtitle referring to a 'hidden cost': hidden to all but the critical scholarly observer. The implication would seem to be that the account of the critical ethnographer reveals or discloses these costs that would otherwise remain undiscovered. The critical imperative can work to reduce the actors to informants who need to be disciplined and taught what they really are and what the contexts really are in which they are situated and exercising their choices. At the crux of this kind of analysis is an understanding of the academic as uncovering what is going on – lifting the veil from the eyes of otherwise hapless participants. Careful attention must be paid to how the participants themselves (both professional and non-professional, commercial and non-commercial) negotiate and navigate the meanings and possibilities of these emerging co-creative relationships for *mutual benefit*.

***Trainz* and the work of co-creating**

In 2003 Auran management carefully assessed that, based on the then sales levels and the problems encountered with marketing and distribution, the

costs associated with further internal art content creation at the scale required to support another release of *Trainz* could not be justified. The continuing commercial viability of *Trainz* relied on collaborating with the fan content creators. As Auran worked towards the next significant release, *Trainz Railroad Simulator 2004* (TRS2004), the decision was made to source new art content (locomotives models, trackside accessories such as station and factory models, and layouts) from the fan content creators. The Auran development team concentrated on introducing new core features and functionality including interactive industries, steam operations and a new scripted rules system that enables users to attach scripts to objects, controlling their interactions in layout environments. The inclusion of fan content with Auran's official release package was therefore a quite contingent and strategic response to a particular commercial situation. In his post to the third-party creator community, Lane suggested that as an open platform, evolving game *Trainz* would increasingly draw on the third-party creators for content. The Auran development team would therefore commit its resources to expanding the core features and functionality of the *Trainz* platform, while supporting the art content creation efforts of the player community. Over a series of posts to the private third-party creator forum area, Lane also raised the commercialization opportunities available to creators, although he emphasized that Auran would continue to support both freeware and payware creators.

By this time a number of fan content creation teams had formed, and Auran sourced much if the content for TRS2004 from these teams. For example, *TrainzProRoutes* (www.Trainzproroutes.com) a distributed team of approximately 24 fan creators from the United States, United Kingdom and Sweden, had collaborated on very popular, high-profile routes for *Trainz*, such as Clinchfield. They committed to create a route for TRS2004, 'Tidewater point'. The Razorback Railway team, led by Shutter, contributed an updated version of its popular Razorback Railway route (www.razorbackrailway.com). 3801's Robe River Iron and CeeBee's Highland Valley routes were also included. Strat provided Auran with his Big Boy steam locomotive and Jetstreamsky offered his Mallard steam locomotive. By the time TRS2004 was released in October 2004, 35 third-party fan creators had contributed content to the CD release and many fan community members had participated in the beta-testing process. The TRS2004 manual acknowledges this contribution:

The third party group involved with TRS2004 is possibly the first time a developer has utilized the talents of their community to assist so closely in creating a commercial product. The process was not without its pitfalls and problems, and there were many who found the going too tough. To all of you, especially those of you who have contributed product for the CD, we would like to congratulate you for a fantastic effort. Without you we simply couldn't have released TRS2004.

Many of the content creators were attracted to the TRS2004 program by Auran's promise that they would enjoy early access to builds of TRS2004 and, more importantly, to direct support from members of the *Trainz* team. The creators who were pursuing commercialization of their content also viewed it as a valuable promotional opportunity, as having their content in the TRS2004 release may encourage users to visit their websites and purchase their other content offerings. As the project progressed over the second half of 2003 it became increasingly difficult to meet the support expectations of the fan creators. We received many emails, forum requests and telephone calls from creators seeking advice and assistance from the Auran programmers as they worked to finalize their content and get it in before the deadline. These user-creators were finding that in one build-release of TRS2004 their content would work, and then in the next release it would suddenly no longer function. Frustration and anger was a common reaction from the fan creators. They were also expressing dissatisfaction with the tardiness of replies from the Auran development team. Some abandoned their projects, feeling that it was just not possible to meet Auran's commercial deadlines; after all, for many of them it was a hobby that they were pursuing on weekends and evenings after work. A few emailed Auran stating that it was no longer fun and was becoming more of a job, and therefore they had made the decision to resign from the group. They would still work on the content, but at their own pace and release the content, when it was ready, through Download Station. Influential creators were expressing concerns about Auran's management of the third-party content program for the TRS2004 project. In June 2003, Prjindigo emailed that the code builds they were receiving in order to test their content were 'incapable of doing the testing and creation that we need to be doing'. He added:

The lack of flexibility in scheduling that has been indicated to us with totally impossible fixed deadlines and a half-way announced inability to get us a working version of the first beta to do content for one week before it goes to full beta are real turn-offs to the content group . . . The larger proportion of the 3rd party group expected a more smooth and fair treatment in the concerns of time to build and time to test than this schedule has compressed upon them.

His main concern was that the content creators were not being provided with the level of information and support that they needed.

Members of the Auran development team, particularly Rob Shaw, worked closely with many of these creators to ensure that their content meshed with the final TRS2004 build. A few of the creators even arranged to take leave from

their employment over the closing stages to ensure that they met the Auran deadlines. But the Auran developers were not effectively following through on their commitments to support the fan creators' efforts. The developers' expectation of working closely with such a large group of fan creators on such a limited project timeframe was ambitious, if not unrealistic. Auran management significantly underestimated the level of support that many of the creators needed. But from an Auran business perspective, the project was a success. Many of the creators were also very happy with the outcomes and continued to be an integral part of the ongoing *Trainz* project continuing to create and release content. When TRS2004 was released, the package included outstanding, high-quality content provided by the user-creators. For example, the box art for the United States release package featured the Union Pacific Big Boy, and the United Kingdom box featured the Mallard. Both steam locomotive models were an outcome of the collaboration between fan creators and the Auran development team.

In an interview with me in mid 2004, the TRS2004 producer acknowledged that there were serious problems with Auran's support for the fan creators. However, he considers this was largely due to the level of resources and time the team had to complete the project. I asked him: 'After the experience of working with integrating fan content for TRS2004, do you think this is a good idea? Do you think it is an approach we should still take with future versions, relying so heavily on fan content?' He replied:

Sure it was a problem. We could have done it better, but I think we did a good job considering the resources and time available. The creators, they really needed a larger window of time, towards the end of the project when the code was locked down, to finalise their content and work with our guys on that. It was just too big an ask, expecting them to be making content for a code platform that we were still working on, changing and updating; especially on our commercial time-frames. But we just didn't have that time to make available, we had commitments to publishers we had to hit. Do I think it is a good idea to involve the fans in dev and production? Sure, I mean as long as we do it right and put in the resources, make the time available . . . So although, as you know, I wasn't too happy with how we did it for TRS2004, yeah I think it is still worthwhile.

This reconfiguration of production involving an increasing interdependence between professional developers and the user community does not involve a lack of knowledge on the part of the professional workers or the fan content creators. For example, I circulated an earlier version of my account of the P10 steam locomotive, described in the previous chapter, to members of the *Trainz* fan community, including the creator Marlboro. He responded by

email, commenting on the use Auran made of his P10 model at the NMRA convention:

When the forum bush drums reported the NMRA appearance I frowned a bit – wasn't that use for commercial purpose . . .? But as I said, darn, I was proud when the news came in.

Well, frankly my feelings towards Auran were always mixed. Since I worked in the industry (automotive) I thought I understood the undercurrents a project like *Trainz* had to impose on Auran. On one hand I admired the guts to approach a niche market, the concept of customer communication, support, innovative ideas, etc. On the other hand I thought to see through a thin veil the attempt to exploit the community.

Marlboro's email expresses the tension between his enthusiasm and passion for this co-creative initiative, and his suspicion of Auran's commercial motivations. He confronted some difficulty in considering these tensions when deciding how to distribute the P10 model:

As probably most of the contributors did, I went through the thought-cycle of how to distribute the finished product under the Steamz (TM) name – freeware, shareware, donation ware, through Auran . . . make no money, recover cost for cigarettes, aspirin and the divorce lawyer, make real money (but if you crunch numbers – even in an optimistic way – you never come to riches). I'm not sure where I stood in that process – probably CDs against shipping and handling. However, even if you take only a dime you take the responsibility for a flawless product . . . and concern about customer satisfaction might convert a hobby into a burden.

For a while I kept building a few more engines – my German and Austrian phase. However those went out to only a handful of friends I acquired during my time on the forum. Probably this is the part I'm most grateful for towards Auran – having provided this unique opportunity to make friends I still have close contacts with – one of them I visited in Europe recently. I admit, I felt some short-lived childish glee when I saw those screenshots pop up in the forum. (8 August 2003)

Marlboro raises many of the controversies and conflicts that have shaped the *Trainz* third-party content creator network, including the intellectual property status of fan content. These divisions and conflicts were not simply an opposition between the corporate developer and the fan creators, but were just as much played out among the content creators and the wider *Trainz* fan community. For example, one of the more divisive issues was the status of fan payware. When fan creators such as Landrvr1 announced plans

to commercially release their models as payware, they were answered with both supportive and hostile forum posts. Some fans commented that the creators deserved compensation for efforts that provided many users with pleasure and enjoyment. Others argued that hobbyists should not be selling their creations to other fans as this would undermine the open collaboration and sharing that characterize a fan community such as that around *Trainz*. They believed that such hobbyist content should be distributed only as freeware. They were expressing anger and hostility towards the commodifying of what they considered to be a cultural and community domain. Others pointed out that *Trainz* was always a business and therefore what was the problem with particularly talented creators profiting from their endeavours. Auran regularly received emails protesting that payware creators should not be permitted to make posts on the forum promoting or previewing their payware content releases. Such posts are viewed as marketing and advertising on a community forum, and therefore should be deleted. Auran's position was to support both payware and freeware creators. Auran management had no objection to creators taking the step of commercializing their efforts. Many payware creators also provide free content downloads. With this in mind, and in an effort to resolve the continuing dispute, Auran opened a payware forum area, directing fan creators to make posts relating to their payware offerings only in this area. This immediately prompted a renewed outbreak of the payware versus freeware debate. Some posters felt that by opening this area Auran was openly encouraging payware creators and that this would result in a reduction in the amount of freeware content available. This did not happen; most of the content released continued to be freely available through Auran's Download Station. But the payware versus freeware argument continued to be a divisive issue.

Disorganized networks

After reviewing the TRS2004 third-party program outcomes, Auran management decided to continue integrating fan content with official *Trainz* releases. Following versions, *Trainz Railroad Simulator 2004* and *Trainz Railroad Simulator 2006*, prominently featured user-created content. Some of these groups produce models of an exceptionally high quality and have successfully made the transition from hobbyist teams to semi-commercial enterprises, releasing retail content expansion packs.

The *Trainz* development team identified that trying to work with the large group of fan content creators in the TRS2004 project resulted in frustration, misunderstandings and communication problems for both the fan creators and the Auran team. The group was just too large to manage and support

effectively. Auran management therefore decided to reduce the size of the third-party program fan group and disbanded the official third-party content creation program, to be replaced by a new *Trainz* Partnership Scheme. Direct support from the development team was limited to select groups of creators who submitted project proposals that were approved by Auran management. By working with a smaller number of organized creators, the development team argued they could carefully and selectively focus their support efforts. But this decision meant they were unable to continue providing direct support for the broader fan content creator community. Auran effectively endorsed an elite tier of fan content creators who enjoyed access to greater levels of direct support and information. Auran is the gatekeeper, restricting access to early builds of changes and updates to the core *Trainz* platform. Fans continued to create and release content (both freeware and payware) without being members of the *Trainz* Partnership Scheme. Auran continued to support these various releases with updated content creation guideline documentation, and also improved the Download Station systems and associated utilities, making them freely available to all creators. Additionally, Auran employed Lance Jago, Henk Plaggemars and other members of the *Trainz* online community to work on the project, supporting the efforts of fan community creators.

Some fan creators expressed immediate concern and disappointment about Auran's decision to disband the original third-party support group. Magicland posted to a thread: 'Personally, I was surprised when the 3rd party group was disbanded, as originally the concept (or at least my understanding of it) had been to forge a closer working relationship with Auran, with better access, feedback, etc., and then it turned out just to be a factory for TRS content which shut down when that shipped' (4 June 2004). Others expressed similar views in forum posts and emails.

Some creators felt they had been 'burned' by their previous involvement in the third-party content creation program. The message came through that they were 'let down' by Auran's failure to provide them with the promised levels of support. Many raised the worry that this scheme was really about supporting commercial, payware content-creation teams at the expense of the many hobbyist freeware creators. The *Trainz* development team on the other hand argued these changes meant they could more accurately assess support needs and better identify those projects that they were in a position to actively support.

At this point I focus on an objection raised by Magicland, a fan content creator: 'Auran mentions "organized groups", what about disorganized ones? I, under the auspices of ProTrainz, have worked collaboratively with several other content creators. Indeed, if it weren't for the scriptwork of Marinus and DavidT, many of the fine new scripted features which ProTrainz latest releases feature wouldn't be possible.' Here Magicland is raising the point

that, to date, as we have seen in the earlier descriptions of the fan content projects, the making of content for *Trainz* has relied on a loose, distributed and ad hoc network of creators collaborating and sharing ideas with each other and with Auran's professional developers. These distributed networks do not necessarily seamlessly integrate with industrial models of firm project schedules and requirements. Marlboro, the creator of the P10 sums up these dilemmas well:

Well, a sound corporate course is plotted. Never had any doubts that Auran would think or act any different from any other commercially driven entity. They got to this point by utilizing hundreds of thousand of free hours provided by the community (be it 3rd party, beta, whatever) . . . but it was always obvious that that ain't good enough for a 'corporate' future. Support for the ever-increasing complexity cost money, as it was mentioned above, and this ain't a family business. As with all corporate decisions you need to check your individual position. Lead (few of us are on the board of directors), follow (if you can identify yourself with the course) or get out of the way. For me it's a game, a hobby and mostly fun. If there is corporate background noise – fine. But if that noise levels increase too much it's time to tune in a new station. I hope that any of the 'newly' formed groups is following the corporate spirit and has an accountant on board. So, I don't see my seat on the train going in the new direction. ('Moving ahead with 3rd party support: The Trainz Partnership Scheme', 25 June 2004)³

By exclusively shifting their support to what the Auran developers called 'organized teams', did they perhaps miss the advantages and benefits obtained from the more disorganized and ad hoc network effects? They perhaps also fundamentally misunderstood the nature of these emerging network relationships that were generating knowledge, learning and content for Auran.

These ad hoc co-creator networks are more than capable of the kinds of distributed collaboration that will produce the valuable outcomes that both Auran and the user-creators sought. As we've seen with the fans' effort of introducing steam locomotives, this kind of collaborative effort was happening on a regular basis. The problem here is that such disorganizations did not fit comfortably within the frame of Auran's corporate project schedules or the regulatory regimes of intellectual property rights and contractual law. They're unruly and disruptive. They challenge our understandings of what a software project is and how it should be managed. But are we seeing organizational forms and practices emerging that seek to coordinate precisely these kinds of distributed project relationships? These organizational transformations raise pressing questions about how work is now organized and for the identities of the professionals contributing to the making of these distributed networks.

The content creators' views on Auran's plans were varied: there was no singular *Trainz* fan position on these issues. For many, these creative activities emerge from their shared passion for trains and rail: for others it concerns the satisfaction derived from carefully crafting a detailed model, or the social status gained within the *Trainz* community for freely sharing their creations. For some, it also offers a pathway into paid employment as we have seen with Rob Shaw. In some instances, this productive activity is freely given. Others pursue the commercial opportunities that are available for their creative endeavors. The intersection of these diverse practices and interests that constitutes co-creative culture generates conflict and tensions concerning how the rights to material are to be negotiated and who should have access to information and support. Auran's ultimate concern is profitable business outcomes, and this means production processes that are carefully managed. Many of the fan content creators, on the other hand are motivated by their passionate investment in trains and rail and by the social rewards that are associated with their position as high-profile creators in the fan community. The ways in which these different practices and understandings come together are uneven and even conflictual. The Auran *Trainz* team itself was far from united in its understanding of this collaborative production process. Producers, programmers, artists, community development managers and CEOs often have very different understandings of how the relationships should be managed. The fact that the work of the fan creators on the *Trainz Railroad Simulator 2004* project did not entirely mesh with Auran's project schedule points to how these user-creators can be unruly and guided by their own interests and agendas. But it is from these uneven and messy practices that co-creative culture is being made.

Bruno Latour (2005: 11–12) reminds us that in situations of controversy 'where innovations proliferate, where group boundaries are uncertain, when the range of entities to be taken into account fluctuates' then we must not

limit actors to the role of informers offering cases of some well-known types. You have to grant them back the ability to make up their own theories of what the social is made of. Your task is no longer to impose some order, to limit the range of acceptable entities, to teach actors what they are, or to add some reflexivity to their blind practice.

We need to carefully consider how the actors themselves, both professional and non-professional, navigate and define these relationships that I'm describing as co-creativity. I agree with Gill and Pratt's (2008: 18–20) provocation that when considering questions of creative work and labour we need to pay more attention to the *meanings* that cultural workers give to these activities themselves. We also need to extend this to the meanings

co-creative consumers also give to these activities, and suggest that we perhaps also should consider how these activities and their meanings can be understood parallel to (or beyond) categories such as work and labour. These forms differ from those of traditional labour relations in industrial-mode economic production.

The shape of new labour relations?

Co-creative relations do not only statically reallocate resources across markets and non-markets, firms and social networks. The cultural economics at work concern dynamic and self-organizing networks that generate opportunities for growth, change and innovation. This is not just about user-created content as an outsourcing of labour costs and an associated displacement of paid labour; it is not simply about optimizing allocative efficiencies within the labour relations and productivity frameworks of industrial economies. More provocatively, it focuses our attention on how co-creative relations introduce organizational change and market growth. The value flows here then are not just about cheap labour and content but about integrating and coordinating innovations that upset and disrupt established industrial economy business models and project forms (Cunningham 2006: 33–8). This is not to deny, however, that exploitation occurs in the videogames industry and in the relationships between media enterprise and co-creative consumers. As we witness and experience increasing pressure on job security we need to keep posing the difficult questions about sustainable and rewarding livelihoods. Critics such as Andrew Ross unsettle and challenge us with timely reminders that the jargon of creativity and innovation can too easily become platitudes corresponding to a troubling cookie-cutter policy mentality. In her recent book, *Venture Labour: Work and the Burden of Risk in Innovative Industries*, Gina Neff (2012) provides compelling research of workers in 1990s internet start-ups to pose important questions about the links between shifting risk towards workers as a form of entrepreneurial labour that is important for stimulating innovation. But at the same time how should we create sustainable work environments for these creative workers. She asserts: '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' (165).

As we have seen for some of the developers at Auran, especially the project leads and producers, the co-creative relationships with the *Trainz* fans was an added burden to an already overcommitted workload. Work such as Ross's and Neff's reminds us that these networks are also workplaces that provide the livelihoods for creative workers. The professional craft-skills of these workers are also central, I argue, to the viability and sustainability of these emerging

co-creative networks. Building the smart rooms and networks that Weinberger (2011) suggests are transforming our very knowledge institutions, requires us to pay serious attention to the identities and working conditions of these professionals. But we also need to question whether the categories of political economy critique are up to the job of grappling with these challenges.

This research with Auran and the *Trainz* fan community demonstrates that gamers are not only well aware of the value they create; they are also sophisticated practitioners who participate in the production network. The player creators tend to strategically use terms like labour and work at the point at which they have begun to feel that the terms of the exchange are unfair and their motivations for participating are not being satisfied. Sometimes it was at the point that the rewards and value of their participation were not fairly recognized by Auran. But it is important to also note their sense of discomfort and uncertainty about using concepts of labour and work to understand and assess the value which they contribute as their motivations are mixed – some are more likely to subscribe to discourses of creativity and art that position their activities as arising from passionate interest and needing only the intrinsic and social rewards of the social economies, while others emphasize the potential to pursue commercial opportunities.

The fan creators' refusal to fit Auran's corporate schedules also unsettles and disrupts our assumptions about relations between experts and non-experts in the production of cultural products. What would it mean to radically reorganize the development process and associated organizational structures to account for and support the fan content creators' contributions? How would it transform relations among experts and non-experts, professional and non-professionals? For corporations, the use of terms such as labour and work implies obligation, contracts and formalized, regulated relationships with producers, which are institutional forms that do not necessarily fit with co-creative production that is more ad hoc and fluid. However, while the current institutional forms may not comfortably fit ad hoc co-creative networks, this does not necessarily imply that there are now no obligations for the firm to meet in relation to both user creation activities and the working conditions of professional creatives. We need to explore what new forms of obligations and accountability a firm might accrue when it engages with user-creators and professional creatives across the financial and social economies of co-creative production.

How can we better understand the transactions and exchanges that characterize these relationships and unsettle our current frameworks of work and labour? As Nigel Thrift (2006: 295–6) argues co-creative relations indicate a profound and 'general change in how and what constitutes the value form' that exceeds our current understandings and arrangements of labour at work. I pursue these questions in the following two chapters.

5

Co-creative expertise

Distributing expertise

Co-creativity requires distributed networks of amateurs and professionals, experts and non-experts. Creativity and innovation are attributable not just to professional developers alone, but also to the distributed expertise and co-creative practices of socially networked citizen-consumers. We saw this distributed expertise at work as the *Trainz* fans brought steam locomotives to the game. This re-engineering of producer-consumer relations unsettles the paradigm of professional expertise and the associated claims to authority and control that have dominated the organization of media production throughout the industrial era (Weinberger 2007, 2011; Hartley 2009). A July 2008 report from NESTA, *The New Inventors*, acknowledges that users are changing the rules of innovation process as they increasingly participate in the development of new and improved products and services. Recognizing that user-led innovation creates significant commercial value, the report also acknowledges that this activity challenges and disrupts the boundaries and controls of traditional innovation and R&D processes.

By blurring the professional-amateur divide these transformations foreground the increasingly interdependent relationships between professional media producers and users (Jenkins 2006: 50–8; Bruns 2008: 214–19; Hartley 2009: 131–5). In the previous chapter I argued, however, that it is not all that helpful to approach these co-creative relations as necessarily involving media companies exploiting the free labour of consumers. Nevertheless, consumer participation is increasingly part of creative professionals' every day work environment. As we have seen in the case of the *Trainz* project, demanding and unruly user co-creators unsettle professional developers' work practices and routines. The very identities of professional media workers are therefore at stake in these co-creative media networks (Deuze 2007, 2009). Co-creative

relations may well disrupt the modes of cultural production that defined the broadcast era by unsettling the expertise, employment, and identities of established media and knowledge professionals.

The success of media production may increasingly rely on effectively combining and coordinating the various forms of expertise possessed by both professional media workers and creative citizen-consumers, not displacing one with the other. This requires media companies to both recognize and respect the contribution of media consumers' expertise in the context of a co-creative relationship for mutual benefit (Burgess and Green 2009b). Rather than a zero sum game in which a gain for participatory consumers is figured as a loss for professional creatives, can these co-creative dynamics be more helpfully approached as a non-zero sum game growing benefits and opportunities for all participants?

The relationship complexity of production and innovation practice is increased significantly by the arrival of this additional set of actors – consumers and users. Moreover, these additional relationships do not play out comfortably within the standard frame of hierarchical organization in a firm. Instead, they disrupt traditional industrial closed innovation systems and thereby pose significant management challenges. This requires a rethinking of how expertise works. The challenge in all of this is how do we now develop frameworks or models of expertise and knowledge production that situate the expertise of co-creative consumers in proper perspective alongside professional creatives' expertise in the fields of media production. Opening the back box of expertise should not mean a populist celebration of the overthrow of professional experts. But neither should it amount to the doom and gloom pronouncements of Andrew Keen (2007) in *The Cult of the Amateur: How Today's Internet Is Killing Our Culture*. The success of media products may increasingly rely on effectively combining and coordinating the various forms of expertise possessed by both professional creatives and creative citizen-consumers. Here it is not a situation of abandoning or displacing the expertise and jobs of professionals. As Bruns (2008: 214–19) suggests, the task is to reconcile and interrelate 'traditional expertise and emergent community knowledge structures'. This is a coordination problem in the context of dynamic and self-organizing cultural and economic networks, and as such involves transactions and exchanges across forms of expertise and knowledge that may appear to be incommensurable. I call these dynamics *co-creative expertise*.

In this chapter I draw on ethnographic research undertaken throughout 2007 with Auran to explore the co-creative relationships between professional developers and a network of gamers who provided the company with extensive play-testing feedback and creative design input. This research followed and informed Auran's online community management and social

networking strategies for *Fury*, a competitive PvP, massively multiplayer online game released in October 2007. I closely followed and observed members of Auran's online community relations team, *Fury's* developers, and Auran senior management. I also participated in pre-release play testing of *Fury*, joining in extensive play and feedback sessions with the *Fury* gamers, as well as interviewing gamers participating in this co-creative relationship with Auran. More specifically, I consider how the design and production practice of Auran's professional developers (designers, producers, community managers, etc.), as well as their professional identities, were disrupted and unsettled by the need to negotiate with the expertise and knowledge of players. In exploring these issues I also draw on interviews I conducted with Maxis's professional developers. I discuss the diverse and often conflicting relationships and interactions between the company and the gamers that shape these emergent co-creative relationships. We've already seen, for example, that Auran's professional developers did not always wholeheartedly embrace the increasingly close relationship with the *Trainz* fans. The developers were often divided over their support for involving fans in the making of *Trainz*. While often expressing in-principle support for the idea of involving the player community, producers, lead designers and graphic artists working on the project also expressed their reservations about the risks associated with integrating the players throughout the development process. Producers, designers, programmers, artists, community relations managers, marketing managers and CEOs often have very different and at times competing assessments of the risks and opportunities of these emerging co-creative practices. They also have different understandings of how these practices should be realized.

'It's your game now'? Negotiating gamer expertise

Games scholar T. L. Taylor asks (2006a): 'What it might mean to move beyond simply managing player communities to enrolling them into the heart of design and game worlds.' Such a scenario poses expertise as a problem, as it asks us to consider extending expertise to player-consumers. It asks us to legitimate the role of players in the design decision-making process. But what does it mean to extend expertise beyond the boundaries of the firm and the craft skills of professionals to include the knowledge and skills of players?

In late 2006 Auran management approached me to provide them with consultancy advice on their relationship with an online gamer community forming around the final stages of the development and launch of *Fury*. The

project was not backed by a major games publisher and therefore did not have substantial marketing support. Auran had identified a niche opportunity in the MMOG market – hard-core, competitive PvP gamers who were somewhat dissatisfied with the current major MMOGs such as Blizzard’s *World of Warcraft* and ArenaNet’s *Guild Wars*. These players were interested in playing MMOG style combat games as a form of intensely competitive, team-based E-sports. Auran management believed there was an opportunity to develop a commercially successful PvP focused MMOG. Auran’s CEO, Tony Hilliam, also believed that the support and endorsement of hard-core PvP gamers would be crucial for *Fury*’s commercial success. As he put it to me:

We need to involve them, we need their input. It must be their game. And we’ve already made a start on this. We are already working with a core group of player-testers who are providing us with feedback on very early builds of the game. But we now need to expand on that and build interest and enthusiasm for the game as we ramp up to release later in 2007.

Over the final 12 months of *Fury*’s development, the Auran development and community relations teams recruited a core group of experienced PvP MMOG gamers to participate in the process of testing and refining the game’s design. Many of these gamers were leaders of high profile PvP guilds that were active in successful MMOG games such as *Guild Wars* and *World of Warcraft*. In the months prior to commercial launch, these expert gamers exhaustively play-tested *Fury*, dedicating many hours to providing the Auran development team with robust and critical feedback. They were not just hunting for bugs but identifying weak game features that needed updating and fixing. These amateurs forcefully and persuasively lobbied the professional developers for changes, posting extensive comments to the *Fury* forum and through direct emails to the development team. The developers made significant updates based on the consistent requests from these expert gamers. Even over the final few weeks in early October 2007 before retail launch, Auran announced further modifications to core design features based on input from these expert gamers. This co-creative exchange between the gamers and developers continued to shape and remake *Fury*’s design. In pursuit of innovation and commercial success, Auran relied then not only on the creativity of internal professional developers, but also on a distributed network of expert, skilled and knowledgeable consumer co-creators operating over social networks of guilds, fan sites and other new media.

On 13 December 2007, two months after *Fury*’s release, Auran Developments Pty Ltd went into voluntary administration. Some 50 staff lost their jobs in the wake of the commercial failure of *Fury* – a three year project costing \$15 million. The difficulties of successfully managing the

relationships between the professional development team and the expert gamer-testers contributed to *Fury's* failure. In a post-mortem interview with me shortly after announcing the voluntary administration, Auran's CEO, Tony Hilliam commented that the online word of mouth from these networked consumer-citizens 'has been the ultimate killer' for *Fury*. Many of the core player-testers expressed the view that *Fury* had been released too soon and the Auran developers had not gone far enough in responding to their critical feedback over the final stages of development. What went wrong and what can we learn from this?

It is important to note that I am not suggesting Auran's failure to get these co-creative relationships right was the sole factor explaining *Fury's* failure. In interviews Hilliam also commented on other problems such as: 'We literally ran out of money before the game was ready for release. We released too early, but we didn't have any choice.'

Game development projects such as *Fury* are technically challenging and high risk – many fail for a range of reasons. There was significant debate at Auran about the role and importance of these co-creative gamers' to *Fury's* success or failure. The senior producer, for example, argued that 'we maybe listened to the gamers too much and we lost our focus'. Some of the leads in the development team, while regularly expressing support for the importance of the gamer community to *Fury's* success, seemed to understand this as largely a marketing and communication function. For them player involvement should be restricted to issues such as the design of the website, gaining feedback on marketing material, identifying bugs and providing the numbers for play-test sessions to 'stress-test' the server infrastructure and systems. On crucial issues of fundamental game design they generally resisted giving too much credence to the views and opinions of the players. This was their domain as professional developers and designers. As a range of design controversies flared in the core testing community over the final crucial few months of development, Auran management struggled to manage this tension between the expertise and creative control of the professional design team and the collective intelligence of the gamer community.

After many weekends of play testing between August and late September 2007, the feedback from many of the hard-core gamers, particularly from some of the influential leading competitive guilds, indicated that wide-ranging and quite fundamental design changes were needed. The server data captured from the play sessions supported their concerns as players were committing the time to download the game client, install it, set up an avatar and play through the tutorial. But very few were then continuing to play beyond one or two matches. *Fury* was churning players rather than retaining and building a viable player base. The game environment, combat systems and interface were proving to be very daunting and unforgiving for new players. The view

was also growing among the core testers that for some reason Auran was now compromising on their original commitment to develop and deliver a PvP and E-sports focused MMOG.

On 24 September 2007 one of the testers, Aryantes, made a lengthy post to the *Fury* forum identifying a broad range of issues and factors that he argued were contributing to *Fury*'s failure to retain and grow player numbers:

One of the most important factors here is to find a way to make it fun for the new / inexperienced player. As it stands, someone who is new and being introduced to the game, will have a 0% chance against someone who even moderately knows what to do. I'm not exaggerating either . . . There's no point in competing at this point, and new players should not have to go through that, wondering why its so uneven. (Forum post, 24 September 2007)

These critical comments, however, weren't restricted to problems encountered by new or casual players. The committed and competitive guild members and leaders were noting the rather massive drop off in player numbers. On 23 September Lashiec posts:

I don't know if anyone has noticed or cares – but we've had a significant decrease in population since the last 2 patches. The game is becoming stale, and as a leader of a once quite full guild, now full of inactivity I have to wonder if we're even gonna last till next week. (Forum post, 23 September 2007)

Hades, a high-ranking player and leader of the influential guild, Lords of the Dead, (LoTD) replied, 'Yeah we've lost about 50% of our active guild due to boredom'. SexyAlf noted:

So many ridiculous changes are being made so close to release that I find less players are actually becoming addicted, and more are finding the visible flaws in the game architecture. And the vets are becoming frustrated with the constant changes. I don't think Auran follows the saying 'Don't fix what isn't broken.' Because everything is broken now and nothing works.

These posts are fairly representative of the overall feedback from players testing *Fury*. At this stage, only a matter of weeks from commercial launch, things were not looking promising for *Fury*.

Throughout this difficult period Auran's community relations managers, Alex Weekes and Dan Gray, were replying to the forum threads and to the influential guild leaders with comments that the development team were

closely monitoring the feedback and that design changes were being worked on which would fix many of the issues raised. The problem was that they had run this line for many weeks and a series of updates had thus far failed to allay the gamers' concerns. Both Gray and Weekes were employed to manage the relationship between the development team and the online community of *Fury* gamers. Identified as a high profile and respected leader of PvP guilds forming around the game *Guild Wars*, Gray was recruited because he would bring his connections with and understanding of PvP culture to the project. Much like Rob Shaw's role on the *Trainz* project, Gray was something of an embedded representative of the gamer community on the development team. Weekes had proven his ability as a community manager by establishing and running a high-profile PvP fan website and working as a community manager for NCSoft, the publisher of *Guild Wars*. Gray and Weekes worked closely with the QA team managing the players' involvement in the process of testing *Fury*. They monitored and moderated the *Fury* forums, and maintained close relationships with guild leaders, filtering their input through to the lead designers. They were also responsible for communicating the reasons for design decisions to the community of player-testers, particularly when those decisions may have been unexpected or in conflict with the wishes expressed by influential guild leaders.

The community relations team were losing confidence in the lead designer's and producer's willingness to accept the critical feedback expressed by many of the core player-testers. Gray in particular was frustrated with the leads on the design and development team. He felt they were not listening to the feedback from the core testers, and he believed that many of the leading guilds and influential players were considering abandoning the game.

In conversation with me, Gray commented:

We're on borrowed time now. We had the confidence of the players, they were really behind *Fury*. But we're rapidly losing credibility. The devs [developers] seem to think we can just keep making these posts saying we're listening and stuff. But that will get us nowhere unless the changes are actually made that these guild guys want. They're not stupid and they see through all this. They're really experienced players and know what they want from a competitive PvP game. This is what we promised them. And they're not seeing it. The devs need to deliver and we're running out of time.

In early October 2007, only three weeks before commercial release and after significant internal debate, Tony Hilliam directed that design changes needed

to be made. He drafted and released a forum post and email addressed to the core PvP gamers announcing this major direction change:

We've been receiving a lot of feedback about the state of *Fury*. We've taken some time to assess that feedback and will shortly be announcing some wide-ranging changes to *Fury*. Put simply: the community made its desires known, we've listened, and we've been convinced that changes need to happen.

The announcement briefly outlined many of the major changes that the core player-testers had been consistently requesting and included the comment,

This really is your game now [my italics], it is our task as developers to listen and react by deciding how and when to implement improvements . . . Now is the time to get your Guild-mates to come onto the forums to discuss these changes and help us make *Fury* the number 1 PvP game on the market.

The response from many in the player community was immediate, enthusiastic and generally positive. Forum threads started in which players encouraged each other to get behind Auran and promote *Fury*. On 16 October Monky started a thread 'Pay it forward: Promote *Fury*' – 'Do you like *Fury*? Do you want it to be a huge success? The power is in your hands! If you think *Fury* is the most awesome game ever and want it to grow, all you have to do is tell 3 people how awesome it is and get them to do the same' (Forum post, 16 October 2007).

However, the gamers met Auran's eventual December release of the promised update with expressions of anger and disappointment. The development team had chosen to largely ignore the feedback from the hard-core PvP testers and taken the design in the direction of hopefully appealing to a more mainstream and casual gamer market. The problem was the design changes also failed to attract or retain new gamers in any significant numbers. *Fury* was still churning players. The design now appeared to be an incomplete compromise that had lost focus and direction. The hostility of the long-term committed testers to this update was evident in forum posts such as SkinnyG's: 'I thought this new patch was supposed to be about listening to the players but, they couldn't give a rat's ass about their players that have been here since beta. AURAN WTF IS GOING ON?' (15 December 2007). In an extended post to the *Fury* forum, respected community member and long-time *Fury* tester, Republica, criticized the Auran developers and designers for failing to make the changes that many players had been requesting. Responding to a post by *Fury*'s lead designer, Adam Carpenter, in which he

seeks to justify Auran's refusal to introduce some of the requested changes, Republica comments:

Please understand that I say this with the most heartfelt respect and compassion to you and your team: you are standing on very, very thin ice. Considering the amount of investment in this game, you need to be very careful with how you treat your players. We loved the idea, but now we're being told that the one thing we really can't stand about the game isn't going to change because you don't want to change it. And I hope you can understand that this is a bit insulting, and doesn't make it a game a lot of us will continue to play. It's also probably a huge reason behind why you're not getting better word of mouth publicity from the PvP crowd. (Forum post, 16 January 2008)

There were many forum posts made by gamers, including influential guild leaders, which expressed very similar viewpoints. These are brief example extracts from the many extensive forum posts, email exchanges and online in-game chat discussions through which these game testers provided Auran with feedback. I participated in many of these online exchanges, including extensive online and in-game chats with long-standing player-testers who expressed surprise and disappointment at what they regarded as the Auran development team's failure to take into account their feedback over the final stages of development. Of course, forum posts such as Republica's had a contested status in the Auran development team's design decisions. The lead designer and producer regularly questioned the validity of forum posts as a reliable guide to gamers' experience of *Fury*. In discussions with me, the designer argued that he could point to just as many posts offering alternative viewpoints. He commented that great care should be exercised when evaluating a game's design based on forum posts:

They're just too unreliable and all over the place. One post or thread will tell you one thing, but read on and other gamers will be arguing just as vehemently and passionately for the opposite case. We see that all the time. You cannot change a game's design based on what you're reading in the latest hot forum thread. Who would you listen to?

Auran's community relations managers on the other hand referred to Republica's forum posts as in their opinion offering a well articulated and argued perspective on *Fury's* problems. I was also referred to Republica's posts by many of the long-standing and committed *Fury* play-testers. Many of these core testers, like Republica, took Auran's invitation that 'this is your game now' seriously. They expected Auran to deliver on its commitment to

listen and to make the key changes that the players demanded. When the Auran development team failed to deliver on this commitment, the support and endorsement of these core players quickly evaporated.

In an August 2007 interview with Auran's community relation manager, Alex Weekes, I asked how seriously he thought the *Fury* developers and senior managers took integrating player feedback into their design decisions. He responded:

So far well they've been quite responsive about taking on board the feedback that we pass on to them from the players and also to a degree being involved in the community themselves which I see as a big plus. But on a few specific issues we've had a, I suppose I'd characterise it as an unwillingness to look at the deeper reasons why players were requesting specific changes . . . They [the developers] argued that this feedback was largely just coming through from very high level, elite guild players and that it might not be representative of the more casual players. But this wasn't really what we're seeing or hearing in the community, we are seeing the whole cross section sharing an opinion to a less or greater extent on these issues. It was fairly consistent feedback. But the developers, well they resisted this and discounted it for some reason. But yeah the design team seem to be continuing to take the feedback on board. It will remain to be seen exactly how they deal with the issues though.

After asking him to expand on his role as community relations manager and why he decided to accept Auran's job offer, he replied:

I decided to come to Auran and work on *Fury*, what attracted me was that I would get to work right along side the developers where the decisions are being made. It is an opportunity to have instant access to the people making those decisions and to have some influence there.

But he then also raised the concern that 'community relations' at Auran was starting to be 'just about customer acquisition and retention – a marketing and service function', rather than integrated throughout the development process.

Dan Gray, Auran's community relations assistant, became increasingly critical of the development team's reluctance to respond to the feedback from the experienced PvP gamers. In an interview with me conducted in late December 2007, he commented:

The problem was no one from design wanted to listen to us. They pretty much went forward on a gamble that they would attract new players

that would appreciate their design changes. It's kind of funny, this game started out being for the hard-core PvP gamers. That's how we were promoting it and that's the player community we went after. But when these players started criticising the design, well all of a sudden it seems we're no longer making the game for them. Maybe it was because the designers and devs didn't like hearing the criticism. The devs say the feedback coming through isn't representative of a broader casual gamer market. I've never got that and I think it is just an excuse for not listening and not making changes soon enough. All the problems that we've been running into, all the issues pointed out in the poor reviews *Fury* has been getting, they've all been pointed out repeatedly and consistently by the core PvP community. A number of people on the team now seem shocked that these problems have been raised in the reviews even though they have been raised for awhile now by the community. Now they are trying to blame it on poor marketing, saying we never got the player numbers needed to succeed in the first place. But I can tell you on a few of the test weekends we were getting decent numbers hitting the servers, they just weren't hanging around or coming back. The devs for whatever reason didn't want to listen to the feedback. This was great input from really experienced hard-core players. These guys put in a lot of time testing. Why just ignore that?

Gray's question gets us to the crux of the problem of co-creative expertise. Integrating players into the heart of the design process means extending the recognized sources of expertise beyond *Fury's* immediate professional development team to include the lead gamers, the community relations team, and a consultant ethnographer. This challenge of coordinating often competing and divergent if not incommensurable forms of expertise and knowledge practice in the design decision-making process gets us to a core dilemma of distributed expertise networks.

In a post-mortem interview in late 2007 with Adam Carpenter, *Fury's* lead designer, it became apparent that he had a very different understanding of what 'this is your game now' meant, particularly in the context of making key design decisions. When I put the community manager's question and criticisms to Carpenter and also raised with him the anger and frustration expressed by the core testers, he replied:

A couple of key things. The hardcore community generally doesn't understand how long it takes and what is required to make the changes they want. Even with a lot of our hardcore people who we assumed were advanced enough gamers to understand stuff, when we did explain combat mechanics concepts that were crucial to the design, well they

still really didn't understand it. Even though these are people with a lot of gaming experience, and we very much respect their opinion, we never got them to get outside of their own personal view and to see it from a much higher level design perspective. In terms of a lot of changes requested, even among the hardcore group, there were very diverse views. It wasn't necessarily a unified front or opinion that we were hearing. They weren't speaking with a clear enough or consistent voice for us to say 'yes this is definitely a problem' and likewise the feedback that we were getting was not necessarily from more moderate, casual gamers who were playing *Fury*. In some ways our community team could have helped us do a better job by including a more diverse range of feedback and not concentrating so much on just the hardcore.

In *The Wealth of Networks*, Yochai Benkler notes that firms' efforts to harness social peer-production challenges business with how to integrate these 'newly ambitious relationships . . . which use peer production as a critical component of its business ecology' (125). Benkler observes:

The critical and difficult point for business managers to accept is that bringing the peer-production community into the newly semi-porous boundary of the firm – taking those who used to be customers and turning them into participants in a process of co-production – changes the relationship of the firm's managers and its users. (125)

Opening *Fury's* development to this distributed network of expert gamers provided useful critical feedback and forward marketing. But it also exposed Auran to management challenges by disrupting a closed industrial model of expertise in favour of a more open innovation model. Many of Auran's senior managers failed to recognize that harnessing the support and input of these players involves an implicit recognition of the players' expert status as co-creators. Harnessing the benefits of a co-creative relationship came with a responsibility to respect that expertise, and when, in the minds of the player co-creators at least, the developers failed to do so, an implicit contract was broken and a distributed asset of innovation and development turned rapidly into a market network liability. Auran misunderstood and mishandled the context across which these interactions played out by failing to appreciate that coordinating these competing and often conflicting forms of expertise requires us to rethink how businesses and their customers form collaborative webs that extend beyond the firms boundaries. Rather than grappling with the problem and potential of fostering links throughout the organization with the core player-testers so as to encourage opportunities for the development and design teams to *innovate and create with the gamers*, Auran management

often siloed the problems raised by the core gamers as a communication and 'expectations management' issue for the marketing, customer service and community relations teams. But in saying this I am not suggesting this is an easy problem to resolve. The difficulties and dilemmas that the lead designer, Adam Carpenter, raises are real and should not be dismissed.

Addressing your consumers as co-creators invites a form of creative destruction that is disruptive and difficult to manage. The point of these lengthy quotations and observations is not to suggest that the professional designers got it wrong while the amateur gamers and community relations team were right. Valorizing consumer creativity as bottom-up dynamics of user-generated content or user-led innovation will not take us very far. This is not simply professional expertise opposed to user creativity. *Fury's* success relied on effectively *combining and coordinating* the various forms of expertise possessed by the professional developers with the gamers' expertise. But as we see in the case of *Fury*, successfully coordinating these various forms of expertise is much easier said than done. *Fury's* design team raised compelling difficulties and risks associated with integrating the gamers into the design decision-making process. These objections included the problem of assessing conflicting demands from different groups of testers and the risk of simply responding to the many requests and demands made by the gamers.

In meetings and informal discussions the community managers would refer to forum posts, emails from leading gamers, online discussions and their assessment of the 'views of the community' to support their proposals for needed design changes. I was far from a disinterested bystander in these exchanges and drawing from my research with the gamers would also contribute my assessment of the gamers' opinions. I do not claim to occupy a neutral observer status in relation to these co-creative practices forming around *Fury*. My research practice aimed to assist Auran to better understand and manage their relationship with the co-creator gamers. I worked closely with Auran's community relations team and members of the design team as they grappled with the challenges of what it meant to involve the players in the development process. I contributed to meetings, informal discussions and email exchanges in which the role and significance of the players' contribution to the design process were debated. The expertise of the ethnographer is therefore also at stake in the distributed expertise network that I'm describing. At the height of these debates in October 2007, I emailed Auran senior management with reports that drew from this research.

In 'Located accountabilities in technology production', Lucy Suchman (2000b) discusses the difficulties confronting ethnographic-based attempts to mediate relationships between IT project designer-producers and users. Discontinuities across professional traditions are grounded in assumptions about knowledge practice and production that need to be navigated. These

divisions are often difficult to negotiate, as I was finding between the Auran development teams and the community management teams. For Suchman (2000b: 3): 'A crucial assumption underwriting these persistent boundaries is the premise that technical expertise is not only a *necessary*, but is the sufficient form of knowledge for the production of new technologies.' I would add here the increasing status of design expertise. Developers and designers will not share control over technology and game design easily. As Suchman observes, the socio-material connections and working relationships that sustain these networks are often invisible in discussions of participatory culture and design. Suchman (2000b: 2) unsettles and reworks understandings of technology design and production as involving discrete objects shaped by a designer/user opposition. These oppositions close off the possibility of recognizing that networks of working relations 'including both contests and alliances . . . make technical systems possible'. Co-creativity reworks and questions these oppositions and boundaries. But 'reconstructing relations of technology production and use to acknowledge this reality is an enormously difficult task. The boundaries that currently define professional practice are realized through institutionalized arrangements crafted precisely to their reproduction' (3). Suchman argues that such a reworking requires a problematizing of the designer/user opposition, and making social relations that disrupt and cross the boundaries between them.

Across the *Trainz* and *Fury* projects we see an increasing disjuncture between the ambitions and intent of Auran management to harness player co-creative activity around their products and an oversight about the organizational remaking and transformations needed to understand and support co-creative practice. Gaps and tensions increasingly emerged across the firm about the relationship between professional design practice and players' co-creative participation. Auran's commitment to grappling with these problems cannot be disputed. Nevertheless, insufficient consideration and attention were given to reorganizing the development process and organizational structures to adequately account for the player co-creative involvement and the demands this imposed on the professional developers.

In the few days I spent at Maxis in June 2009 I encountered a company that was grappling with these challenges of coordinating the work of their professional staff with the creative output and innovations of a rapidly growing player community. Senior managers such as Lucy Bradshaw (general manager), Caryl Shaw (senior producer) and Morgan Roarity (COO) described a Maxis culture that respected and valued the input and role of the players as co-creators. In previous chapters we have seen from interview extracts their enthusiastic accounts about how the players' creativity often outpaced the ability of their team and its resources to support them. However, they also discussed the importance of embedding community managers and

producers that understood the culture of the player community throughout the development process. Morgan Roarity, for example, described the importance of regularly involving community managers such as Therese Durringer in product development discussions. I also observed that staff from community management backgrounds occupied positions as producers: Meghan McDowell (a producer who previously worked as a community manager on *The Sims* projects); Caryl Shaw (senior producer also previously worked as a community manager); and, the community manager, Therese Durringer, was also shifting into a role as an assistant producer. This ensured that the challenges of understanding and assessing the player culture was integrated in key positions across the development process rather than simply siloed as 'community relations'. I was also struck by the extent to which the Maxis staff across a range of roles were carefully thinking through the implications of this co-creative relationship for their identities as creative professionals. This was particularly evident in my discussion with Brian Marble, a senior tester working on the *Spore* project. Marble described how involving the players in creating the product fundamentally changes the role of testing:

Testing for this kind of game, *Spore*, with all the things players can do is not like a normal game that is linear that you can go through point-by-point checking and testing various features. Now we grab the build and need to figure out exactly how players are doing the amazing and surprising things they are coming up with. We pay attention to what the developers tell us about what's going on in the community. But we also keep an eye on the forums ourselves as well. You know in testing we have some really imaginative, creative people who can come up with all kinds of out there and even whacky ways of pushing the boundaries with what you can do with the tools. You know coming up with ridiculously complex and interesting creations. Often someone will say wow look at what the players have come up with now but we've already been there in the testing. But still what we come up with in testing doesn't even scratch the surface of what the players have now come up with. Even as creative and skilled as our team has been, we still can't catch everything the players are doing because we're not dealing here with a linear progression. This is really hard to quantify for testing purposes. For example one of my personal favourite things in *Spore* is in the creature editor. We've spent literally years of work testing that editor and thought we had everything out of there. But somehow they [the players] managed to figure out how to make the body and parts disappear. Then they've gone and written up tutorials on how to do it and that's now become one of the tools that's widely used. It's completely a bug and if we could have found that we would have fixed it. But they have worked out how to reproduce it and you really have to work

at it to make it happen but then you can come up with some really cool things. It absolutely is a bug that has become a feature [laughs].

I asked Brian to expand a little more on this changing relationship between testing and the player community:

I think the big thing is being able to be agile once the community has it and with that relationship you have with them. We've got these hundreds of thousands of people playing and exploring and you just cannot replicate that in a testing environment. You know you can duplicate some things like load testing to make sure your servers can handle the traffic and all the core functionality and features of the game. But you know you just cannot duplicate the number of minds, the number of viewpoints that your community has. You really have to be agile in responding to it and I think that as long as we care about what the community says and what the community has found we will have their support.

I asked him for a specific example of this responsiveness:

Well like with how the players are interacting with the website and how those features have worked. We thought it would work best one way and we tested it like that and it worked fine for us but when they [the players] actually used it and didn't really like it, I don't think we really quite understood, we had a lot of expectation for how the website was going to work but I don't think we really grasped how people were going to use it and how much of a social network thing it was actually going to be. We thought of it more as a resource and less as a social network and so we built it like that, we built it for people to use as a reference. But people are really using it as a social network.

I asked how that was now being addressed:

Caryl [Shaw] and the team have been reassessing all that. We've had a lot of changes with the way users interact with the website, with how the ratings system is done. We also need to look at how all that content can be searched. But it was really hard for us to test at the scale this thing has become. It has kind of caught us by surprise . . . With these open style of games such as *Spore* testing and the job of testing changes. You need to see it from the player's perspective as these open-ended things and you need to be responsive to that. It isn't just about hunting for bugs; it is also about just playing with it and trying to imagine where the players might take it.

These co-creative consumers now judge companies such as Auran and Maxis on how well they respond to their feedback and on how well they provide and deliver a service that effectively integrates the consumer across the creative development process. The positive word of mouth that Auran's CEO hoped to harness doesn't come for free. 'Attention-economy' (Lanham 2007) transactions play out here: the participation of the gamer consumers endorsing *Fury* through their fan social networks requires Auran in turn to recognize the status and contribution of the gamers' expertise in the context of a co-creative relationship for mutual benefit.

This case study of Auran's *Fury* and its complex and fraught interaction with its base of consumer co-creators raises obvious business strategy and process questions, but also some fundamental analytic questions. What are the mechanisms and processes that may help us to better understand these co-creative expertise exchanges? We need to develop analytical tools and models that help us to work through the dynamic relationships that shape these emergent co-creative exchanges. We need a framework or model of expertise that situates the expertise of citizen-consumers in proper perspective alongside professional creatives' expertise in the fields of design and media production. This problem of 'expertise extension' identified by H. M. Collins and Robert Evans (2002, 2007) acknowledges the need to extend the domain of technical decision making beyond the confines of a professionally qualified elite to include, for example, the 'experience-based expertise' of people that is not recognized by certification or professional standing. But Collins and Evans ask how do we then go about establishing grounds for limiting the extension of these decision-making rights (2002: 237)? We saw this issue of identifying the limits and boundaries of such rights in the 'design by committee' concerns raised by *Fury's* lead designer. Collins and Evans provide us with a starting point for undertaking this task by establishing the necessity of recognizing and categorizing different types of expertise. They then argue that it then becomes 'possible to begin to think about how different kinds of expertise combine in social life, and how they combine in technical decision-making' (2002: 251).

'Interactional expertise' and co-creative trading zones

In these contexts of asymmetrical co-creative expertise exchange the participants need to develop and use what Collins and Evans describe as '*interactional expertise*' (2002: 256; Collins 2004; Collins and Evans 2007). Defined as (Collins and Evans 2007a: 14) 'the ability to master the language of a specialist domain in the absence of practical competence', interactional

expertise is a translation role that facilitates and supports communication, dialogue and exchange across expertise domains. In developing this category of expertise, Collins draws on his experience as an ethnographer studying scientists researching gravitational waves. He argues that through this participatory engagement with the scientists over an extended period, he acquired competencies and communication skills that enabled him to contribute to discussions about the subject in a way that passes for expertise, although he does not possess the rigorous mathematical knowledge or core experimental skills required to participate fully in that domain of scientific research. Collins and Evans (2002, 2007) argue that this interactional expertise that often sits between and cuts across specific expertise domains is vital to the success of projects that involve collaboration across different expertise sub-groups.

Collins, Evans and Gorman (2007) have refined further this idea of interactional expertise by drawing on Peter Galison's (1997) term 'trading zone' to understand the exchanges and transactions that routinely occur in interdisciplinary scientific research across fields that may appear to be formally quite incommensurable. Galison emphasizes the need to address communication problems across these domains by developing 'in-between vocabularies' and 'inter-languages'. They identify the importance of interactional expertise to the successful development of trading zones as coordinating mechanisms. Collins, Evans and Gorman (2007: 662) assert that 'interactional expertise trading zones seem so widespread that it might be argued that it is the norm for new interdisciplinary work'.

Co-creative expertise can be understood then as a coordination or re-coordination problem that requires the use of interactional expertise to create and facilitate trading zones. But developing such interactional expertise is difficult and time consuming and project managers routinely underestimate its significance (Collins, Evans and Gorman 2007: 663–5; Collins and Evans 2007; also see Stark 2009: 192–4). In the case of *Fury* it is arguable that Auran failed to construct an effective trading zone that supported interchange and transactions across the differing skills that needed to combine to identify and solve the game's design problems. Interactional expertise is a skill that Auran undervalued to its cost.

The idea of a trading zone as a place where problems of coordination are resolved provides us with a useful starting point for understanding co-creative expertise and the problem of making co-creativity work fairly and effectively. But to develop this idea further it is necessary to acknowledge that the asymmetries and incommensurabilities shaping these co-creative trading zones will be very different from those evident in interdisciplinary science research projects. For a start co-creativity in the forms explored in this book blur relations between economic and cultural domains. Nevertheless, one

of the advantages of approaching this as a trading zone is that it helps us to avoid a static or oppositional face off between these domains and enables us to think about the dynamic relationships between them.

Co-creative expertise concerns how organizations and institutions are evolving, often disruptively and uncomfortably, in the context of these changing production and consumption relations. The significance of co-creative expertise is that it requires new ways of thinking about creativity and innovation as these processes are no longer the exclusive domain of specialist professional experts (von Hippel 2006; Hartley 2009). Innovation increasingly requires a collaborative exchange with users. Amateur and professional identities and motivations are both involved in the making of these co-creative relationships and they are not easily separated. The innovative potential and significance of co-creative culture is not just about the bottom-up practices of media consumers that disrupt the consumer-producer opposition. The more significant transformation is the dynamic and emergent relations between markets and non-markets, professionals and amateurs. Media products and platforms such as *Fury* and *Spore* are potentially sites of innovation because they are produced dynamically through the interconnected participation of *both* media professionals and consumers. What I am calling *co-creative expertise* concerns how these practices, both professional and amateur, are interacting and converging in new and disruptive ways.

6

Modelling co-creativity: A co-evolutionary approach (with Jason Potts)

‘How do you make this damned thing work?’

In a *Time Magazine* interview, ‘Getting rich off those who work for free’ (Fox 2007) Yochai Benkler asks, ‘How do you make this damned thing work?’ And he responds that co-creative relationships require ‘managing the marriage of money and non-money without making non-money feel like a sucker’. Transactions or exchanges play out across the boundaries of the commercial and the non-commercial. But what are the specific mechanisms of these dynamic exchanges?

Over the past decade or so we have entered the era of ‘consumer productivity’ where the networked agency of co-creative consumers, combined with the work of professionals employed by creative industry firms, increasingly contributes to the productivity of the entire system – a system in which economic and cultural values co-evolve. To grapple with the implications of these changing dynamics we need to move beyond structural and oppositional modes of analysis that consider a gain for one side as necessarily signalling exploitation and loss for the other. We need different models and theoretical frameworks for analysing and understanding co-creativity. In this final chapter we suggest one such model or framework: *multiple games* in the context of *social network markets* (Banks and Humphreys 2008; Potts et al. 2008; Banks and Potts 2010). At the core of the social network markets model is a conception of consumers linked through social networks as agents engaged in productive exchange and value creation, not just as recipients of utility through consumption. These agents are assessing and making deals,

they are exchanging money, attention, connectivity, content and ideas in conditions of uncertainty and risk (Hartley 2009).

In proposing this idea of social network markets, Potts et al. (2008: 169) propose that consumer choice in the creative industries is not governed by just the 'set of incentives described by conventional demand theory, but by the choices of others'. Social network markets then are fundamentally about 'individual choice in the context of a complex social system of other individual choice'. Coordination does not predominantly occur through price signals, as in mature markets, but through the social information signals of the behaviours of other agents. Auran's and Maxis's effort to integrate gamers throughout the development process recognizes that the commercial success of game titles relies on precisely such social network dynamics and transactions. We saw Tony Hilliam, Auran's CEO, and Lucy Bradshaw, Maxis's general manager, emphasizing the significance of what they call 'word of mouth'. This is therefore a *demand-driven* dynamic in which the agency and choices of creative citizen-consumers and their social networks are fundamental. For example, the purchase of a videogame and investment in its online social networks may be prompted by a group of fellow game enthusiasts that have recommended the title, or from positive reviews posted to fan forums by other gamers. These social network dynamics can clearly be seen playing out around the success of enterprises such as Facebook, YouTube (Burgess and Green 2009b) and Amazon.

In a critical survey of scholarly efforts to explain and theorize the emerging modes of agency in user-generated content, Jose van Dijck (2009; see also van Dijck and Nieborg 2009) carefully examines many of the assumptions implied in the ideas of participatory and co-creative cultures. She notes that we need to pay more attention to the 'different levels of participation' that comprises this user agency as it 'encompasses a range of different uses and agents, and it is extremely relevant to develop a more nuanced model for understanding its cultural complexity' (45–6). At moments her critique overreaches, for example, when asking, 'How valid is the claim that all users become "co-creators" or "produsers" of content?' (2009: 46). These ways of describing this emerging mode of agency can perhaps be criticized for overly valorizing productive activity but scholars such as Jenkins and Bruns certainly do not claim that *all users* are participating in these activities. But for all that van Dijck's (42) critique is well made – we most certainly need better models to grapple with the complexity of user agency. Graeme Turner (2009) also challenges that we need a 'reality check' on the more enthusiastic if not exuberant and optimistic responses to the changes associated with digital media. He suggests that many of the claims around social media and web 2.0 phenomenon broadly, from Twitter and Facebook through to videogames, are too often ahead of the evidence. We agree. We now need to figure out

the dynamics that are changing relations between the cultural and economic domains. Both Van Dijck's survey and Turner's critical assessment continue to maintain these domains as somewhat separate and opposed perspectives without suggesting how we should bring them together as we endeavour to develop more illuminating explanations and models. In conclusion van Dijck urges that we 'need more than singular disciplinary theories to help us understand the intricate relationships between social and technological agents' (54). She suggests that we need a 'multidisciplinary approach to user agency' that should 'yield a model that accounts for users' multiple roles, while concurrently accounting for technologies and site operators-owners as actors who steer user agency' (55). As we saw in Chapter 3 van Dijck's *The Culture of Connectivity* (2013) takes up this challenge by combining actor-network theory and political economy to develop an analytic model for elucidating how social media platforms construct sociality. She proposes an approach that focuses on the 'co-evolution of social media platforms and sociality in the context of a rising culture of connectivity' (van Dijck 2013: 28). The problem is that without a theory of evolutionary dynamics van Dijck falls short of this ambition and too often ends up stuck with oppositions between commercial and non-commercial domains. For example, very early in the book she argues that the organization of social exchange characterizing this culture of connectivity 'is staked in neoliberal economic principles. Connectivity derives from continuous pressure – both from peers and from technologies – to expand through competition and gain power through strategic alliances' (van Dijck 2013: 21). For van Dijck this is an 'ideology that values hierarchy, competition and winner-takes-all mindset' (2013: 21). This entrenched opposition between the commercial and non-commercial, markets and non-markets impedes analysis of co-evolving relationships. To understand these emerging forms of social exchange and how they are organized (a question that van Dijck's work powerfully foregrounds), we approach co-creative relations in terms of *co-evolving market and non-market contexts* to draw in the complex interrelationships between multiple contexts, incentives and motivations, and the emergence of markets and dynamics of institutions. This fundamentally involves a co-evolutionary dynamic of *both economic and cultural change*.

The problem of incentives and motivations

By using this language of market, transaction and choice are we reducing co-creativity to narrowly defined economic incentives and imperatives? Co-creative relations, we argue, are defined by contexts of *simultaneous* economic choice and cultural choice. Domains that are often characterized as

distinct and incommensurable are coming together in hybrid social network markets. The concept of choice that is at the core of the social network markets proposition does not necessarily imply a narrowly rational and utility maximizing economic agent. This 'individual choice' is also externalized and distributed through networks. Here the very capacity to choose and the agency exercised by such choice is made and distributed through the materiality of these networks. From this social network markets perspective then co-creative culture involves the emergence of new, unstable and disruptive market relations that include, although are not reducible to, the entrepreneurial agency of media consumers.

Research on co-creative relations often argues that these models of production are primarily based on non-market or non-pecuniary motivations (Lessig 2004; Benkler 2006, 2011; Quiggin 2006; Bruns 2008). This portrays a gift economy in which people work on projects because of their intrinsic motivations and communitarian spirit (Zeitlyn 2003). Benkler (2006: 19, 110–16), for example, argues that this new modality of organizing production does not rely on market signals, or indeed the market system, and that the value and innovation potential of these co-creation relations may indicate a genuine limit to the market that is emerging from the market itself. In explaining his theory of 'produsage', Bruns (2008) also tends to oppose these more communitarian principles of organization to those that dominate in the commercial and corporate spheres (although he does maintain that hierarchical, traditional models of industrial production are disrupted and acknowledges that there is a possibility of converting this social capital into employment outcomes). Benkler's analysis (2006) tends to be structured by an opposition between a social mode of production and the corporate, commercial or market domains. Burgess and Green (2009a: 13–14) also note Benkler's tendency to valorize emerging networks of non-market social production as a kind of nostalgic return to an imagined pre-industrial folk culture and then oppose them to the supposed passivity of twentieth century mass production popular culture. They argue that characterizing peer production networks 'as a renaissance of folk culture reproduces too simplistic a divide between the culture of the people and the culture of the mass media industries' (14; also see Zittrain 2008: 91–2).

Benkler (2006: 56) argues that a combination of excess capacity and democratic distribution of computing power, coupled with the public good nature of information and the modularity of problem-space, is ushering a revolution in which peer production and 'nonmarket behavior is becoming central to producing our information and cultural environment'. Benkler heralds this as a coming triumph of non-market over market production (also see Shirky 2010). Intrinsic motivations and incentives centred about identity and engagement, as shaped by social norms and institutions,

are viewed to underlie consumer co-creation. In this context, extrinsic motivation via prices, money and markets is assumed to operate *against* intrinsic motivations, either inhibiting or crowding them out (Zeitlyn 2003). Drawing on cooperative behaviour research, Benkler (2006, 2011) argues, for example, that attempts to monetize such participation can crowd-out intrinsic motivations to participate, implying that intrinsic and extrinsic motivations are non-fungible. Peer production is inherently non-market, he maintains, and will increasingly occur outside the ambit of firms as agents are presumed to participate for *either* market *or* non-market-based motivations. By drawing on recent research from the behavioural sciences, Benkler is correct that we are 'more cooperative and less selfish than most people believe' (2011, 77). He is also correct that such research in evolutionary biology, experimental economics and cognitive sciences show strong evidence of a predisposition to cooperate, demonstrating that trust, reciprocity and altruism are just as significant indicators about behaviour as assumptions that we are rational, self-interested agents calculating to maximize our material interests (Benkler 2011: 78–9). It is crucial that we question assumptions about self-interested rationality. But in all this Benkler tends to favour and privilege values of cooperation over what he calls self-interested rationality. He writes,

We need systems that rely on engagement, communication, and a sense of common purpose and identity. Most organizations would be better helping us to engage and embrace our collaborative, generous sentiments than assuming that we are driven purely by self-interest. In fact, systems based on self-interest, such as material rewards and punishments, often lead to less productivity than an approach oriented towards our social motivations. (2011: 79)

In developing this argument he refers to the work of Nobel laureate Elinor Ostrom, who has persuasively established that communities can develop norms and institutions to resolve the challenges of effectively self-governing common-pool resources. What Benkler takes from this is the idea that by working cooperatively from altruistic motivations, people can productively resolve such challenges. I return to Ostrom's work in this book's conclusion as she provides important insights for researching and understanding co-creative behaviours. Ostrom and colleagues establish that a narrow behavioural theory of human action assuming a rational choice, self-interested agent is only part of the story:

We need to recognize that what has come to be called rational-choice theory is instead one model in a family of models that is useful for conducting formal analyses of human decisions in highly structured, competitive

settings . . . It should be thought of as a model of human behavior when individuals face highly competitive settings and do not remain in the game unless they focus narrowly on benefits to self. (Poteete et al. 2010: 221)

Ostrom argues that our behavioural theory of human action needs to be more general, it needs to recognize that people act out of self-interest *and* act cooperatively. The deck we are playing from is not stacked with either self-interest options or cooperative, other-regarding behaviours. Viewing human behaviour as exclusively self-interested rationality is an impoverished perspective, but overemphasizing our other-regarding capacities may be just as impoverished. Although I agree with Benkler that there is value in foregrounding our other-regarding and cooperative behaviours, participants in social situations are often constantly considering and juggling the potential pay-offs from different combinations of actions. In the effort to foreground the significance of intrinsic incentives we need to take care not to overlook the continuing influence of self-interest and extrinsic incentives. We need multiple models of human behaviour and we need to consider the relations among them (Poteete et al. 2010: 222–5). In the case of the common pool resources contexts Ostrom studies, the social dilemma is that self-interest and other-regarding benefits are simultaneously in play. Her thesis is that norms and self-governing institutions can sometimes emerge through collective action to successfully generate sustainable and mutually beneficial outcomes.

It would be a mistake to settle for one model of human behaviour or assume we know what the payoff functions are in a particular situation (Poteete 2010: 222–3). We need to understand how participants negotiate these collective action situations. Benkler comments: ‘The challenge we face today is to build new models based on fresh assumptions about human behaviour that can help us design better systems’ (79). Benkler here points in the important direction of research in the fields of behavioural economics and the cognitive sciences more broadly about how we as humans make and exercise choices. This work includes Daniel Kahneman’s research, culminating with his recent *Thinking Fast and Slow* (2011) and Martin Nowak’s (2011) *Super Cooperators*. The designing better systems challenge that Benkler poses for me includes the organizational and workplace issues that I have raised in the previous few chapters. We must remember that these systems include workplace environments. But I agree with Benkler that illuminating these questions requires us to draw from recent findings in the behavioural and cognitive sciences about choice. The compelling finding emerging from Ostrom’s work, for example, is not simply about whether we humans are primarily cooperative or self-interested; instead, it concerns the nature of the social-learning systems through which we adapt and adopt norms for dealing with the dilemmas generated by the fact that we often act from multiple motivations and incentives. Ostrom’s

research demonstrates that these designs more than likely emerge through bottom-up, trial-and-error, social-learning practices among communities of participants. The successful systems, if we can call them that, are seldom built through central planning or top-down managerial dictates. So we agree with Benkler that we need better models and systems. But we also need to understand the behaviours and system dynamics through which this better emerges. When Benkler suggests that 'we can build efficient systems by relying on our better selves than optimizing for our worst' (2011: 80), he is clearly suggesting, that the better self is the altruistic and other-regarding, while the worst is the self-interested rational actor. This opposition may get in the way of understanding the system dynamics that can achieve the kinds of better outcomes Benkler is searching for. Furthermore, what is the nature of building and designing that Benkler proposes? What is the kind of efficiency he is looking for? This is somewhat unclear – is he proposing that through carefully planned design management we can come up with better solutions to these dilemmas and challenges? Benkler suggests that 'adaptability, creativity and innovativeness' are increasingly preconditions for organizations to thrive (2011: 85). He suggests that these qualities require people who do not focus on pay-offs and instead seek to 'learn, adapt, improve and deliver results for the organization' (85). But do we need systems designed around oppositions between extrinsic pay-offs and these other intrinsic values that Benkler extols. What if the very adaptability and learning he is searching for requires a dynamic relationship between these various values and incentives? I return to this important question in the conclusion.

Any consideration of the various dilemmas associated with building co-creativity for mutually beneficial outcomes must account for motivation and incentive diversity, including the significance of intrinsic and other-regarding incentives and preferences. Nevertheless, approaches such as Benkler's perhaps fail to recognize that co-creativity is generated precisely through dynamic and co-evolving relationships between the commercial and the non-commercial, involving *both* intrinsic and extrinsic motivations and incentives, rather than a face off between these domains in which one side 'wins' by gaining ground from the other. Indeed, the very incommensurabilities between these domains may be significant in how value is generated. This relates not only to how each provides conditions for the other, but in terms of how they transform into each other. Benkler recognizes this possibility (Benkler 2006: 122–7), but it is somewhat ancillary to his analysis rather than core. He comments, for example, that these relations might reshape the 'market conditions under which businesses operate' (126–7). Yet the market/non-market oppositional starting point detracts from exploring the full implications of Benkler's observation that firm and peer production networks are co-evolving and transforming market institutions.

The salient point introduced by the social network market model is that this is not a static or closed situation in which we can always clearly and definitively identify what the pay-offs are: market or non-market motivations, incentives or behaviours. Instead, these emergent co-creative practices potentially redefine our understandings of what markets are and how they operate in relation to social and cultural networks. These are markets because exchange occurs, but it is social connections and recommendations, access and attention that perform the coordinating function, not just price.

Attention economy dynamics

Auran's effort to involve and integrate the gamers throughout the development process recognizes that the commercial success of *Trainz* and *Fury* relies on social network dynamics and transactions. Will the *Fury* beta-testers recommend and endorse the game to fellow gamers. For example, a high point for the Auran community relations team occurred when a screenshot circulated through the online networks of competitive PvP guilds and websites showing a high-profile guild play-testing *Fury*. The point here was not that the screenshot portrayed the game's graphical splendour, but rather the screenshot was significant because it identified members of a high-profile guild supporting *Fury*. If this high-ranking guild were playing *Fury* then that alone may attract the attention and interest of other guilds. In one sense, this might just be considered word-of-mouth online viral marketing. However, the value of the screenshot draws on the credibility and status of those seen posing their avatars in the shot, as many other gamers recognize their skills and abilities as players. They are expert players with knowledge and understanding of videogame design and aesthetics – they know a good game when they play one, and can often carefully breakdown and articulate what makes for a quality game play experience. They possess a carefully honed game literacy and competency and other gamers rely on their opinions when making purchase decisions as well as decisions to commit their time to a beta-test process. In the language of Richard Lanham (2005: 17), gamers are 'acute and swift economists of attention'.

We also see these attention economy dynamics at work with Maxis's *Spore*. In an interview with me Maxis's Community Manager, Theresa Durringer, noted that as well as giving players' a tool to create with, *Spore* also provides them with a 'viewer base and communication tools, so they're sharing their stuff, commenting about it on forums, you know, so it's also about who's got the best creation. So there's a competitive edge to it that I think is really neat'. When I raised with Durringer the question of how Maxis benefits from the content created by the players, asking whether she thought

this was 'fair and equitable'. She responded that this was the players' choice. After a fairly lengthy pause she added, 'I'm trying to think of how I can articulate it like, that view just doesn't feel right to me. I think we're giving people the opportunity to create this stuff [pause].' She then went into some detail describing and elaborating on how the players' exercise this choice:

I think that we're offering people an opportunity and the currency that they have is fame, I mean we have celebrities within the *Spore* community and the pleasure of being recognised for your work . . . I mean we had one of the celebrity creators out here for a community day recently. I asked him how he got started with his amazing creations. He said 'you know I'm not a gamer as such. I hadn't gamed much, I made something and I checked my inbox you know and it had a couple of comments on it so I made something else and I had a bunch more comments and I thought hey people really like this, I'm going to make more because people are noticing it' and now he's one of the top with probably more than a thousand subscribers. Ummmm . . . and I don't feel like we're exploiting him, I think he's really getting a lot of value out of this experience . . . You know it is like marketing and its funny because I don't think there's necessarily one strategy. People are coming up with different approaches to getting their creations noticed and getting that attention. It's almost like the creativity that goes into making the creations and coming up with a new one. People are also making these creative strategies to get noticed and you know, once one's been done, everyone is doing it, you've then got to come up with the next one, another approach, so that you're still original and fresh. One thing that one of our leading player creators noticed very early on is that popular creations, the one's that rise to the top and get the attention, well they don't have a lot of parts on them, they don't have advanced parts, they're often fairly simple. They get seen by a lot of people because they come into your game when you haven't progressed very far. It is something to do with how our systems select what content, what items are selected to populate a player's world. He figured out how that worked and made his content so it was more likely to be selected and spawned into other players' worlds. So these other people make these amazing creations, but they've got tons of parts and so they're very advanced and therefore they don't get spawned into many players' games.

I interrupted to ask why was that. Durringer replied:

Well to get the more advanced content loaded into your game, you know from all the content available, you need to be fairly well advanced through the game, spent a lot of time playing it. Players have now got really smart

at keeping their creatures original and creative but without making them complicated at all. They might just use the more basic parts but then figure out ways to just play around with the form and shape of the spine to make something that stands out and gets noticed. So it gets into games because it isn't too complicated, but then it gets attention and voted to the top because it still is different. And they get considerably more viewership and so those players, well I really enjoy watching them rise to the top, you know tracking how they do it.

I commented: 'When you say tracking, what do you mean by that. I guess *Spore* and the uses players are making of it generate a lot of data. Do you use that for mapping and tracking what's happening in the community?' Durringer continued:

Yeah we do. We also surface some of those stats back to the community. We have *Spore.com* stats, which is our stats page. It shows whose got the most subscribers, what are the most popular *Spore* casts, what creations have been added to *Spore* casts the most. And then we also have internal stats that we can look at, like when we're trying to figure out why certain content or types of content is rising to the top, what's the recipe for success there. The stats help us track that . . . It's really interesting though following how all this changes as players work out new things with the game and tools. Like right now with the *Galactic Adventures* release, we're starting to see a change with how players promote their content. We're seeing a lot more movies.

I interrupt to ask, 'Like on YouTube you mean . . .'

Yeah exactly. People are starting to put together advertisements basically because the product that they're making with *Adventures* now requires more time. I mean before with the content it was just an item so you see it in an instant, you just need to look at a picture or preview it with the 3D viewer and you have a good idea about it. But now with *Adventures* it takes time to assess the value of the adventure, so people are trying to squish that value into a small video that will convey how awesome their adventure is going to be.

***Minecraft* – crafting co-creative culture**

These attention and signalling behaviours that Durringer describes so well can also be seen contributing to the popularity and success of the recent

videogame *Minecraft*. Independently developed by Markkus Persson, *Minecraft* is simply described on the website as:

a game about placing blocks to build anything you can imagine. At night monsters come out; make sure to build a shelter before that happens. (www.minecraft.net)

Immediately above that message is a popular player-created YouTube clip demonstrating what can be created or 'crafted' in the *Minecraft* game environment. As of early July 2011, the beta version had attracted over 10 million registered users and over 3 million online purchases. It had also garnered considerable online game press coverage with favourable if not glowing reviews. Writing on *cnet.com*, Rich Brown describes the game:

Against the backdrop of multimillion dollar AAA games and fun-yet-bite-size downloadable titles, indie game *Minecraft* is an aberration. The product of lone developer Markkus 'Notch' Persson, *Minecraft* has ancient-looking graphics, no plot, and generates massive, sandbox game worlds with seemingly infinite creative possibilities, but no clear instructions telling you what to do or how to get started. Despite that seemingly user-unfriendly formula, *Minecraft's* buzz is so strong the server hosting its Web site crashed this weekend under the weight of incoming traffic. Spend an hour with *Minecraft* (which can easily spiral into two or three) and you'll quickly understand the reason for the enthusiasm around this indie hit.¹

When playing *Minecraft*, you start as an avatar in a randomly generated world of rather rudimentary textured blocks. *Minecraft's* compelling game-play appeal certainly is not found in cutting-edge 3D graphic splendour. This game is no *Call of Duty Black Ops* in the graphics department, although the graphics do have a certain nostalgic charm. The environment is huge with an expanse of mountainous terrain bounded by water. At the start, though, you have no idea what to do. You start with no inventory and no clear way of interacting with the environment. There are no convenient non-player characters wandering by to tell you where to head or what your mission or quest goal may be, although you do notice blocky objects moving around that resemble chickens and sheep. So how do you learn to play this game and what is *Minecraft's* appeal? Why are so many gamers urging each other to play and indeed to purchase the beta version for €14.95 before the price increases to €20.00 when it reaches full-release stage in late 2011?

Players find *Minecraft* intriguing and compelling precisely because the game requires them to figure out by creatively experimenting with trial-and-error play what can be done in this 'sandbox' play environment. And they are finding

much of this out from each other. With a little wandering around and playful experimentation you quickly discover that you can gather various resources from the environment such as wood and coal. Then you discover that you can 'craft' (or combine these resources in various mixes) to create useful objects, including tools such as picks, shovels and hatchets. You use these tools to harvest further resources such as dirt, rocks and stone. Then the fun starts, because you're caught up in the creative joy of crafting your own *Minecraft* world. It quickly becomes apparent that you can terraform and craft the world to create quite elaborate structures. When you start out, the world has no artificial structures. But after many hours of making and constructing, you may have created elaborate castles or intricate below-ground mine complexes, complete with mine-cart systems for moving mined minerals.

Players figure out how to go about crafting in *Minecraft* by observing, imitating and learning from each other because some players are recording their *Minecraft* play sessions as a series of tutorial guides that explain how to survive in the *Minecraft* world, how to craft various tools, and how to get started with making various structures. The best and most popular of these, such as Halnicholas's 'Building mega-objects in *Minecraft*',² describe how to use its various capabilities ingeniously to make a replica of Star Trek's USS *Enterprise*. The point here is not to celebrate the individual creative genius of a player such as Halnicholas (although it can certainly be admitted). The social-learning argument is not simply that these *Minecraft* players are learning from each other through YouTube videos. That is obvious. The point is how they are *learning to learn*.

Tutorial series such as davidr64yt's 'Adventures in *Minecraft*',³ function as an entertaining videoblog journal of how he learnt to play. Episodes share with viewers various crafting opportunities and skills that he has discovered, and they regularly reference other players' 'Let's play *Minecraft*' YouTube videos. Indeed, these videos are such a significant part of playing and enjoying *Minecraft* that they are now featured on the official *Minecraft* community forum. Thus, the videos are clearly not ancillary to the game-play experience of *Minecraft*. They are core and fundamental. Indeed, it can be argued that these social network market initiatives drive *Minecraft*'s emerging commercial success. The most effective marketing initiative for this indie game includes players themselves making and spreading promotional videos. An example is Vareide's popular *Minecraft* fan-made trailer.⁴ Supported by a ripped soundtrack from the film *Inception*, this video has now received over 1.5 million views. I was first alerted to *Minecraft* via a Tweet linking to this video. Players also regularly comment on forums that they purchased and downloaded *Minecraft* after viewing a player-made 'Let's play *Minecraft*' YouTube video. *Geek.com* ran an article called 'If you are not playing *Minecraft* you will after watching these'.⁵ It features player-made *Minecraft* YouTube videos.

We are not seeking here to make a banal point about the success of a bottom-up, consumer-driven viral marketing campaign. Rather, our point is to foreground how players are learning from each other. The YouTube clips are not significant just because of the creativity or otherwise of their content, as for example the creativity involved in terraforming a *Minecraft* environment into the USS *Enterprise* or Hogwarts Castle. What's really significant is that players are *imitating and copying and adapting behaviours* about how to learn and how to collaborate through and in online networks. This is also the evolutionary, adaptive, social-learning mechanism through which the solutions that Benkler is searching for might emerge. The problem is this kind of evolutionary search mechanism is not necessarily 'efficient', in Benkler's terminology, although it may be effective, as we find solutions through adaptive trial-and-error processes that are often characterized by failures (Harford 2011). You can learn this quite quickly by playing games like *Minecraft*; a lot of my crafting experiments have been abject failures. But it is by experimental play with and through these failures that I figure out somewhat better solutions to the design challenges of the *Minecraft* environment. But even more helpfully, I search and find some of these adaptive possibilities by following and learning from what others are doing and have already discovered. *Minecraft* is a massively scaled, distributed, social-learning sandpit. In fact the solution to Benkler's question, 'how do we make this damn thing work', may well be by tolerating if not embracing a certain kind of 'inefficiency' that is needed to foster these trial-and-error adaptive experiments. We may need to just try out lots of things and combinations of things to figure out what works: precisely the kind of learning habits and competencies that the *Minecraft* gamers are exploring through their choices and behaviours. So co-creative culture is a massively distributed search process for exploring precisely the kinds of challenges and dilemmas that Benkler's question, ('how do you make this damn thing work?') poses? We co-create and co-craft the solutions.

Entrepreneurial co-creativity

The attention-seeking competitive and collaborative action that we see in games such as *Trainz*, *Spore* and *Minecraft* can be characterized as a type of consumer entrepreneurialism in that it is both creative and destructive. It creates knowledge, but these distributed networks of both professional and non-professional expertise also disrupt industrial-era modes of controlling and organizing cultural production. This entrepreneurialism introduces growth, dynamism and change, and this focus on the agency exercised by creative consumer-citizens requires us to analytically grapple with the processes

of origination, adoption and retention of knowledge that characterize entrepreneurship and economic evolution (Hartley 2009: 40).

The entrepreneurial character and value of this agency is evident in Auran's professional community relations managers working on the *Fury* project, or more precisely, in how they navigated social network markets to now occupy these positions. A key informant, Alex Weekes, developed and displayed his skills and competencies as an online community manager by participating in the competitive guild-based player versus player fan community forming around ArenaNet's MMOG *Guild Wars* series, published by NCsoft. Collaborating with a fellow gamer, Alex built and maintained a successful *Guild Wars* fan site – The Guild Hall. This started out as a fan-based non-market enthusiasm. The motivation, in Benkler's (2006) terms, then would appear at first glance to be non-market and non-financial. Alex's motivation to participate is to build and maintain his status or social standing with the PvP MMOG community. However, his online display of skills and abilities in building and managing online social networks also functioned as a signalling device within the context of the attention economy. Alex's ability to attract and retain the attention of other *Guild Wars* gamers was quickly noticed by business interests, as his interest in the fan site was eventually commercially bought out. In interviews, Alex stressed that at no point in the process of establishing the site did he envisage that it would become a business opportunity, or even for that matter a job. The commercial outcome was 'something of a surprise really, we didn't foresee that at all'. Here, enterprise opportunity emerged from passionate fandom. Alex's display of skills as a community manager running the fan site also attracted the interest of NCsoft, the publisher of *Guild Wars*, from which he eventually secured a job in the United Kingdom as a community relations manager. Auran then recruited Alex in mid-2007 to work on the *Fury* project. Similarly Dan Gray, employed as *Fury* community relations support, was an active and talented member of a high-profile *Guild Wars* PvP clan. He also attracted Auran's attention through his ability as a forum moderator for one of the more successful PvP MMOG fan sites. Auran's recruitment of both Alex and Dan recognizes and rewards the value of their skills and competencies as talented navigators of social network market relations. The user-creators who establish high-profile reputations in the community may later convert this into market opportunity by selling the content or turning the skills gained into jobs. In my interview with Maxis's Lucy Bradshaw, she also mentioned that creative and high-profile content-creators for *The Sims* games had gained employment in the games industry; the *Trainz* development team also included employees recruited from the fan content creator community.

In the case of *Trainz* the same actor sometimes shifted across motivational economies; some participants started out as hobbyists, tinkering with the *Trainz* tools, learning skills in 3D modelling, texturing, animation and

contributing to the open, peer sharing of content and ideas, then shifted towards more entrepreneurial practice. What initially started out as non-monetary practice sometimes developed into market behaviours or hybrid mixes of the two. What may initially be socially motivated behaviours, may well turn out to be also smart investments in potential and emerging markets. As these 'non-market' social networks interact and co-evolve with 'market' contexts, they may give rise to potential for-profit businesses in their own right, as well as instrumentally shaping the creation and development of markets themselves (see Malaby 2006). Participation in these co-creative networks may also be a future investment in developing skills, competencies and literacies to participate in these emerging markets. These skills and competencies may well eventually be traded for commercial outcomes – including jobs. Operating in conditions of significant uncertainty and from a diverse range of motivations actors are seeking opportunities to generate value. What the terms of exchange are, precisely what is being exchanged and what the regulating institutions and norms may be are still being worked through. This is not a static or closed situation in which we can clearly and precisely define what are market or non-market practices and behaviours. These practices are not simply being incorporated into existing stable market institutions but are potentially redefining what a market is and how it operates in relation to social networks.

In 'The entrepreneurial vlogger' (2009b) Jean Burgess and Joshua Green, for example, offer a compelling analysis of the practices of YouTube Vloggers as 'symptomatic of a changing media environment, but it is one where the practices and identities associated with cultural production and consumption, commercial and non-commercial enterprise, and professionalism and amateurism, interact and converge in new ways'. They argue that YouTube is disruptive as a co-creative culture 'because it is the site of dynamic and emergent relations between market and non-market, social and economic activity'. In conclusion they suggest that we should not separate or oppose the amateur and entrepreneurial uses of YouTube as they are 'coexistent and coevolving'.

Explaining co-creation: Markets or culture?

Co-creation poses various analytic challenges. Most obviously is the question of motivations to participate in such relationships, both by consumer co-creators and businesses, and the specific nature of the costs and benefits that accrue to each. As we have seen, there are two fairly distinct lines of recent analysis: either (1) viewing consumer co-creation as an extension of market exchange, and thus a product of incentives associated with existing institutions; or

(2) viewing consumer co-creation as the emergence of a new non-market model of production centred about socio-cultural explanations, such as altruistic and other-regarding preferences (Benkler 2006, 2011a, 2011b).

The first, broadly associated with economic explanations, centres about recognition that consumer co-creation is a voluntary (rational, incentivized and non-coercive) exchange. It is therefore axiomatic that both sides benefit, else the exchange would not take place (Johnson 2002; Lerner and Tirole 2002; Llanes 2007; Boldrin and Levine 2008). Labour signalling and learning-by-doing are presumed to be behind otherwise seemingly altruistic motivations (Lee et al. 2003; Mustonen 2003). This economic perspective emphasizes consumer co-creation not so much as a production relation, but as a voluntary *exchange relation* with often complex and subtle incentives and forms. These extend beyond labour and goods markets to include a more complex exchange of less tangible and fungible 'goods', such as reputation, opportunity, learning, recommendation and access (Lanham 2006). These in turn involve future labour markets and options over intellectual property that create additional incentives that mostly operate in 'shadow markets', such as markets for reputation, that may only be monetized indirectly, if at all, and are difficult to observe. For example, Alex Weekes did not set out to monetize his fandom; rather, that just happened. And the skills he gained in establishing and coordinating fan networks were not a deliberate strategy of human capital investment; it just turned out that way. But it is precisely such unintended outcomes from trial-and-error experimentation that you would expect in these contexts characterized by profound uncertainty. That they are unplanned does not mean that they are inconsequential. This 'shadow market' aspect is easily and often confused with non-market motivations and context.

Although these two perspectives arrive at very different analytic frameworks and thus explanatory mechanisms of consumer co-creation, they both hew to an exclusivist line of analysis: *either* consumer co-creation can be understood as a market-based exchange activity governed by extrinsic incentives, *or* it can be understood as a non-market cultural production governed by intrinsic incentives. It is implicit that only one of these explanations can be correct. Yet that does not fit the facts as outlined in this ethnographic research. A central finding was that complex motivations were often at work over multiple markets. These behaviours I describe as co-creative do not neatly fit a single, narrowly defined model of human behaviour. As Ostrom's work suggests, we need multiple models of human behaviour. Alex, for example, was able to monetize his contributions in secondary markets. This tends to point toward the market-based economic explanation. At the same time, there is considerable conflict between norms, expectations and institutions, all of which imply that cultural factors and emergent institutions also matter. As we

have seen throughout this study it would also be a mistake to assume that the participants (both amateurs and professionals) are acting primarily from commercial incentives. Of course intrinsic incentives and other-regarding preferences are prominent and often clash and contend with commercial imperatives. We do not deny this.

We therefore need an explanatory model of co-creation that seeks to integrate *both* market exchange explanations and cultural production explanations at once. But this framework does not simply add these explanations together, *mutatis mutandis*, but rather reframes both into a more general *co-evolutionary* analytic model in which economic and cultural factors are conceptualized in dynamic open relationship: each effects the other such that consumer co-creation emerges as an evolved process in respect of practices, identities, social norms, business models and institutions of *both* market-based extrinsically motivated exchange relations *and* culturally shaped intrinsically motivated production relations.

Co-evolving markets and culture

A co-evolutionary model of consumer co-creation is neither an economic analysis nor a cultural analysis per se, but employs both modes of explanation to account for the *dynamics* of consumer co-creation. This will then occur over multiple dimensions that include market outcomes, practice and identity, institutions, and so on. The central aspect of such a co-evolutionary analysis is that cultural factors (identity conceptions, received practices, the symbolic) affect the space of economic outcomes, and at the same time economic factors (implicit contracts, incentives, markets and business models) affect the space of cultural outcomes. This then sets up a dynamic *co-evolutionary process*, in which change in one affects the conditions of the other, which then adapts, in turn inducing a change that affects the other, causing it to adapt, and so on. The point is that this approach shifts the core of explanatory analysis to the study of the interactions between the economic and cultural domains and the nature of those interactions.

This leads to somewhat different perspectives that override the notion that consumer co-creation is fundamentally an exchange relation or a production context: *either* a market *or* a non-market context. Instead, both may be occurring simultaneously with analysis then focused on how they mutually affect and continuously transform each other. Further more, conceiving consumer co-creation in terms of social network markets also avoids assigning behaviour as *either* intrinsic socially motivated *or* extrinsic economically motivated, but instead allows a complex interaction between the two motivations and domains (Johnson 2002; Lanham 2006).

These choosing relationships and behaviours are also increasingly externalized; they are configured through the devices and materials constituting these networks and therefore framing incentives as intrinsic or choice as individual becomes somewhat problematic. To pursue the implications of the social network market model, our ideas of the choosing individual need to shift toward a more externalized and distributed understanding of cognition (Stark 2009: 20–3, 164, 187; Hermann-Pillath 2010). Drawing on the work of Edward Hutchins (1995), Latour (2005: 211) argues: ‘Cognitive abilities do not reside in “you” but are distributed throughout the formatted setting, which is not only made of localizers but also of many competence-building propositions, of many small intellectual technologies.’ This then starts to unsettle somewhat the idea of the individual agent that subtends Potts et al.’s original statement of the social network market idea; possibly in a rather different direction than the authors envisaged. The identity of the choosing agent and the nature of that identity are very much at stake in exploring the implications of a social network market approach. In fact, as David Stark (2009: 164–5) notes, such distributed cognition approaches unsettle ideas of choice because the kinds of ‘practical action’ exercised and enabled through these networks are difficult to reduce to individual choice.

Consumer co-creator agents can seek both economic opportunity *and* the social status and intrinsic rewards earned from participation in social networks as sophisticated navigators of the motivation spectrum of Lanham’s (2006) ‘attention economy’. Lanham (2006) argues that in the terrain of the ‘attention economy’, consumers now oscillate between the economic and the symbolic/cultural. Thus, far from being incommensurable and non-fungible, creative citizen-consumers now transact across these motivation and incentive domains, giving rise to new institutional forms about which both cultural and economic institutions then re-coordinate. This proposition though does not rule out continuing tensions and conflicts between these evaluative domains or even uncertainty about how these domains relate. We have seen these tensions and uncertainties or in Malaby’s (2007, 2009) terminology, ‘contrived contingencies’, at work throughout the ethnographic accounts that ground this study. In fact I argue that far from erasing such tensions, social network market dynamics rely on putting these tensions and frictions to work as they generate value.

Multiple games

Standard economic and social science models of human action increasingly allow complex motivations and incentives, but not complex contexts, for example, analysis of consumer co-creation is framed in either a market

exchange context or in a socio-cultural production context, but not both. It is of course entirely logical to decompose complex situations into, for instance, economic contexts that induce economic behavioural responses, and cultural contexts that induce cultural behavioural responses. This can be an important analytic and modelling heuristic. But the actual context of human action is rarely so neatly decomposable and commonly consists of situations of simultaneous multiple contexts that do not permit multiple actions (e.g. a separate economic action from a socio-cultural action) but require actions and indeed choices that play out across all contexts simultaneously: this is the context of a multiple game. Our argument is that consumer co-creation is a paradigmatic instance of a multiple game.⁶

David Stark's (2009) *The Sense of Dissonance: Accounts of Worth in Economic Life* is helpful for approaching this idea of simultaneous multiple evaluative contexts that is at the core of this multiple games model. An economic sociologist and ethnographer, Stark draws on four ethnographic studies of very different companies (so a comparative ethnographic approach) to develop a compelling proposal about innovation and entrepreneurship. He asks what counts as worth or value, and how do we evaluate that, in circumstances of quite profound uncertainty and overlapping valuation contexts; that is, the environments the organizations he studies are encountering and struggling with.

Stark's compelling thesis is that firms are perhaps, and in an evolutionary context at very least, better served by allowing multiple logics of worth and not discouraging the resulting exploration of uncertainty. He advises developing organizational forms ('heterarchy') to harness the benefits and opportunities of such 'dissonance' arising from these structural folds over value (cf. Burt's concept of structural holes) (17). He became interested in how the actions of agents in these firms were made possible by the uncertainty and that they were 'attempting to benefit, not from asserting or fixing their worth in one order, but by maintaining an ongoing ambiguity among the co-existing principles' (Stark 2009: xiii–xiv). Why? Because this dissonance became an opportunity for organizational reflexivity from the ongoing rivalries and disputes, which pointed to possibilities for entrepreneurship from exploration and recombination.

The kinds of agents and agency that emerge from Stark's account are those centred about search and navigation. He suggests a new kind of search in which 'you do not know what you are looking for but will recognise it when you find it' (Stark 2009: 1; also see 2–6). The innovation process and problem for Stark thus lie in trying to recognize what is not yet formulated as a category and to make new associations or connections (Potts 2000). Indeed, the fact that these opportunities and value propositions do not as yet comfortably fit received value categories (such as labour surplus value)

is precisely why we should not rush to close down such uncertainty with announcements that we know what it is, whether in the forms of free labour or democratizing media. Perplexing situations arise when there is uncertainty or 'principled disagreement' about what counts. Stark (2009) suggests that organizations and firms should endeavour to embrace such perplexing situations. I would add academic researchers to this list. Indeed, we should seek to generate them. It is interesting to note in passing that this formulation is very close to Malaby's (2009: 14) understanding of games as 'socially legitimate spaces for cultivating the unexpected'; he adds: 'They are places where the unexpected is supposed to happen.' The frictions generated should not be avoided or shut-down, as they generate a 'resourceful dissonance'. Stark explains:

Entrepreneurship, then, in this view exploits uncertainty. Not the property of an individual personality but, instead, the function of an organizational form, entrepreneurship is the ability to keep multiple principles of evaluation in play and to benefit from the productive friction. (Stark 2009: 6)

This perspective offers a distributed understanding of entrepreneurship, and of valuation more generally, requiring calculation practices in which various, multiple orders of worth have 'distinctive and incommensurable principles of equivalence' (Stark 2009: 12).

These are the distinctive grammars and logics that underpin rational action within orders of worth. This leads to a new understanding of cognitive action at work, not so much in terms of (internalist) cognitive limits to rationality, but rather in terms of an externalist rationality that calculates across particular (and often incommensurate) orders of worth. The results are plays of multiple games. As Stark puts it: 'Multiple principles of evaluation are at play.' Stark's point is that these multiple orders of worth do not so much set up a problem of individual choice under uncertainty, but rather are expressly engaged in 'creating uncertainty and therefore opening opportunities for action' (13). Stark calls this value conflict 'entrepreneurship at the overlap' (13–19). Briefly returning to the case study of Auran's *Fury* project, one of the mistakes contributing to the project's failure was management's effort to decide and settle the contending evaluative principles and resulting uncertainty among the community of co-creative players and the professional development team rather than approaching these frictions as a generative opportunity.

Stark is careful to distinguish this from probabilistic risk. Entrepreneurship is less a reward for risk and more a reward for 'an ability to exploit uncertainty'. He defines entrepreneurship, for example, as 'the ability to keep multiple evaluative principles in play and to exploit the resulting friction of their interplay' (2009: 15). Entrepreneurship exploits an indeterminate situation by

keeping open diverse performance criteria rather than by creating consensus about one set of rules. Entrepreneurship is disruptive and centred about feedback-driven recombination. The entrepreneur, in this view, is an insider to multiple games who is further engaged in the recombination of assets and positions to exploit these learning opportunities. Entrepreneurship then not so much at the gap of different evaluation orders, but emerging from the productive friction that disrupts identities and organizational norms. It 'makes possible the redefinition, redeployment, and recombination of resources. In short, entrepreneurship occurs not at the gap but through the generative friction at the overlap of evaluative frameworks' (Stark 2009: 19).

Evolutionary coordination and development takes place not despite but because of misunderstandings due to dissonance in overlapping value networks, or structural folds (Stark 2009: 191–3). Stark's 'situations', following the work of pragmatist philosopher John Dewey, are *complex contexts* that reflect the fact that the actual context of most human action is rarely neatly decomposable and commonly consists of situations of *simultaneous multiple contexts* that do not permit multiple actions targeted to isolated value domains but more-often require a single action or choice that plays out across all contexts simultaneously: this is a *multiple game*. Our argument is that co-creative relations are a paradigmatic instance of a multiple game.

Multiple games theory (Page and Bednar 2007) is a recent extension of game theory that analyses choice situations in which an individual agent uses a single strategy to interact in multiple conceptual spaces, or 'games', that are otherwise incommensurable. Standard game theory⁷ allows considerable complexity in the agents, strategies and rules of the game, but always supposes that only one game is being played. A multiple game differs in that a single strategy is played over multiple games, with each game representing a different set of rules, pay-offs and even players.⁸ Multiple games theory provides a model to address the notion that not only are there multiple contexts of action in consumer co-creation – such as intellectual property production, future labour market signalling, learning and feedback, equity stakes, cultural identity and opportunity, cultural participation, community norms – but also that these dimensions are fundamentally incommensurable. This is important, because were these dimensions commensurable then it would be possible to sum the costs and benefits associated with each dimension, appropriately weighted to reflect the agent's cultural and economic preferences, to arrive at a single rational choice or play.

Yet this is not what we see through this ethnographic research. My research participants often did not display evidence of neatly compartmentalizing different aspects of context and then resolving these into actions that reflected the various inherent trade-offs. Rather, they sometimes behaved as if these multiple contexts and distinct tensions were characteristic of the situations

and decisions they encountered. This is precisely what multiple games theory would predict, whereas a standard economic or cultural analysis would predict the opposite – namely that the various motivations would be experienced as distinct, and thus inherently conflicted.

Multiple games are what each of us plays every day when we make choices to act in and through the overlap of sometimes complex, conflicting and uncertain multiple environments. What may appear as an irrational choice in each dimension may nevertheless be evolutionarily rational in a multiple games context.

The overarching point is that this frames consumer co-creation as a context of institutional evolution over the populations of agents that are negotiating multiple games into action possibilities for mutual benefit against those who are not. In other words, this is not a context of opposed 'conflicted motivations' – for example market self-interest versus cultural participation – and irrespective of whether this plays out in a single person seeking to balance these conflicting objectives, or between groups representing each objective, like businesses versus the communitarians.

From the multiple games theory perspective this may not be a battle between two existing institutional modes of production, where the gain of one implies the loss of the other, but rather is an evolutionary process that pits new complex behaviours and emergent institutions against all older institutional forms. Again, this co-evolutionary dynamic is subtle, because if so, then this will also give rise to new non-market behaviours and institutions (e.g. co-creator cultural communities) that do not comfortably fit with extant categories as well as new market forms and institutions (e.g. reputation markets, networked business models).

We witness these co-evolutionary dynamics at work in the emergent identities associated with new institutions. Playing multiple games implies new professional identities that can coordinate and navigate these situations for mutual benefit. We may observe this, for example, in the evolution of occupations and professions, where as various skills and actions combine into new specializations they also express a new identity. The consumer co-creators in our study were often highly adept at developing such identity mechanisms and in reinforcing community norms. Remember that Weekes started out as an organizer of such community networks. In turn, problems consistently arose when there were failures to correctly identify agent types and relevant norms and expectations, that is, in distinguishing agents playing a multiple games strategy from those who were not (irrespective of whether it was a communitarian or a for-profit strategy). This was apparent in the late stage behaviour of Auran with the *Fury* project and the outrage it generated, as well as in the behaviour of other gamers when the game they thought they were playing changed. This highlights the potential for a cooperative system

of consumer co-creation to unravel very rapidly when other parties act in such a way as to, in effect, change the game they are playing.

Multiple games theory thus provides an analytic window into how complex and conflicting motivations and incentives are negotiated via institutional evolution that gives rise to new behavioural norms, cultural practices, identities, and even business models and market types. An exclusively economic or cultural analysis misses this co-evolutionary dimension. And although there will of course be instances where such co-evolutionary dynamics may be only second-order effects, co-creation illustrates the opposite, namely that sometimes such emergent dynamics are actually central to understanding the proper analytic context.

As companies seek to engage consumers as active co-creative participants, this in turn transforms consumers' expectations of how companies will participate and the terms and conditions of that participation. As consumers accept and act on these invitations they now demand levels of engagement, collaboration and participation that many companies are not comfortable with, or have not yet adapted appropriate business models with which to successfully engage.

Accounting for co-creative value

We have seen in comments throughout this book that many game developers acknowledge the value they gain from this co-creative ecology and, more importantly, demonstrate a growing sense that they are accountable for this exchange. Lucy Bradshaw for example commented in my discussions and interviews with her on what it might mean to 'respect' this contribution made by the players. This awareness is also prominent in my concluding interview with Will Wright. But what does such accountability mean and how should companies such as Auran and Maxis be held accountable for their relationships with the player communities?

T. L. Taylor (2006b) comments that the commercial success of MMOG such as Sony's *EverQuest* is significantly constituted through the contribution and activity of the players. If so, she asks:

Do users have any meaningful stake or say in what constitutes their game space? . . . What kinds of responsibilities might corporations be seen as holding when they are framed as the primary lifeworld managers for thousands of people on a daily basis? (129–30)

If we accept that worlds such as *EverQuest* and games such as *Trainz* and *Spore* and *Minecraft* are collectively and co-creatively constructed between

corporations and their player user-base, then do current intellectual property regimes and contractual arrangements provide a useful or equitable framework within which to understand and manage these relationships?

These relationships are currently formally governed and regulated largely through private contract law arrangements such as End User Licence Agreements (EULAs) and Terms of Service Agreements that are overwhelmingly drafted to protect the interests and minimize the developers' and publishers' exposure to risk. I am here heading in the direction of important governance and regulatory questions that are beyond the scope of this book (Humphreys 2005b, 2008, 2009; Suzor 2009, 2010). As a starting point, I suggest that accountability in this context would, as a minimum, require the developers and publishers to revisit current contractual and intellectual property instruments as well as their governance procedures and practices to ensure they more fairly and transparently recognize the nature of the co-creative relationship and the value these enterprises derive from the relationship. For example, Terms of Service agreements that simply stipulate publishers and platform owners can at their sole and absolute discretion exclude or remove users are just not good enough.

A pressing problem in all of this, as Stark (2009: 202–3) argues, is that these networked organizations and co-creative media practices generate new kinds of value-creating relationships and therefore new kinds of problems and dilemmas. And a central problem here is one of accountability. If the unit of action or agency is not the choosing individual or the firm but the network, then what does it mean to suggest that the network is in some sense accountable? As Beinhocker (2006: 267) suggests, it is all well and good to extol the benefits of non-zero sum games,

But for people to have an incentive to cooperate, they must receive some share of the spoils. How the gains of cooperation are divided up is therefore a crucial question. If the rewards are distributed in the wrong way, then cooperation collapses and the non-zero sum gains evaporate.

Here we are back with Benkler's question of 'how do you make this damn thing work'. We are experimenting with new ways of organizing and coordinating ourselves to create and share value, including knowledge. We are learning how to do this at rapidly growing scales that blur organizational boundaries and transform the established identities of both media professionals and consumers. This is at the heart of Benkler's work as well as central to the popular musings of Clay Shirky (2008, 2010). And I do not mean popular to be dismissive. Writers such as Shirky often identify and describe this rapidly changing landscape more astutely than do many academic researchers and critics. Shirky contributes thinking tools that arguably shape how media

professionals imagine and make for and through these co-creative networks. Such commentators' work is profoundly performative rather than merely descriptive. Dismissing the contribution that their work makes to this domain would be a mistake. Nevertheless, as I hope is clear throughout this book, I do not go so far as to suggest, as does Shirky (2008), that this is a 'power of organizing without organizations' (the subtitle from his book *Here Comes Everybody*). Instead, I suggest that some organizations, including certain types of firms and their associated project-based forms of coordinating cultural production, are morphing and changing. Certain kinds of organizations in certain kinds of contexts and places are changing. But they are still organizations. And they are organizations that seek to extract and harness the value of these co-creative relationships. Auran, Maxis and the other game developers featured in this study are organizations, firms, which are central to coordinating co-creative culture. Their highly skilled employed professionals contribute to the making and crafting of these relationships. Here I am pushing back somewhat at the tendency to valorize the bottom-up agency of consumers and users, which overlooks the extent to which much of this activity is mediated and supported by the diverse craft skills of professionals. As the Maxis senior producer commented: 'It's a trick'. Not a trick in the sense of deceiving or misleading, but a generative and creative trick that indeed does often result in genuinely innovative and valuable creativity from consumers and users. But back to the topic of organizations – we need better accounts of the kinds of organizations and modalities of organizing that are emerging. What is working and what is not working? Where are the successes and failure? What norms and criteria are emerging from the very midst of these dissonant organizational experiments for how we might go about judging what counts as working and success? How is the challenge of searching for non-zero sum outcomes resolved in the context of co-creative media making?

Following the evolutionary theory approach that orients much of this book, the response to these challenges will emerge through an adaptive, trial-and-error process. There will be failures. Firms and consumers will get it wrong as they search for those non-zero sum possibilities. Opportunistic zero-sum plays will most certainly feature such as aggressive rent-seeking behaviours. Some of these behaviours may well provide competitive advantage for a period while others will be punished as the participants share their learnings about more effective non-zero sum arrangements that better reward effective cooperation. Reciprocity, trust and self-interest will shape these collective actions. The participants are still figuring out the norms that may contribute to better outcomes. This is about emergent governance rather than prejudging what we think should and will work. We doubt that these solutions can be imposed in top-down, central planning fashion.

Whither markets?

Despite the language of a co-evolutionary dynamic between the cultural and commercial domains, are not these ideas of social network markets and multiple games just a slightly more sophisticated version of economic reductionism? Furthermore, by framing this ethnographic study with the social network markets model, do I not fall foul of the criticism that I have directed at others; namely, displacing participants' own sophisticated accounts with an overarching theory.

The ethnographic description and interview extracts are not just grist for the social network markets and multiple games model mill; this material provides plenty of recalcitrant grit to upset and disturb the smooth operations of any such model. But for all that we should not give up the challenge of searching for general principles and theory to explain this phenomenon. We therefore need to take a closer look at the status of this model.

Investigating co-creativity in terms of co-evolutionary dynamics is grounded by a concern with the problem and question of dynamics of cultural change. This is a non-reductive naturalist approach that seeks to understand cultural process through the lens of processes of variation, selection and retention – the fundamental principals of evolutionary theory (Hartley 2009; Hodgson and Knudsen 2010).⁹ From the perspective of evolutionary economics, markets are not primarily or only a mechanism for efficiently allocating resources. More importantly, writes Beinhocker (2006: 294), markets are evolutionary search mechanisms, effective at enabling 'innovation in disequilibrium'. From this perspective markets themselves are far from simply static institutions that operate to maintain equilibrium conditions; they evolve and dynamically change, and are often volatile and disruptive. This approach emphasizes that markets and market transactions are never just economic; they are entangled with social, cultural and technical conditions that make them possible (Callon 1998: 22–3; 2007: 315; also see Mackenzie 2006: 15–20).

Callon's (2007) idea of socio-technical *agencements* comes close to expressing the dynamic of social network markets. *Agencements* are combinations of heterogeneous elements that unsettle any sense of a divide between human agents and the things that are arranged: 'Agencements are arrangements endowed with the capacity of acting in different ways depending on their configuration' (Callon 2007: 320). In other words they give us the capacity to exercise choice. Callon's idea of *agencements* also emphasizes the performative contributions of the theories, hypothesis, and models that are seeking to describe and analyse these dynamics. Performativity though does not mean some kind of magical property of statements and models to cause to exist the reality to which the statement or model refers. It is far more pragmatic and gritty. We cannot create things from scratch simply because

we would like to; we work with the constraints and possibilities of materials that are ready to hand. Particular arrangements and configurations compete and align with others that would seek to unmake them. Callon reminds us that 'performativity is not about creating but about making happen' (2007: 327).

In considering various modes of market calculability Callon (2007: 344) is interested in how agents 'alternate between different framings, passing from one configuration of agencements to another'; he asks, "how can traders alternations between calculative and noncalculative agencements be analyzed and described' (347)? The idea of social network markets seeks to meet this challenge as it focuses on how these calculative and non-calculative agencements are 'mutually interwoven'. The key point is the simultaneity and co-evolutionary dynamics of both economic and cultural forces. And this is where we depart to some extent from Callon's agencements – we also want to understand and analyse the *mechanisms* that contribute to shaping these configuration of agencements. Our hypothesis is that this mechanism is evolutionary in the context of complex, adaptive systems.

The point is not to reduce social dynamics to their commercial and profit-driven outcomes. Economic forces are not necessarily in opposition to cultural forces, but rather both continually accommodate and adapt to each other. Economic systems co-evolve with cultural systems (and with technological systems and political systems, etc.). It is this co-evolutionary dynamic that gives rise to such emergent phenomena as consumer co-creation in the first place, and as it emerges and develops both economic and cultural systems will change and adapt further.

Consumer co-creation is thus not a context of social and participatory cultures on the one side, and the market and its individual rationality on the other. Rather, social network markets simultaneously engage both domains of motivations and coordinating institutions. Consumer co-creation occurs in this co-evolutionary space as self-organizing and adaptive systems. Yet this is a continually transforming space of new cultural practices, new business models and other institutions that govern and regulate these exchanges. These are still emerging and developing, aligning uneasily and sometimes abrasively with existing industrial media-era institutions, as was clearly observed in the travails of Auran and its interactions with its consumer co-creators in the absence of explicit institutions and with confusion about implicit institutions. Auran sometimes misunderstood not just the multiple games that it and its users were playing, but also the social network market context in which it was engaged. Multiple games and social network markets thus occur at the dynamic intersection of situations that simultaneously engage both economic and cultural contexts, motivations and institutions, a context that we think is exemplified by consumer co-creation. It is this process of combinatory mutual co-adaptation that we understand as co-evolution (Arthur 2009: 155).

We need to recognize that co-creative and social network market formations hold a wide range of benefits and value. These include (but are not limited to) economic innovation. Rather than being a zero-sum game where if companies derive economic benefit it negates social benefit to the users (and hence is couched in terms of exploitation), this is instead can be a cooperative and non-zero-sum game whereby different motivations, incentives, and value regimes co-exist. These emerging social network markets and multiple games are social practices through which we experiment and innovate with 'new ways to cooperate across larger and larger scales and devise new ways to play increasingly complex and profitable non-zero sum games' (Beinhocker 2006: 266). But we need a better understanding of the factors and conditions that contribute to both the successes and failures.

Further research into consumer co-creation in the context of digital media should aim to be a study of that co-evolutionary process through which we are learning to play such non-zero-sum games. Both multiple games and social network markets are proposed as key mechanisms in this process.

Conclusion: Crafting co-creative culture (in conversation with Will Wright)

The research for this book culminated with a visit in June 2009 to Will Wright's (co-founder of Maxis and designer of hit titles such as the *Sim City* series, *The Sims* series and *Spore*) then new company Stupid Fun Club. Describing Stupid Fun Club as an R&D lab for exploring the opportunities and potential of co-creative and cross-platform media, Wright emphasized that he does not have all the answers to the challenges and opportunities of co-creative media and that he is constantly surprised by the inventiveness of the gamers participating in these relationships. This sense of generous uncertainty, an openness to playfully exploring and experimenting with the possibilities and potential of co-creative media, came to the fore in the time that I spent with Wright. He also articulates important conceptual advances that we need to carefully consider. Game designers build theory about co-creative culture just as much as they make games.

After spending some time discussing the origins of his approach to games design and enabling players' creativity through *Sim City*, *The Sims* and *Spore*, Wright commented that his design philosophy understands these games or simulations as 'tools for people to build models within'. He then connected this with the hobbyist impulse to:

You know build things as a tool of self-expression, then you know to show off the outcomes as their performance. I grew up building models as a kid: a tank, an airplane, ship models. I got into robots and then that got me into computers and games. But you know, these things become artefacts of yourself when you invest that much time into something . . . These games as simulations or models I always thought of it more as a hobby, with the diverse skills people bring to it and so on. You know movies as a metaphor for this even if you're thinking more interactive movies, like Hollywood except better, doesn't really work. Especially with the communities that build around these, it's like model trains. People come with kind of different

areas of expertise. They get together and they kind of share, collaborate, that specialisation is actually a value to the community. This is a different mindset in terms of understanding it, we're not just building a game experience, we're kind of building a community, the game is the catalyst of the activities that the community forms around.

I asked Wright what he had learnt about that process of integrating the players with the production and design process:

Well first, making the tools more accessible and more entertaining. It isn't just you know give the players the tools so they customise the game. More and more it is having the tools become just as entertaining as the game. The artefact of the tool is itself the entertainment. Then there's the social dynamics once you've created the artefact. How the content the players' make flows and gets shared and then the recognition for it and the social currency flowing from that. It's the recognition within the community that is the pay-off. For some players you know this is the game, well at some point they hardly ever play the game at all, they spend all their time on the websites dealing with the community created content, looking up the ratings. You know from stats we see for some 90% of their time is spent interacting with the community and only ten percent in the game. So the game in some sense then is about the social side, the community.

Then you know for us, the designers and the developers, we know we've been successful when these communities come alive by surprising us. When the community does something that we didn't see coming and sometimes that can be something we don't really want to happen. They're these vibrant organic things and the essence of it is that the community is outside of our control. The stuff they do is astounding.

But the really cool thing is following how this spreads through the community. Like with *Spore*, when a player comes up with a really cool exploit, like taking advantage of some little bug they find, they would tag their content with a creature creator tip and then they would explain how they did it so somebody else could replicate it. So then all you need to do is go to the *Spore* site and type in creator tip and you get back this list of cool things that you can randomly learn and has been created by the community. So the players were really into that; they would go searching and learn the tricks from each other, they were accelerating their self-learning as a system and within two months they'd discovered all these things, you know, in years of testing that we'd never discovered. And then they'd be asking us to not to you know fix these bugs. And so we listen to them and don't fix them. But what impressed me here is not only how the players

pick up the tool and learned it but accelerated this process of self-learning you know way past where we thought they would.

Then that all raises a whole series of new questions and problems for us. It is growing exponentially, so how do you feed that beast [laughs]. It's like trying to feed a black hole. So you need to turn it back on itself you know so the things they're creating they're also consuming, they're consuming the output of their endeavours as opposed to us having to feed them. And that's the only way to do it because of the asymmetry between what we as a production team of a hundred or so people can do and what millions out there can do over the course of a week. A big aspect of it is coming up with the tools to give them to do that. The output from *Spore* with this, the share scale of the content made by the players, we were way of our estimates by several million. So we're dealing with these strange exponential relationships, it's a very non-linear system.

I asked Wright to discuss the tools and models he uses to think about and understand this emergent phenomenon:

[Laughs], well it depends on what you mean by understands don't you think? Well depending on what you're looking at and where you look there are a lot of paradigms for how you understand a system like that. Complexity theory and network theory seem to be two of the paradigms that are proving useful, that kind of work best for understanding what's going on here. These complex adaptive systems are inherently non-linear because they have a lot of internal feedback cycles you know, like the self-learning, then you get these run away snowball effects. And because they're adaptive, it makes them very difficult to design for because you're not quite sure what the adaptive feedback loops are going to be, you know they can go in a lot of different directions.

I then had a fascinating half hour or so discussion with Wright about how to understand and research these kinds of dynamics. He briefly mentioned the multi-agent modelling and simulation approach developed at the Santa Fe Institute for complex systems research:

The problem is that the nature of these systems resists predictive analysis. You can do descriptive analysis, you know, trying to describe the agents in these systems and sometimes from there get to know something about the dynamics, but predicting the behaviours and knowing what really is going on with the behaviours, you know that is extremely difficult. But we've done you know these simple little simulations of our community and the way its behaving, So in terms of what we're discussing we're then

modeling the community [laughs], you know using the kind of prototype models that we use when designing the game.

I asked Wright what value they got from these tools and modelling techniques:

Well, good question. For a start, as I said they're not predictive. They do help you to develop an intuition for the non-linear dynamics within that system. It gives you a way of looking at it as some rough guiding techniques and they can make you more responsive when something starts reaching that tipping point. It is kind of also about trying to figure out how to build into these systems trackers, chaotic trackers, I don't know . . . There are quite a few different approaches we can take here. I mean you have information theory that started with Shannon and you can analyse it from that perspective. Then there's a system dynamics point of view or a memetics point of view, network theory and so on. They help you capture some aspect of reality and some are more useful in certain situations but really these are all part of your toolkit and when you're doing an analysis on a complex system you kind of pull out the tools and look at it through the various lenses and every now and then one might all of a sudden give you a neat perspective, oh wait a second, I see this thing or we're about to maybe experience a snowball, runaway thing here. They're just different diagnostic instruments.

I asked Wright why he was so interested in these approaches and models:

Well for me if the games themselves are simulations or models of emerging systems that's the really interesting thing because then you need to think about how these systems start responding to layer behaviours and you get these loops happening between the system and how the player is interacting with it. That's the interesting direction as games as entertainment evolves because games are in the process of rapid diversification right now. This is the area though that really excites me, which I'm planning to pursue. One of the things that has come to define games as a form of interactive media and that I think will increasingly be the defining feature of interactive entertainment more generally is that well we have the ability to capture a lot of metrics about the players' behaviours. You know about their interests, their skills and their experiences with the game. We can then feed that back into the game and change the experience under the hood as they're playing, so in some sense the game can be evolved to fit the player. And that isn't yet in any other form of media and I think that will be the direction of interactive entertainment you know going into the future. Learning how to harness that, we're just kind of scratching the surface right now.

Some of the project's that we're working on right now here are about that but taking it out of this box we still call games and seeing what it might look like across the broader field of entertainment with films, television, social network sites, this [gesturing at his iPhone] and so on. This needs a lot of experimenting with though.

I asked Wright for his view on the proposition that by drawing so extensively on user-created content and user-metrics companies such as Maxis and EA were taking advantage of a form of free labour as an outsourcing and cost-reduction exercise:

Well all of this is optional and if it were onerous on the player they wouldn't bother doing it. Games are a discretionary form of entertainment so describing this as labour, well I really don't get it, I don't see it that way. We're giving them things they enjoy doing and they're paying us money for that. There's also the factor of all this content they're enjoying, the huge amounts of it, there's no way we could fund producing that in a viable way and they're also enjoying creating and sharing it. So it's hard for me to take that proposition seriously. The other aspect of your question, the cost savings. I think I mentioned that in interviews I've given before as you said. But there again does what we're doing here with the players creating and sharing all that content really make sense in these terms of cost savings and free labour? Realistically and economically there's no way we could supply that amount of content. But the other thing you asked about the privacy and surveillance issues associated with the player data that is generated, there's something there for sure. You know we need to think hard about how to give players themselves more control over that. The ownership of that information and the content the players are making is also a thornier issue. This is also about the whole DRM [Digital Rights Management] issue, you know a player can just take that cool creature, add a couple of little minor changes and then say that's my creature now and re-upload it. At the moment we have very little control over those what would you call them, editing rights? We do try to embed within the creatures, the content, a lineage of creators who have touched it or modified it in some way, so you can kind of track this.

I asked Wright to expand a little more on the DRM question as it had been particularly controversial in the case of *Spore*.

You know it's a thorny issue and there's a lot of grey between the two sides. And the grey zone is kind of challenging as well, there's not a smoothly descending ramp from those people that should in a sense enjoy the fruits of their labour and should have their intellectual property

protected over to where it is a totally remix culture and being able to take digital content and remix it however I want then send it back out into the world. It's where these views intersect that it gets really tricky. As players create more content and it becomes increasingly important to interactive entertainment that all starts interesting legal issues. Also do we owe them anything for creating the content that we are now distributing?

I responded, 'What do you think?'

I'm not sure, I think it is a give and take. If we're in a system like *Spore* where everybody has free access to everything. You know we're not charging every time you download a creature and keeping that money even though someone else made it. At the same time we are reaping the benefit of hundreds of millions of pieces of content. But then there is a cost of all that to us as well – the development costs and so on. And you know the entire player community also reaps the benefit from all that content.

You know my inclination on a lot of this is wait and see what emerges from the community self-learning dynamics I was talking about earlier. With *The Sims* we did see some players emerge who established these sites for aggregating content and monetising it. We kept out of that. The players then kind of self-policed it around issues and problems such as people taking and packaging content without permission of the creator and so on. This community learning is extraordinary – when you have these tens of thousands of people working through all this and how they're going to get attention for this, some of them are going to be very creative and very effective because it's this huge parallel exploration. When issues like these come up you know it might be around the economy, intellectual property rights, it might be political, well having ten thousand people freely trying ten thousand different things is far more likely to get results than relying on you know existing structures and institutions that are perhaps a little too rigid for handling these emerging dynamics. It's basically a kind of hive mind [laughs] and it can be used in a creative sense like *Spore*, many people making billions of things and also in terms of how they respond to a problem. It's amazing, it really is in some sense our first exposure to you know a meta-intelligence made up of thousands of people with all these tools and the information flows. Computers in this sense are not providing AI, they're not fundamentally recreating human intelligence, all they're doing is they're amplifying and connecting existing human intelligences. But what emerges from that is different so in some sense it is kind of like AIs, you know AIs made up of ten thousand people able to communicate and share information and ideas. We're starting to see the sorts of possibilities that opens. Computers are fundamentally really good

at collecting and harvesting human intelligence not recreating it. So with *Spore* the program and the technology in some ways isn't creative at all, it's harvesting the creativity of millions of players and reflecting it back to them. But then how do you enable people to use that at scale you know. That's now the challenge with *Spore*. In some ways the game is about half-done, we've got this huge amount of content. I think it might be the biggest database of 3D content in the world right now. The amount of content we ended up dealing with was really much larger than anticipated by quite a few orders of magnitude [laughs]. It's to the point, the scale of it I mean, that well I'm almost at a loss on how to utilise it. It has almost no indexing, you know we have rough categories and that's about it. Getting in there and indexing and finding different ways to access that data and present it in interesting ways – that would be a start. One of the things we did was open up the API with the database so anyone can actually request data and use it for different things. We're hoping the players will start showing some cool things they can do with that presenting that data and such. But you know it is still very much an experimental process.

Growing knowledge and co-creativity

Approached as an evolutionary process of adaptive change, co-creativity involves people originating and adopting new ideas by learning how to do new things and creatively experimenting with variations (Hartley 2009; Potts et al. 2008; Potts and Cunningham 2008). Co-creativity matters not simply as a source of creative content or even new ideas, but from its role in how the emerging identities and roles associated with these practices are adopted, adapted and retained (such as the transforming relationships between professional experts and amateurs). Social network markets and multiple-games model and describe co-creativity as social-learning dynamics and not just as the output of cultural products or the shifting of costs associated with these activities. This perspective then does not focus on co-creativity as a resource allocation problem. Instead, it asks us to consider the challenge of coordinating knowledge in the context of open and self-organizing systems in which adaptive learning behaviours and practices are crucial.

This is the fascination and excitement we see in the game developers' accounts of *how* the co-creative players are going about the activity of generating and sharing content and ideas. For example, how they are gaining attention for their content or how they lobby the developers for changes or how they share and extend their discoveries and learnings with other players. All of this may be part of a fundamental and profound evolution in how we grow knowledge.

In their study of YouTube, Jean Burgess and Joshua Green (2009a: 69–74) argue that the value of YouTube and why it matters is not measured just by the enormous repository of content but perhaps more significantly by the skills and competencies acquired and shared through participation in the YouTube co-creative culture. In Will Wright's terms this is emergent self-learning. Burgess and Green argue that approaching YouTube as a peer-learning platform involves how users share the technological and cultural competencies needed to navigate and innovate within this social network. These values and norms 'are collectively constructed, taught and learned as part of how the social network develops' (73–4). My earlier account of the P10 steam locomotive is fundamentally about how that digital object mediated such processes. Also, as we saw in that case and in the case of *Spore*, this process of collective action and learning is not simply about amateurs replacing media professionals, but how these identities and practices are co-evolving and re-coordinating. This is about the growth of knowledge and how we grow knowledge.

This is not a panglossian view of the changes and transformations associated with user-created content and user-led innovation. We need to pay close attention to the potential costs and risks associated with these changes, including the job losses and employment precarity that critics such as Andrew Ross draw to our attention. This dynamic understanding acknowledges the creative destruction and unintended consequences that flow from these changes.

We need to craft rigorous and robust understandings and models of how economic and cultural co-evolution shapes these co-creative relationships. As we have seen these processes are associated with much uncertainty, especially surrounding the rapidly changing relationships between professionals and amateurs. We can expect that established identities and institutions will be unsettled. Cultural and economic change interacts to generate new identities, ways of being, business models and learning practices. In the context of such irreducible uncertainty neither extravagant claims about the democratizing potential of co-creative culture nor critical dismissals get us all that far. We need analytical tools and models that combine the rich hermeneutic traditions of the humanities with evolutionary theory, and complex, adaptive system models to better understand the phenomena of co-creative culture and the associated practices of emergent social learning. As I put the finishing touches to this manuscript I read economist Tim Harford's (2011) latest popular work, *Adapt: Why Success Always Starts with Failure*. Harford's core premise is that as we confront increasingly unpredictable and complex problems that seem somewhat intractable to traditional models of expert opinion and analysis we must adapt. And Harford means adapt in a rigorously evolutionary sense. Like Arthur (2009), Harford adopts an evolutionary sciences perspective to suggest that in tackling such complex problems we must abandon our search for grand designs that provide comprehensive and centralized plans of action.

Our task as researchers is to describe and model and analyse the various institutional arrangements and norms that emerge to tackle and solve the various social dilemmas and problems associated with co-creative media production. Here we can learn from the work of Elinor Ostrom who was jointly awarded (with Oliver Williamson) the Nobel Prize in Economics in 2009. Her work on governance problems in the context of common-pool resources, the classic 'tragedy of the commons' problem expounded by Garrett Hardin (1968), establishes that institutions of coordination can evolve from bottom-up collective interactions and norms negotiated locally among the participants. As Potts and Earl (2010) note in their survey of Ostrom's work, 'Ostrom uses case studies and experiments to show how the governance problems of collective resources can be resolved through *ad hoc* bottom-up institutions of rule formulation' (2). In effect this is a self-organizing and emergent system of rules and norms that can resolve the social dilemmas associated with collective property (16). Co-creative relations involve both common-pool resources and proprietary, commercial interests. The dilemmas of how to coordinate across these differences may also be negotiated, if not resolved, through such bottom-up interactions rather than by the imposition of controls by top-down managerial or governance systems.

Adopting Ostrom's (2005) formulation, the challenge is to identify how these rules, understood as forms of 'collective action', develop through the various interactions among participants. We need to describe and analyse the forms of collective action that enable participants to negotiate the various dilemmas characterizing these situations. Understood as patterns of interactions and their outcomes, what are the 'action situations' through which 'individuals interact, exchange goods and services, solve problems, dominate one another, or fight (among the many things that individuals do)' (Poteete et al. 2010: 40). Ostrom (2005; also see Ostrom and Hess 2006) provides a general analytic framework of institutional analysis and development by combining the strengths of field-based comparative qualitative research case studies (including ethnographic) with the tools of micro-behavioural analysis such as game theory and agent-based modelling simulations and experiments to understand and analyse such 'action situations'.

The multiple game model offers propositions and hypothesis about how participants, especially at the micro-behavioural level, may be negotiating the dilemmas characterizing these situations. This model now needs to be tested and refined through further comparative research. But the driving problems or questions for me remain: how is it possible for participants (both professional and amateur) to act collectively through these forms of co-creative practice and organization for sustainable mutual benefit? How can we understand and identify the factors that contribute to creating situations where such forms of collaboration and cooperation are sustainable and successful? What are the conditions and relationships that influence the prospects for such successful

collective action? In what contexts and situations do the participants behave cooperatively to negotiate the dilemmas (which we call multiple games) that they confront? We need better tools and theories to help us ask and explore these questions about the social-ecological systems of co-creative culture.

This book does not present a finished general theory of collective action in the context of co-creative media production. But I think we have taken some steps in that direction. In all of this I am not proposing that co-creative relationships will necessarily be democratizing or empowering for the consumer participants or indeed for the professionals. Sometimes they are and sometimes they are not. The aim is to understand how the participants are negotiating and coordinating these emerging modes of collective action. Any optimism about the nature of these relationships must be tested through rigorous research. We need to unpack the specific mechanisms and processes, especially the micro-institutional variables, which shape these collective actions. But as the multiple-games approach suggests, we have to remain open on the questions of what these variables, behaviours and incentives are. We should not assume that our explanations can confidently rest on an understanding of the individual calculating their options and actions based on a particular type of pay-off function (be that intrinsic or extrinsic). The theoretical and empirical challenge of grappling with and explaining such phenomenon is far more uncertain and complex (Poteete et al. 2010: 220–21). Nevertheless, any approach that seeks to take up this challenge needs to be based on dynamics of distributed social learning and norm adoption. The task ahead is to advance our understanding of these forms of collective action by offering tools that simplify and allow general principles to be elucidated and tested (this is the theoretical endeavour) *while at the same time* allowing for complexity and contingency. As Poteete et al. (2010: 222) suggest, 'The weight of an explanation for cooperation in social dilemmas must lie both in general theory of human behavior *and* in specific characteristics of the microinstitutions they are in as they are embedded in a broader context.' This is the kind of dissonant research agenda that Stark (2009) also proposes, for example, by adopting a multiple methods and collaborative research initiative that combines ethnographic case study with social network analytics.

This book offers some initial steps in this direction of disciplinary and methodological cross-fertilization, especially through the collaborative work with evolutionary economist Jason Potts that informs the final chapter, but there is much work to be done to grow and share our knowledge about co-creative practices that may be in the process of evolving how we grow and share knowledge. It is very early days in this exciting endeavour and my hope is that we can craft a rigorous and generous, even playful, model of co-creative enquiry that will contribute to the making of our co-creative media cultures.

Notes

Introduction

- 1 Also see Banks (2007) for an earlier account of this convention and steam locomotive project. This ethnographic material and record has been significantly revised and rethought for the purpose of this book.

Chapter 1

- 1 Also see 27–9, where Hills discusses in some detail the ‘imagined subjectivities’ and moral dualism of good fan producer versus bad consumer that he argues has tended to shape academic research of fandom.
- 2 Hills adds: ‘It supposedly becomes the academic’s privilege and prerogative to decide upon the political worthiness of fan cultures and practices’ (13).
- 3 Jenkins (2003) comments that amateur digital film-making represents a third space between the commercial and non-commercial: ‘The *Star Wars* fan films discussed here represent a potentially important third space between the two. Shaped by the intersection between contemporary trends toward media convergence and participatory culture, these fan films are hybrid by nature – neither fully commercial nor fully alternative, existing as part of a grassroots dialogue with mass culture.’ Jenkins sees a conflict emerging between the participatory potentials of the new media technologies and an economic-legal culture, which increasingly asserts intellectual property rights to restrain, control and limit consumers’ rights to participation.

Chapter 2

- 1 Also see Dovey and Kennedy (2006: 125) for a detailed discussion of ‘Counter-Strike’ as a significant example of modding activity.
- 2 Also see Law (1992; 1994: 100–4).
- 3 See Law (1994: 12–14).
- 4 Law comments (1994: 101–2): ‘Agency, if it is anything, is a precarious achievement’. He adds that ‘agents are materially heterogeneous in character, and that translation is always a form of what is sometimes called ‘heterogeneous engineering’.

- 5 Also see Latour (1987: 103–44).
- 6 See Star and Giesemer (1989).
- 7 Law (2000b) expands on this conception of fluid objects. Also see Law (2004: 77–82).
- 8 A key argument advanced by Law (2002) in *Aircraft Stories*, building on Mol's work, is that object multiplicity and singularity are not an oppositional either/or relationship. The mode of fractionality that both Mol and Law are exploring is more a case of both/and; complex interferences that arise from the 'coherence of noncoherence' (116).
- 9 Manovich (2001: 258) notes that 'in new media the relation between production tools and media objects is one of continuity; in fact, it is often hard to establish the boundary between them'.
- 10 Manovich (2001: 41–2) comments that the 'logic of new media fits the logic of the postindustrial society, which values individuality over conformity . . . In a postindustrial society, every citizen can construct her own custom lifestyle and "select" her ideology from a large (but not infinite) number of choices. Rather than pushing the same objects/information to a mass audience, marketing now tries to target each individual separately. The logic of new media technology reflects this new social logic'.

Chapter 3

- 1 Suchman is drawing on Daniel Miller's 1998 study, *A Theory of Shopping*, in making these observations.
- 2 Also see Cavicchi, *Tramps Like Us* and Brooker, *Batman Unmasked* and 'Internet fandom and the continuing narratives of Star Wars, Blade Runner and Alien'.

Chapter 4

- 1 For a very different perspective on *Second Life* as a platform for co-creative relationships see van der Graaf (2009). In this recent PhD thesis van der Graaf captures the complex dynamics that shape the relationships between *Second Life*'s professional developers and the user base.
- 2 See the recent issue of *Theory, Culture and Society*, 25 (2008): 7–8, for a series of articles that discuss and analyse the ideas of precarious labour and immaterial labour in the context of cultural work. Rosalind Gill's and Andy Pratt's introductory article, 'In the social factory?: Immaterial labour, precariousness and cultural work', provides a helpful overview of recent debates surrounding these ideas.
- 3 Louvain posted to the thread: 'Somehow, this announcement makes me feel that the work of non-commercial content creators has suddenly been devalued and is being cast aside – despite the business advantages Auran may have gained from it.'

Chapter 6

- 1 R. Brown, (2010), 'Indie game *Minecraft* offers tense creative charm'. Online: http://news.cnet.com/8301-17938_105-20016964-1.html).
- 2 www.youtube.com/watch?v=kn2-d5a3r94&feature=related.
- 3 www.youtube.com/user/davidr64yt#g/c/E005D335B57338D1.
- 4 www.youtube.com/watch?v=FaMTedT6P0I.
- 5 www.geek.com/articles/games/if-you-are-not-playing-minecraft-you-will-20100920/.
- 6 Note 'game' as in mathematical 'game theory', that is, a context with a given strategy set and defined payoffs. That our subject matter is also videogames is unrelated to the formal meaning of a multiple game.
- 7 Formally, a game G is defined over N players, each with strategies S . A game is subject to pay-offs π and controlled by a set of rules. A game – $G = (N, S, \pi)$ – is the study of strategic interaction in which what is best for one player to do depends upon what other players do, and vice versa.
- 8 The idea of multiple games theory was first proposed by Long (1958) and then Bowles and Gintis (1986). In the Page and Bednar (2007) model of games theory, the rationale for a multiple game is an extension of bounded rationality (Conlisk 1996) to suppose that strategies are costly to construct (or compute) and so playing the same strategy in multiple games is a form of satisficing (Miller and Page 2007).
- 9 On this topic of applying a non-reductive evolutionary sciences approach to understanding the social and cultural domains, see Carsten Herrmann-Pillath (2010); Geoffrey M. Hodgson and Thorbjorn Knudsen (2010); Brian Boyd (2009).

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