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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 "producers" 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 Beinhooker (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.