Policy, productivity, passion and piracy: Drawing lines around innovation in a knowledge-based economy

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Introduction

'Innovation', the Department for Innovation, Universities and Skills (DIUS) White Paper *Innovation Nation* states, 'is essential to the UK's future economic prosperity and quality of life' (2008, p.3). This paper explores the connections and tensions between the concept of innovation as it is stated in a range of UK government policy reports and the lived practices of user-innovation.

The UK government policy on innovation, as it is intricately bound up with creativity and knowledge, will be the focus of the first section. Here, I introduce a range of policy reports that discuss a shift from an industrial-based society to a knowledge-based economy (KBE) and the shifting emphasis on the economic importance of putting creativity to work. Of particular importance are notions of co-production and user-innovation in which the activities and engagements by consumers with a range of technologies are identified as being economically significant. *Second Life*, *Facebook* and *YouTube* are web-based applications that enable users to share and collaborate. In providing to users opportunities usually reserved to media producers and acting as catalysts for rethinking how producers and users interact, they are held up as examples of how 'co-production lies at the heart of the knowledge economy' (Work Foundation 2007, p.17).

Section two will trace the connections and tensions between notions of innovation as employed and deployed within contemporary government policy and the practices and engagements identifiable with consumers and users. David Buckingham (2007, p. 29) suggests 'policy is both productive and coercive: it constrains the kinds of activity that can be carried out, but it also brings new practices into being'. In tracing the tensions between policy vision and strategy and personal practices and passions around user-creativity and media technologies, this article will argue that the emphasis on constraining activities and facilitating certain new practices is unsettled by a range of continually emerging practices.

The third section will illustrate this tension with examples of modifying and hacking media technologies including DVDs and digital games. The forms of innovation and user-creativity heralded as being of central importance to the UK's economic prosperity cannot be reduced and confined to the instrumentally mapped forms of participation and engagement framed in policy. For instance, 'hacking' as a form of user-innovation when bound up with piracy highlights that user-innovation can include unforeseen practices that contradict or unsettle instrumental accounts of user-innovation's role within a KBE. Ultimately, this article will argue that the personal practices and passions of innovation cannot be reduced to or constrained by instrumental definitions and framings, and in this respect they highlight the very limits of the KBE policy vision of innovation.

Part One: Policy and a nation of innovation

Innovation is a term that appears throughout a range of policy reports discussing the variously named KBE, new economy, creative

economy, network society and so on. In taking policy reports as objects of analysis, I would echo Sebastian Olma's (2007) suggestion to be wary of the 'transformation of critical analysis into an exercise in recording statements found in policy reports, government websites and the like'. Rather, it is the profound contrasts and tensions between policy statements and approaches on innovation, and diverse, everyday practices of innovation that necessitates a movement away from an exclusively and narrowly focused analysis of policy statements. It is in the mess and idiosyncrasies of the everyday that I suggest the framings of policy may be best tackled. This section first introduces innovation broadly before considering user-innovation as a particular aspect of this and how user-innovation is framed by policy and enrolled through intellectual property.

Broadly speaking, in contemporary policy accounts innovation is closely entwined with notions of creativity as part of the shift from an industrial economy to the KBE. Philip Schlesinger (2007) has noted how these two terms have been invoked within New Labour discourse to shape working practices and to foster national economic competitiveness. Recognising this echoes Buckingham's comments that policy is productive and as Paul du Gay (2007, p.152) suggests, 'epochal schemas have considerable intuitive appeal' and the 'stark disjunctures and oppositions they deploy offer an easily graspable narrative that can act as a catalyst for "transformation"'. Indeed, as Jessop notes:

> The KBE has emerged as an increasingly dominant and hegemonic discourse providing the framework for broader struggles over political, intellectual and moral leadership on various scales as well as over more concrete fields of technical and economic reform (Jessop 2005, p. 152)

The KBE economic strategy unfolds within policy and is orientated towards establishing and cementing its validity and reach with creativity and innovation as two key concepts at the core.

The overlaps between creativity and innovation are mapped out in the *Cox Review of Creativity in Business: building on the UK's strengths* expanded definition, pointing to 'innovation' as 'new ways of doing business':

> *'Innovation'* is the successful exploitation of new ideas. It is the process that carries them through to new products, new services, new ways of running the business or even new ways of doing business (George Cox 2005, p.2)

Creativity and innovation within this policy discourse refer respectively to the processes of creating and exploiting ideas. The 2006 Department of Trade and Industry authored report, *Succeeding Through Innovation,* makes clear the importance of the 'successful exploitation of new ideas' for business survivability and increasing profits, and offers 'six approaches to innovation' to achieve these ends. A further take on the interrelation of innovation and creativity come from the previously mentioned DIUS White Paper *Innovation Nation*:

> Government has consistently used one definition of innovation: "the successful exploitation of new ideas". This recognises the importance of the creative spark, new knowledge and new ways of thinking (DIUS 2008, p.12)

Distinctive and significant from this account is the idea of the creative spark. The creative spark is crucial to the KBE strategy and what UK Prime Minister Gordon Brown seems to be identifying and emphasising when he states that 'creativity is at the heart of British culture – a defining feature of our national identity' (cited in DCMS

2008, p.1). He goes on to state 'I am enormously proud of the talented people in this country' (cited in DCMS 2008, p.1). There is a continual interweaving of broad structural concepts such KBE, creativity, and innovation, and the individual and 'talent' in framing the creative industries KBE strategy. The importance of individuals' energies comes through strongly in comments from DIUS also:

> The UK's capacity to unlock and harness the talent, energy, and imagination of all individuals is crucial to making innovation stronger and more sustainable (DIUS 2008, p.58)

This is an issue that could be pursued in terms of personal development, the importance of equipping people with the right skills to contribute to the economy and 'talent pathways' (see DCMS, 2008). I focus here, rather, on the potential contributions to creativity and innovation of one particular category of individual, the user or consumer, within the creative industries as a specific KBE vision or strategy.

'Historically', the DIUS (2008, p.15) White Paper states, 'users have been responsible for many important innovations including the first heart-lung machine and the World Wide Web'. Identifying user-innovations is part of the policy move to unlock and harness innovation wherever it may be found, and to ensure it may be productively channelled to contribute to the UK's economic prosperity. The Work Foundation report draws on Hippel's *Democratising Innovation* in which he explains, 'innovation is being democratised […] users of products and services – both firms and individual consumers – are increasingly able to innovate for themselves' (Hippel 2005, p.1). To illustrate this point, the Work Foundation report cites Lawrence Lessig:

> Lawrence Lessig differentiates between today's adults,
> who consume culture that is offered essentially top-down,
> and children, who "increasingly understand culture as
> something they make, or something they remake and
> remix and remake, something that they get and through
> the tools of this technology, recreate" (Work Foundation
> 2007, p.75)

In making a policy-case for the importance of the creative industries as part of the KBE strategy, the Work Foundation report offers as evidence Lessig's 2004 overview of remix culture and user-creativity. Section two develops this discussion of remix culture and offers examples of practices of user-creativity and user-innovation. The emphasis on practices of remixing within a report geared towards exploring economic performance is the key tension animating this paper. It is by engaging with the wider context of Lessig's comment that a hugely revealing rupture emerges between the policy approach to user-innovation and some of the material practices and motivations around 'remix culture'. This rupture is clearly apparent in terms of Intellectual Property Rights (IPR). A detailed account of IPR is well beyond the scope of this article and the point to stress is how IPR are the bedrock of the KBE strategy. IPR enrol user-innovations within existing patterns of ownership, but in turn these user practices and forms of user-innovation can be in a contradictory relationship with IPR.

The importance of IPR to the KBE is explicitly stated in the definition of the creative industries. The 'creative industries' is a translation of the KBE strategy and, as pointed out, 'creativity' is determined as a core element within a KBE. The creative industries are those that are based on 'individual creativity, skill and talent' and that 'have the potential to create wealth and jobs through developing

and exploiting intellectual property' (Creative Industries Task Force 2001, p.5). Intellectual property is also identified as key in the National Endowment for Science, Technology and the Arts (NESTA) *Creating Growth* report for the capacity of creative businesses to focus on innovation and 'marry commercial imperatives with creative development, rather than focusing on the later to the effective conclusion of the former' (NESTA 2006, p.29). The caution not to overlook commercial imperatives over creative development is part of the tension between the priorities made in policy on innovation, and the potentially very different personal motivations underpinning a range of forms of user-innovation. Specifically in terms of innovation, the recognition of commercial imperatives comes with 'innovating in terms of business models, access to and relationships with customers, [and] awareness and exploitation of intellectual property' (NESTA 2006, p.29). Both these policy accounts outline that intellectual property is crucial for innovation or, to recall Cox (2005, p.2), 'new ways of doing business'.

In turn for Lessig, the concern to protect IPR can lead to constraints that inhibit forms of remix culture – the possibilities for remaking and remixing culture. For Lesssig, 'creators [t]here and everywhere are always and at all times building upon creativity that went before and that surrounds them now' (2004, p.29). He emphasizes the role of digital technologies in this and offers as illustration the re-workings of video and television by video jockeys into collages. However, the potential to use existing media content is impeded by Digital Rights Management (DRM) – a strategy employed by copyright holders to maintain control over what may be done with their copyrighted materials. On this, in comments

unsurprisingly not included in the Work Foundation policy report give the case for IPR the report attempts to make, Lessig (2005, p.6) states that 'DRM abridges our personal freedoms' and DRM technologies fundamentally inhibit more than playback, they 'inhibit cultural transmission'. DRM technologies are increasingly shaping the possibilities of how one may use media content and the potential for user-creativity and -innovation.

Part Two: Productivity and scripting user-innovation

Remix culture and practices in which users recreate and remake existing media texts such as films and television programmes are intimately part of the broader currents around user-creativity and user-innovation. The following comments from Henry Jenkins illustrate this in bringing together *sampling* dialogue and *creating* original fan fiction:

> Fans of a popular television series may sample dialogue, summarize episodes, debate subtexts, create original fan fiction, record their own soundtracks, make their own movies – and distribute all of this worldwide via the internet (Jenkins 2004, p.34)

A further illustration of practices of user-creativity comes with the 2006 *Time Magazine* article which told its readers that they were its 'person of the year' and went on to describe:

> We didn't just watch, we also worked. Like crazy. We made Facebook profiles and Second Life avatars and reviewed books at Amazon and recorded podcasts. We blogged about our candidates losing and wrote songs about getting dumped. We camcordered bombing runs and built open-source software (Grossman 2006)

Underpinned by increasing access to the World Wide Web via high-speed broadband connections, the age of 'Web 2.0' described here is caught up with an explosion in user-creativity and according to a 2005 report by the Pew Internet and American Life project '"more than one-half of all American teens could be considered media creators"' (cited by Jenkins 2006, p.6). These are the activities that the Work Foundation report identifies in terms of increasing personalisation in consumption and the energies and passions that can be harnessed to contribute to economic growth. Practices such as creating *Second Life* avatars and *Facebook* profiles are held out as unique expressions of creativity that emerge in interaction with digital technologies. In turn though, I would highlight the crucial differences between forms of user-creativity that are scripted and facilitated strategies and those that emerge beyond this. This is a key distinction that is best illustrated.

For Lev Manovich (2001, p.245) the digital game *Doom* (id Software, 1993) exemplified a particular cultural economy that "that transcended the usual relationship between producers and consumers". The release of *Doom* WADs – package files that contain sprites, levels and game data for games in the *Doom* series – in December 1993 is an early example of technically literate gamers being given the opportunity to employ their skills to modify or further develop a game. Modding here refers to practices in which a digital game is altered or 'modified' through adding and/or changing elements of that game such as levels and characters. As Manovich (2001, p.245) describes, 'the producers define the basic structure of an object, and release a few examples as well as tools to allow consumers to build their own versions, to be shared with other consumers'. As such, when games include editors allowing players to

modify games it should be no surprise that these will be used to develop new levels, characters and so on. Access to editing software allowed with *Doom* was a pioneering step. A well-known frequently cited instance of the success of game modification was by Minh Le and Jesse Cliffe of the Valve software first person shooter game *Half Life* (Valve Software, 1998). Le and Cliffe developed *Counter-Strike*, a modification that transformed the popular *Half Life* game through creating a terrorist/counter-terrorist appearance and team-orientated gameplay. Particularly notable is the esteem with which the *Counter-Strike* modification was held by Valve and that Le and Cliffe were offered employment with Valve. Increasingly, the release of tools to allow modification and the exploration of user-creativity is a commercially scripted business strategy facilitated by commercial games developers. In this respect, the potential for users and consumers to create is bounded by a distinct concept of innovation in which the focus is on commercial imperatives, new ways of doing business and the exploitation of intellectual property.

Continuing with examples from digital gaming and modding, Jon Dovey & Helen Kennedy (2006, p.134) suggest that whilst game modifications will produce new legal relationships between consumers and producers, these relationships 'are *not* the precondition for a utopian democratization of creativity – they still exist within the prevailing economic nexus'. The prevailing economic nexus is what the 2006 NESTA *Creating Growth* report stresses in emphasising that creative businesses need to innovate in business models, relationships with customers and intellectual property. The interactions between user-innovators or modders such as Le and Cliffe, and games developers and publishers offer revealing instances of innovation as news ways of doing business. For example,

as these modifications extend the shelf-life of a game by offering new levels to play they become 'revenue when the tools to do it are only available with licensed versions' (Dovey & Kennedy 2006, p.134). The importance of licensed versions controlling access to tools is an example of an IPR mechanism or arrangement. The priority and concern is to facilitate creativity and innovation whilst at the same time ensuring the potential for the exploitation of intellectual property. For instance, in terms of the End User Licence Agreement (EULA), game manufacturers retain the rights over any modifications developed. In this respect forms of user-creativity and user-innovation are encouraged and at the same time enrolled within intellectual property arrangements. A further aspect of the channelling of user-innovation is in terms of the users themselves. In a trend that resonates with the *Innovation Nation* suggestions to harness user talent and skills, digital game modders are equipping themselves with games industry-relevant skills and thus reducing some of the training investments game developers may need to undertake.   Innovation, as concerned with 'new ways of doing business', is continually derived from and configured by, as *Counter-Strike* illustrates, forms of experimentation and the emergent practices of modders. Game columnist J.C. Herz cites the depiction by Sony's Phil Harrison of gaming technology as creating a:

> "virtual community" of collaborative digital production, marking a return to the "golden age of video game development, which was at home, on your own with a couple of friends, designing a game yourself" (Herz1998, p.1)

In response Herz suggest 'thousands of bright bulbs have essentially become Sony's junior development community', and whilst Harrison argues for radical new forms of creativity breaking business

conventions, for Herz 'these radically new forms of creativity will be Sony products' (Herz 1998, p.2). Herz further suggests that:

> Radical creativity is good, as long as it can be contained. Rogues ideas are necessary, but they must be incorporated into a carefully orchestrated product release schedule (Herz 1998, p.2)

Innovation, following the Cox quote and in light of the above comments, is bound up with new ways of 'doing business' attentive to existing investments.

In contrast to the forms of scripted and commercially organised forms of user-creativity, there are diverse activities and practices underpinned by different passions and motivations. As Mirko Tobias Schäfer (2004, p.195) suggests, 'one basic assumption of cultural production in the digital age has to be that every product using computer technology is open to modification'. In the following section, modification is explored as a form of hacking. We have seen how modification is a form of remix culture in that digital games as cultural texts are reworked. Now modification and the desire to 'get inside the box' will be considered in contrast to forms of scripted user-creativity that are primarily concerned with prevailing commercial concerns and investments. Attending to these alternative practices and ways of being of technologies is extremely revealing for unpacking the instrumental framing of innovation in policy.

Part Three: Passion and piracy

In the following, comments on digital gaming and a brief case-study in relation to the Digital Versatile Disc (DVD) are offered to explore forms of user–creativity and –innovation to contrast tensions between 'new ways of being with technologies' and 'new ways of doing

business'. The term 'ways of being', whilst potentially vague, is intended to signal a direct connection with the policy phrase 'ways of doing business' as employed in KBE discourse.

Technology critic and essayist for the BBC Bill Thompson (2008) in his discussion of the Nintendo Wii console notes the efforts by Nintendo to make it 'difficult to get inside the Wii for fear that easy access would allow games to be copied and distributed'. These efforts are analogous to the forms of DRM discussed earlier. In relation to these controls, Thompson (2008) notes the response of 'gifted programmers and engineers […] to find and exploit the holes in the Wii's setup that could allow access to its inner workings'. Thompson makes a distinction between the efforts of what he terms 'true hackers' and those who aim to pirate games. The category 'true hackers' points to a particular understanding of hacking in which the principal interest is with 'how things work' and the motivation is to 'exploit the capabilities of the hardware to the full' (Thompson 2008). An interest in 'how things work' can also be seen as motivating forms of modding. Wagner James Au offers the following commentary on Ben Morris, the creator of the level editor *Worldcraft* (now Valve Hammer Editor): 'for Morris, making *Worldcraft* was an end in itself' and 'he wasn't even all that interested in using the editor he'd created to make his own levels' (Au 2002, p.3).

Care must be taken in both approaching the hacker identity as an almost mythological figure with dominant histories and discourses (see Dovey & Kennedy 2007) and in recognising the nuances of modding (see David Nieborg & Shenja van der Graff 2008). This said, I suggest the motivations and interests broadly identified as hacking and modding are quite distinct and divergent from user-creativity as a pre-packaged and readily available form of engagement

with media technologies. The sense of user–innovation here is more concerned with experimenting with technologies than putting innovation to work as a business strategy. This is a form of innovation that policy on innovation recognises and encourages insofar as it is can be channelled and is complicit with IPR and KBE strategy. Moreover then, and noting Thompson's comments on the desire to get inside technologies, a revealing tension may be identified when the desire to see how things works encroaches on the conceptualisation of innovation as new ways of doing business underpinned by IPR. This can be seen in the hacker engagement with the DeCCS DRM programme.

The DeCCS programme was a response to Content Scrambling System (CSS) encryption technology identified and introduced by Hollywood film studios in 1996 as a means to ensure copyright protection. CCS became integral to the production of DVDs within US markets and, without going into too much detail, this proved to be prohibitive for users of the Linux Operating System as at the time no licensed software or hardware-based DVD players existed for Linux. The DVD Copyright Control Association had issued licenses to software companies allowing them to develop players but this did not, however, include Linux. As such, Linux users could not play legally purchased DVDs on their players. The DVD has been described as 'the golden disc that effectively transects the computer/television divide' (Friedberg 2002, p.35), and as such the encrypting of DVDs can be seen as a targeted response to the wider possibilities of playback flexibility. The limiting of playback flexibility can be coupled with the concerns voiced by Lessig around the inhibition of media technologies potentiality that were noted earlier. A notable response to this DVD CCS encryption technology

was the 1999/2000 DeCCS programme created and released by members of the Masters of Reverse Engineering group. As the 'reserve engineering' element of the group's name indicates, the DeCCS programme was undertaken for the technical challenge. Thompson's overview highlighted the significance of the technical challenge as part of a hacker ethic, and Eric Raymond (1996, p.165) in the *New Hacker's Dictionary* offers a number of 'hacker' definitions including, 'one who enjoys the intellectual challenge of creatively overcoming or circumventing limitations'. DeCSS, as a response to DRM encryption, certainly illustrates this intellectual challenge of circumventing limitations.

Discussing the DeCCS, hack Douglas Thomas (2002, p.87) suggests that 'the battle is one that pits the traditional hacker ethic of exploration and free sharing of knowledge and ideas against corporate interests to protect their products'. Thomas draws on the concept of the hacker ethic to emphasise hacking as form of innovation. He outlines a tension between old and new media approaches and identifies 'conflicting modes of distribution, one that facilitates freedom and openness (and embodies the *Napster* ethos), [and] the other which attempts to maintain rights based on exclusive possession and ownership (the corporate model)' (Thomas 2002, p. 88). In stating this conflict Thomas emphasises, in contrast to rights-based models, a model based on freedom and openness. He suggests that 'what is seen as innovation from one perspective is seen as piracy from another' (Thomas 2002, p.85), and draws our attention to the hacker ethic of free information. Rather than piracy and economic profit as the logic for the hack, careful attention should also be paid to rather different logics. Equally, whilst the Work Foundation (2007, p.76) report states that consumption 'can be seen increasingly

as a form of self-expression and the exercise of individuality', accounts of hacking and modification to see how things work and/or promote free information raises the possibilities of forms of self-expression that cannot be readily enrolled within the KBE conceptualisation of innovation outlined in the policy reports discussed earlier.

In her discussion on hacker social spheres, Biella Coleman (2003, p.300) notes that 'given the inclination for knowledge and curiosity, the very act of circumventing controls – whether human, legal or technological – has become an end in itself'. The idea of hacking and modifying as 'an end itself' signals that the passions for technological engagement and inquiry will seemingly continue in seeking out challenges. Dan Glickman of the Motion Picture Association of America suggests 'DRMs' primary role is not about keeping copyrighted content off P2P networks. DRMs support an orderly market for facilitating efficient economic transactions between content producers and content consumers' (cited in BBC News 2006). Beyond this intention and considerations of the implications of DRMs on use of computers, it seems likely that DRM technologies will continue to present technical challenges which motivate and act as the object of hacking. Similarly, Lavinia Carey of the British Video Association in describing how DRMs are becoming 'increasingly sophisticated and effective as a means of enabling consumers to access and use audiovisual content' also states 'content protection codes will be updated on a regular basis' (cited in BBC News 2006). Again, in the field of DRM the updating of codes presents new technical challenges to express creative and innovative technological relations with media technologies. Distinct from forms of hacking where the motivations are identified as personal gain

(termed 'cracker' or 'black–hat' hacking) or other understandings such as the 'hacker ethic' concept of freedom of information, hacking as a creative or intellectual challenge involves distinctive challenges. This technological engagement or 'hacker play' has commonalities with remix culture in that the emphasis is on creativity and challenge. A meeting point may be identified between aspects of media remixing and user-creativity such as modding, and hacks such as DeCCS motivated by the creative challenge. Both also are in a complex tension with IPR and piracy. These common points, in relation to creative impetus and tension with IPR, bring to the fore the cultural–political engagement at stake.

Approaching remix/modification, hacking and the shared passion for creative technological exploration as a form of cultural politics, pivots around the importance of IPR. The earlier accounts exploring practices of user-innovation highlighted how personal passions and interests can be a motivation rather than piracy. In turn, it would be a redundant and potentially contrived approach to reduce user-innovation to an exclusive creative priority. For instance, Thompson (2008) suggests the hackers of the Wii 'are driven by a desire to overcome the limits put in place by the manufacturer so that they can, for example, run games from older Nintendo consoles on the new platform or even write their own'. In this account, the true hacker goal to overcome limits is coupled with a desire for other uses. Similarly, nor can the consequences of these engagements be cleanly separated. In this respect a closely related element of hacking DRM as a technical challenge is the infringement of IPR. Recognising modding and hacking as potential acts of piracy, an instructive comparison may be made with Laikwan Pang's suggestion that pirate movies:

> Demonstrate that a widespread popular cultural activity,
> with no political or intellectual calculation, may help to
> reveal the hidden patterns of our ideologically-infused
> entertainment technology (Pang 2004, p.28)

Following this, the practices of modding and 'true hacker' activities
that Thompson and Thomas note in relation to the Wii and DVDs
respectively can be seen to reveal the problematic instrumental
dynamics of KBE policy on innovation. The tension is most clear
when forms of user-innovation that would normally be celebrated
and encouraged are declared illegal because they are economically
deviant and infringe IPR. An engagement with technologies based
around user-creativity and creation is desirable insofar as IPR are
adhered to. The modder may be the kind of imaginative and creative
individual identified as contributing to 'co-production at the heart of
the knowledge economy'. In turn, the creative spark or radical
creativity needs to be contained and the creativity of hacking is a
seemingly similar technological passion that is much less easily
instrumentally enrolled. Through attending to the complex and
personal engagements with media technologies it is possible to see
the limits of policy on innovation and the limits on innovation
outlined in policy.

Meaghan Morris (1993, p.312) suggests that one should be
wary of making the slide from 'notions of individual and group
"creativity" to cultural "production" to political "resistance"'. With
practices of modding and other forms of user-innovation, these are
responses that are in flux and that may overlap. By highlighting how
'the least political' and the 'personally creative' can reveal the
instrumentally driven patterns of policy innovation, I have sought to
bring into tension personal and particular uses and broad policy

proclamations and positions. Clive Gray's (2007) discussion of the instrumentalisation of arts and cultural policy with respect to the fulfilment of policy goals in other sectors and economic value resonates here. Gray highlights the dissonance between the detail of policy itself and the broader formulations within which it is enrolled. A detailed engagement with specific, located practices that are framed within KBE and creative industries discourse as 'useful' and 'able to contribute' is a key strategy for unpacking the instrumentalisation of user practices and passions. As the comments on rogue creativity indicate, there will always be a tension in which emergent user-innovations can be enrolled as the basis new ways of doing business. In turn, as the differences between scripted user-innovation on one hand and modding and hacking on the other hand highlight, diverse and emergent practices cannot be reduced or constrained in any easy way. The very ways of doing business being scripted and mapped through policy may be undermined by the plethora of personal and emerging forms of engagements or 'ways of being' with technologies.

Conclusion

The concept of innovation offered in the policy reports introduced in section one is geared towards putting innovation to work for the UK's KBE. The continual establishment of this economic vision in the UK is based, as the policy rhetoric goes, on it being recognised 'as a hub of creative endeavour, innovation and excellence' (Brown cited in DCMS 2008, p.1). As the Cox report states, innovation is in part concerned with new ways of doing business and, noting the NESTA report, innovation must be attentive to changing relations with consumers and opportunities to exploit intellectual property.

This is an approach to innovation that holds that user–innovation should be encouraged but also framed within intellectual property arrangements such as EULAs. In turn though, there are points of tension between instrumental notions of innovation as outlined in policy and the personal practices and motivations for innovation. The examples in relation to the Wii and DVDs sought to recognise that whilst there are many reasons for hacking and modifying, they importantly reveal that there are practices of user-innovation that fall well outside of those discussed and encouraged in policy accounts. In this respect, diverse understandings, practices and passions of user-innovation and user-creativity offer an important counterpoint to the productive and coercive capacities and strategies of policy on innovation. As Schlesinger questions the shift with 'creativity' from discourse to doctrine the increasing importance of an approach emphasising tensions and practices is vitally important. The specificities of user-innovation, technological engagement and piracy present just one instance in which instrumental and doctrinal approaches may be critically deconstructed. As seemingly niche forms of technological experimentation such as user-innovation and modding evermore come under the instrumental gaze of KBE policy, the challenge of deconstruction, specificity and everyday tensions becomes more pressing.

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