Managing Creativity and Innovation in the UK and the USA: The case of practice in the development of electronic games

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The UK's creative industries are regularly referred to as national strengths and exemplars of innovation, but such claims are often qualified by dissatisfaction with its management. This paper explores this paradox through an empirical study of practices and routines in the Electronic Games Development Industry (EGDI) in the UK and USA. Conventional wisdom suggests that UK games developers lag behind their USA counterparts in managing the creative process. The paper identifies and analyses observed differences in practice between British and American developers. Moreover the paper also shows considerable *similarities* in behaviour and in the adoption of newer practice across the two countries. Implications for the literature on managing creativity are discussed, as are the implications for policy.

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> "Creativity, properly employed, carefully evaluated, skilfully managed and soundly implemented, is a key to future business success – and to national prosperity."
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> Cox Review on Creativity in Business, UK Department of Trade and Industry, 2005

The UK's creativity and creative industries are often referred to as national strengths, but such claims are often qualified by dissatisfaction with its management. We know that creative work tends to be enhanced by autonomy (Amabile, 1996) and can be impeded by rigid management structures and routines (Kimberley and Evanisko, 1981; Ford & Gioia, 2000). Management of creative activities is fraught with the idiosyncrasies of human interaction and behaviour. Yet we also know that there are structured techniques and processes used to stimulate creativity (Rickards, 1999; Sutton & Hargadon, 1996; Leonard and Swap, 1999; Hargadon, 2003). These are not necessarily repetitive routines (Nelson and Winter, 1982) but may be used in non-routine situations that call for fresh approaches (Sapsed, Bessant et al., 2005). Moreover, recent research suggests that the routinisation of certain work tasks releases cognitive resources for more creative work in other activities (Gilson et al., 2005).

This paper explores these issues through an empirical study of practices and routines in the Electronic Games Industry (EGI) in the UK and US. The EGI is a maturing creative sector that has grown rapidly from a largely non-monetised 'bedroom' activity in the early 1990s to a global industry with a turnover of approximately £14.5bn in 2004 of which the UK share is £1.2bn. The UK industry employs over 22,000 people, of which 6,000 work directly in games development (Screen-Digest, 2005). This position is now challenged by competition from low-wage coding countries such as India, Hungary and Romania and others where state aid is available (for example, Canada and Australia). In order to continue winning business, developers need to maintain a creative and technological lead over competitors while simultaneously delivering quality products on time. These two imperatives are often presented as contradictory and conflicting in the creative industries literature. Research suggests a tension and paradox between the disciplines of business processes and the artistic insights (Lampel et al., 2000). Aesthetic appeal, game play and elements of surprise and novelty are central to successful electronic games, yet they are elusive qualities that are difficult – and potentially unwise – to routinise.

The UK electronic games sector is renowned for the creativity of its content- through characters, storylines and graphic design as well the gameplay enabled by its engines and middleware. It has a small number of established super developers in several regional clusters and a great many smaller firms (and freelancers) businesses which grow and contract, and through which a fluid labour market operates dynamically. Talent is widely available, and increasingly nurtured by specialised higher education courses and certified skills training. In many respects therefore, if we consider the industry through the concept of Sectoral System of Innovation (SSI); "…composed of a set of agents carrying out market and non-market interactions for the creation,

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production and sale of sectoral products" (Malerba, 2004: 10), the system appears to be functioning quite well.

However, the games Sectoral System of Innovation (SSI) has a number of weaknesses. Firstly, despite its endowments in the developer sector the UK no longer has domestically owned and based global publishers of games. Publishers play the important roles of financing games development, as well as co-ordinating their marketing and distribution. Established firms have ready access to the international global publishers but to most of the UK industry's independent developers, particularly smaller single studio businesses, they are distant and elusive. This has major implications for the sustainability of smaller independent developers in the UK (Spectrum-Strategy-Consultants, 2002; TerKeurst, 2003; Grantham and Kaplinsky, 2005).

Secondly, within a SSI certain types of innovation trajectory may be favoured at the expense of others. The expectations for games commissioned for the popular dominant console platforms have accelerated with the third generation of consoles-Xbox 360, Playstation 3. Games need to be faster, contain more detail and resolution, and need to appear more realistic, comparable to video photography. All this entails much greater demands in on the costs and complexity of projects. Only the largest developers have the resources to deliver this scale of project, meaning that much of the industry is excluded. The effect of this shift in expectations on the publishers is that they have become more risk averse in what they choose to finance; favouring new versions and variations within already successful franchises or tie-ins with blockbuster Hollywood films. While the new generation consoles advance innovation in certain technical directions, the more offbeat and radical propositions are unlikely to get a serious hearing from the publishers. This is what has been called "The Innovator's Dilemma" (Christensen, 1997) where *sustaining innovation* trajectories of technical advance and sophistication with rising costs are favoured at the expense of *disruptive innovation*- newer, cheaper technologies and ideas aimed at new markets.

Thirdly, the more creative and potentially disruptive ideas in the games industry are those that tend to overlap with other SSI. For example mobile phone games, which are emerging at the boundary of the games and mobile telecommunications SSI, and DVDi, which is at the boundary of games and movies/television SSI. In the SSI literature boundaries are thought to be dynamic, rather than fixed, and involving interdependencies between related sectors (Malerba, 2004:14). Edquist (2004), for example, regards data communications and mobile telecommunications to be distinct sectoral systems, but belonging to a combined, and converging larger system. This process of convergence may result in new sectors emerging from older established ones (Mowery and Nelson, 1999). But during the emergence there are institutional weaknesses in the areas of overlap.

The paper reports on research into games developers in the UK and US designed to build a taxonomy of practices employed in games development. This dataset is analysed to identify and explore differences in practice between the two countries. Conventional wisdom suggests that UK companies lag their US competitors in management practice(Spectrum-Strategy-Consultants, 2002; TerKeurst, 2003). The sample includes developers of console, PC, mobile, DVD and online games to

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compare practice across established and new platforms. This method was designed to compare the practices for continuous as against discontinuous innovaiotn (Utterback, 1994; Bessant, Birkinshaw et al., 2004; Birkinshaw, Bessant et al., 2004) in a creative sector. Artists, programmers and managers were interviewed to elicit practices deployed during typical completed projects for these platforms. The practices are categorised and coded according to platform, the degree of frequency (routine-ness) that they are used, and themes emerging from the data (Strauss and Corbin, 1990). The design is aimed at showing how practices and routines may differ according to the level of continuity or innovation in the project. The dataset of practices was developed from 42 interviews, which were recorded and transcribed. Just under 50% of the sample are drawn from the US so as to infer whether the characteristics of the national system are associated with differences at the level of practice.

Reconciling creativity with organisational efficiency is a delicate balance to achieve; one illustration is the resistance to the use of modules in games - for example, game engines that may be reused from prior titles and simply 'reskinned' for a new game. These modules potentially enable developers to formalise their development process and reduce time to market considerably in line with publishers' expectations. However, it also risks creating generic products with bland game play easily recognisable by gamers. In addition developers may become technologically locked-out and may be reduced to aggregators - assemblers of modules- affecting a declining ability to extract value from development activity. Adopting modular development would endanger the precious creativity that both motivates developers and sells games. Because of the unpredictable aesthetics and the interactive nature (Tschang, 2005) of electronic games, the development process cannot be structured solely by the adoption of formal software engineering methodologies, such as Capability Maturity Model or Extreme Programming, that have worked in other contexts. Games development to some extent is a special case, but also is representative of the tensions involved everyday in many creative industries.

The challenges of reconciling tensions between creative work and routinization in creative industries are also to be found in a growing number of other industries where creativity and innovation are keys to sustaining competitive advantage. Furthermore the balancing of creativity and structure is found much more broadly in the 'fuzzy front end' of new product design and development in a range of industries from aero engines to civil engineering projects. Therefore, although focused on the EGI, this research will has wider implications for the creative processes in a range of other industries.

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Note on Development

Prior to the conference the paper will be developed significantly through analysis of the creative practices dataset, and thinking through implications. Presenting the paper at BAM will present the opportunity for colleagues to assess and comment on the implications and conclusions, particularly the international comparative dimension and evidence from other sectors.