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From value chain to value creating ecology: Implications for creative industries development policy.

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Abstract

The metaphor of a “value creating ecology” is developed to describe the operation of the creative industries. This encapsulates three important trends, namely;

- The shift from consumers to co-creators of value;
- The shift from thinking about product value to thinking about network value;
- The shift from thinking about cooperation or competition to thinking about co-opetition.

Underlying this metaphor is recognition of the need to consider both public mechanisms as well as the market when framing creative industries development policy. Policy implications for human capital, urban policy and sectoral infrastructure are described.

Keywords: creative industries, value ecology,

Introduction

The term creative industries was first articulated in 1997 as a way of integrating sectors of the British economy in which creative intangible inputs add significant economic and social value. It was introduced as a public sector policy by the first 'New' Labour Government in 1998 and adopted in Europe, East Asia, and Australasia.¹ The term has also been taken up increasingly in the United States, typically resistant to such European and dominion trends.² It is a term which sometimes is read as code for a neo-liberal cultural policy agenda and as such is the subject of increasing academic debate (McNamara, 2002, Hesmondhalgh and Pratt 2005, Liagouris 2005, Garnham, 2005). However, both critics and advocates agree that the internationalisation of the creative industries concept is predicated on its capacity to connect key contemporary policy drivers in high-tech information and communications technologies (ICT) based research and development (*production* in the new economy) with the 'experience' economy, cultural identity, and social empowerment (*consumption* in the new economy).

It is not the purpose of this paper to engage these debates directly although we will speak to these issues in the final section of the paper. Indeed the primary policy provenance of the paper is industry development policy for the creative industries, rather than cultural policy in general. We take the term creative industries, for the moment at least, only as a descriptor of certain types of industry sectors. Whatever the debates around the term, it can now be said that there is an emerging international body of empirical literature that allows for stronger and more critical assessment of some of the claims made about these sectors (Creative Digital Industry National Mapping Project, 2006) This literature confirms amongst other things that the creative industries are, in fact, above average in their growth rates and value adding and employment producing multipliers. The sector is highly integrated with other sectors of the economy – producing intermediate inputs and outputs in just about all sectors. Analysis of occupational data shows that there are more creatives

employed in other sectors of the economy than in those sectors designated as the creative industries. It can also be argued that the creative industries evidence higher rates of innovation (Potts, 2006). In short, the sector is a highly dynamic sector and exemplifies the characteristics of the networked economy in general.

This has had the effect of changing the way the fundamental processes of creating “value” occurs – a shift from the idea of a value chain to a value creating ecology.

This brings us to the purpose of this paper which is to describe this emerging fundamental shift in how we understand the creation of “value” and to examine implications of this for creative industries development policy. By creative industries policy we refer to policy which directs governments in attempts to stimulate or grow the creative industries regionally or nationally. Such efforts are often “whole of government” and involve agencies concerned with industry development and innovation as much as the arts and culture (O’Regan & Ryan, 2004). As a secondary outcome, we also make some concluding comment about the implications of this shift for cultural policy more broadly conceived.

From value chain to value creating ecology

The idea of a value chain is a very pervasive metaphor in both functional and critical descriptions of production and consumption. The term evolved conceptually from the idea of supply chain (Rainbird, 2004) which describes the series of steps a product (usually a tangible one) takes from the manufacturer to the consumer. The word “value” was substituted for “supply” to suggest that each step in the chain should add value rather than simply move the product along. That is, value chains should achieve value optimization rather than cost minimization.

Many functional analyses of production and consumption (Hearn and Pace, 2006) now question this basic metaphor and the leading edges of innovation in the creative industries (such as interactive software) evidence the breaking down of its warrant because it:

1. Suggests a single linear process with one stage leading to the next.
2. Does not analyse the fact that value chain creation may be a competitive as well as a cooperative process.
3. Lends itself to mechanistic linear thinking and suggests static rather than dynamic processes.
4. Suggests the chain exists in isolation and ignores the environment as well as the effect of processes or factors that are not strictly part of the chain but are important enablers, catalysts or context setters for the chain (Rainbird, 2004).
5. Rests on a simplified notion of 'value'. For example, it assumes value remains 'in the product' ignoring externalities (i.e. product value derived from the relationship of the product to a system or other products) (Walters and Lancaster, 2000).

In response, several terms have been coined to overcome the limitations of the value chain metaphor. For example, Jeffcutt (2004: 81) prefers the term 'value circuit', because it "foregrounds the dynamism and complexity of these, not necessarily linear, relationships in a knowledge economy". Moore (1996: 70) uses the concept of 'value chaining' to emphasise the "active generation of new value chains". Stabell and Fjeldstad (1998) use the terms 'value shop' and 'value network' to emphasise firm-level value creation. Lorenzen and Frederiksen (2003: 15) suggest the term 'value soup' where "the configuration of networks of specialised agents ... are not stable value chains, but rather a value 'soup', floated with projects". In this paper we use the term "value creating ecology" to capture these ideas. Table 1 depicts the difference in conception between supply chains, value chains and value ecologies.

Take in Table I about here

In a value creating ecology the constellation of firms are dynamic and value flow is multi-directional and works through clusters of networks. Network theorist Albert-Laszlo Barabási (2002) has described in detail the ubiquity of network structures. Of most relevance here is his description of the shift from chains and hierarchies in business to networks:

The most visible element of this remaking is a shift from a tree to a web or a network organisation, flat with lots of cross-links between the nodes. As valuable resources shift from physical assets to bits and information, operations move from vertical to virtual integration, the reach of business expands from domestic to global, the lifetime of inventories decreases from months to hours, business strategy changes from top-down to bottom-up, and workers transform from employees to free agents.³

From a network theory perspective, at least two reasons could be suggested for the growing importance of networks. Firstly, networks are ideal information resource allocation/information flow mechanisms. Structurally, networks facilitate rapid information transfer by providing horizontal links cutting across institutional boundaries to put people in direct contact with each other. Networks also help create information as well as transmit it. As each person in the network receives information, it is synthesised and new ideas may spring forth---information easily builds on information. Networks thus share new ideas and help create them.

Secondly, new value creation is achieved through manipulation of information and the characteristics of information are very different from ordinary goods. One of the economic characteristics of information, namely that the cost of information production is independent of its scale of use, implies increasing returns to the use of information. This factor has traditionally conferred benefits to the early movers in

information intensive industries and as we will argue shortly it partially underlies the operation of value ecologies in the creative industries.

The language (and mathematics) of network theory is thus really indispensable to any analysis of the operation of the creative industries.⁴ For example, a large number of phenomena (ranging from the distribution of the internet traffic, to the popularity of film stars) can be described as scale free networks.⁵ Scale free networks are so-called because their fundamental properties do not change as more focal points of activity, nodes, are added. These types of networks have an important characteristic, namely, that the number of connections in the networks are not distributed evenly or as a normal curve, but as a power curve. That is, the number of nodes with a small number of links is very large and the number of nodes which may link is small. Scale free networks, when represented visually, look like a map of air routes (i.e. a few concentrated hubs with many sparse pathways).

The confluence of network theory and the “value ecology” metaphor arises because much of the development of network theory has been derived from analyses of bio-systems. Put simply and ecology is a web of life and a web is a network. In terms of analysing the operation of the creative industries as a sector, three important shifts are implicated more specifically in the shift from value chain to value ecology, namely the shift in thinking about

- consumers to co-creators of value,
- from product value to network value,
- from simple co-operation or competition to complex “co-opetition”.

From consumers to co-creators of value

Value creation is not a simple one-way, linear process but involves processes of

reiteration and feedback and co-creation on the part of “consumers”. In marketing in general, Prahalad and Ramaswamy (2004) argue there has been a shift in the role of the customer from isolated, unaware, and passive to connected, informed, and active. They suggest the co-creation experience itself, and not the product *per se*, has become the very basis of value. “Marketing inherited a model of exchange from economics, which had a dominant logic based on the exchange of ‘goods’, which usually are manufactured output. The dominant logic focused on tangible resources, embedded value, and transactions. Over the past several decades, new perspectives have emerged that have a revised logic focused on intangible resources, the co-creation of value, and relationships. (Vargo and Lusch, 2004: 1)

In this consumer-centric view of value creation, Prahalad and Ramaswamy (2002) suggest the consumer:

1. is an integral part of the system for value creation,
2. can influence where, when, and how value is generated,
3. need not respect industry boundaries in the search for value,
4. can compete with companies or leverage companies against each other for value extraction, and
5. can co-create value with the company at multiple points of exchange.

What this means in practice might range from IKEA’s co-option of customers in the construction of furniture or simply participating in focus groups that shape the development. However, there are more significant ways this trend establishes itself.

Emerging sectors of the creative industries such as the computer games industry in particular, exemplify these principles. Humphreys *et al.* (2006) focus on fan based or third party content creation in a case study of *Trainz*, a train simulation game released by Australian based games developer Auran. Game developers like Auran “routinely release sophisticated content creation and distribution tools as downloads from their websites and include them with their retail game software” (Humphreys *et al.*, 2006). In Auran’s case their existing fan community was intensely involved throughout the development phases of *Trainz*. In essence the company outsourced value creation to consumers. Formal relationships with fans are created through the official *Trainz* third-party creators program which allows users to share ideas, know-how, and art content. The benefits of this type of approach are numerous. In particular, Auran facilitates innovation at a low cost and *Trainz* fans are provided with software they want and in which they have ownership, all of which enhance the value of the program (in other words, the willingness to purchase the product).

More generally, aspiring practitioners constitute a very significant sector of the creative industries characteristically operating as non-commercial content producers. Leadbeater (2004) has recently introduced the term ‘pro-am’ to describe this practice. There increasingly vibrant sector of practitioners in the creative industries is making important and innovative contributions in broadband environments. Cunningham (2006) shows how many of the most creative spaces on the Internet generate innovative content and enterprises that relate to pro-am production, evaluation and exchange of content. Distinctions between consumption and production, labour and citizenship have blurred, allowing new commercial, public and training opportunities in such areas as user-led and pro-am innovation, open source, and broad-based consumer creativity, as a basis for lower-cost content generation and dissemination. There is great potential to move these non-commercial practitioners into more commercial industry environments if appropriate pathways can be developed.

Cunningham (2005, p. 7) suggests “The culture that is emerging is as much about creativity invested in the distribution and aggregation possibilities and potential afforded by new communication platforms as about the text and the content.”

Peer-to-peer architecture supports this shift allowing applications allow users to exchange content on a considerable scale. This has been made most famous with music-swapping software such as Napster, Gnutella, or the Australian-based Kazza, which are increasingly being brought into commercial models of operation. Such user cultures contest the strategy of former mass-delivery systems such as free-to-air and pay television, traditional radio broadcasting and even cinema distribution. The highly successful on-line distribution of music with Apple i-tunes will soon be augmented with on-line video content through video i-pods as well.

It can also be argued that the idea of co-creation is being utilized more broadly in the creative industries, even in the traditional performing arts. For example theatre has utilised this concept with pantomime. In public cultural policy terms, this development of customer interaction is to be welcomed as it plays into widening participation and extending access, the contemporary political ‘Holy Grail’ for government in Australia and the UK.

As Rifkin suggests "... creative technologies offer the capacity for consumerist customisation of products and experiences in an increasingly open-ended way, so that the traditional distinction between production and consumption is itself breaking down. The act of consumption becomes the moment of production"(Rifkin 2000 cited in Shorthose 2005:3).

From product value to network value

Value is thus created and extracted in a network of relationships and value can best be understood holistically as a function of the entire network. Network “externalities”

are thus a key feature of this approach to understanding value. Watts (2003) describes three types of externalities which are pertinent here¹:

1. information externalities,
2. coercive externalities, and
3. market externalities.

Information externalities occur when product choices are affected substantially by information outside the product. Coercive externalities result when a consumer is persuaded to make particular choices of products or suppliers. Market externalities operate when the value of a product increases in proportion to the number of people who use it, as in the telephone network. Implied in this shift, is that value lies in the ability of the product to connect us to others. When connection happens early, through various externalities, a snowballing or increasing returns effect may be generated. Moreover, it becomes increasingly difficult for the system to change, even though individuals might prefer a different product or service. The cost of the disconnect to the individual, and the impossibility of collective opt-out, means certain product classes become *de facto* monopolies or at least are dominated by the large hubs in the network of connections.

In what sense do cultural products and services relate to this externalities typology? Clearly in a general sense the value of a cultural product or service depends on its ability to *connect* us to other people and our culture. This might implicitly be the case when we connect our identity to cultural themes explored and exploited in a cultural product or explicitly when we discuss movies or songs with others.

Connection and network externalities such as information cascades, demand queues, social contagion, bandwagons, herding, and path-dependence in the cultural

¹ We are not just referring here just to public good externalities as have been discuss by cultural economists (eg Heilburn and Gray, 2001)

industries⁶ have been explicitly analysed by Caves (2000), Kretschmer, Klimis and Choi (1999) and De Vany (2004) - amongst others. According to De Vany (2004: 211), "these models differ in detail but they are all dynamical processes in which the change in demand depends on demand already revealed". Of the various models, information cascades, in particular, highlight a typical explanation of network effects and begin to explain the presence of increasing returns in the creative industries. Bikhchandani, Hirshleifer and Welch (1991: 992) state that an information cascade occurs when "it is optimal for an individual, having observed the actions of those ahead of him, to follow the behaviour of the preceding individual without regard to his own information". Information cascades are either positive or negative; a cascade is positive if individuals adopt and negative if individuals reject (Bikhchandani, Hirshleifer and Welch, 1991).

An information cascade can easily change from positive to negative in the creative industries. Cultural goods are subject to a non-typical demand curve due to the role of demand reversal which occurs when too many people participate in a particular fashion and it ceases to be attractive, thus causing the trend to reverse. However, the reversal process may be repeated, (for example, when an old Beatles song becomes valued once more (Molteni and Ordanni, 2003). This dynamic illustrates the well-known dependence on word-of-mouth, networks, and critical reviews in cultural consumption.

In general, Arthur (1996: 100) argues that as the shift toward the new economy has occurred, "the underlying mechanisms that determine economic behaviour have shifted from ones of diminishing to ones of increasing returns". That is products which enjoy success become more successful because:

1. the costs in developing the product are up front (for example, in R and D or creative development) and so unit costs fall as sales increase,

2. network effects mean the more a product gains prevalence, the more likely it will emerge as standard, and
3. customer groove-in means as more market is captured, it becomes easier to capture future markets.

These reasons are particularly pertinent to the high tech industries of computers, aircraft, and telecommunications, amongst others and Arthur (1996) suggests service industries evidence a hybrid old-new dynamic because demand is limited within a given region and this demand is met by a low-tech processing model; but at the same time increasing returns accrue via brand loyalty for example. Market leaders then have some advantage merely because of their market position.

The creative industries, to some degree, mirror the characteristics which Arthur (1996) terms the 'hallmarks' of increasing returns including market instability, multiple potential outcomes, unpredictability, the ability to lock in a market, the possible predominance of an inferior product, and fat profits for the winner (Caves, 2000, Hesmondhalgh, 2002). Kretschmer, Klimis and Choi, 1999: point out that in the creative industries "unlike for technological externalities, these feedback loops typically do not escalate into monopolistic competition where markets become locked in. Seeing one movie does not prevent us from seeing another, though both are subject to network effects".

That is, unlike high tech industries where the cost to the individual of disconnecting, and the impossibility of collective opt-out mean certain product classes become *de facto* monopolies (or at least are dominated by the large hubs in the network of connections), cultural goods are not subject to monopolistic competition because investment by consumers in the product or experience is usually much lower. Whilst monopolistic competition in the private creative industries is fleeting; however,

government and its agencies hold majority stakes over subsectors such as theatre, and the visual arts.

In general it can be argued that network externalities are very real in the creative industries. The scale-free network structure of a few large hubs and many smaller connected centres of activity does manifest itself in many different forms in the creative industries (for example, the movie and music industry distribution models). An important corollary is that in an age of connected products and services, engagement as a member of the network is required to be a player at all. This means a company must take on certain features or 'operating standards' to compete as a value-adder and that the number of competitors may be quite different in a value network from those in a value chain. This connection of players is in part based on the role of co-opetition in networks.

From simple co-operation or competition to complex co-opetition

The final shift in thinking involves moving from simply cooperative or competitive models to models based on simultaneous co-operation and competition between members of an ecosystem.

Business ecosystems span a variety of industries. The companies within them coevolve capabilities around [an] innovation and work cooperatively and competitively to support new products, satisfy customer needs, and incorporate the next round of innovation. (Moore, 1996: 15)

Thus networks can be highly competitive and the evolution of hub size (firm) may well involve strong competitive activity. The combination of cooperative and competitive processes has been termed 'co-opetition' (Brandenburger and Nalebuff, 1996).

A game theoretic approach is commonly used in explanations of co-opetition. For example, Nalebuff and Brandenburger (1997) suggest four player classifications operate in value networks: customers, suppliers, competitors, and complementors. Bengsston and Kock (1999) extend this model, suggesting there are four types of relationships between players in a value network: coexistence, co-operation, competition, and co-opetition.

Game theory models of co-opetition imply the 'co-evolution' of organisations and networks and the 'bundling' of complementary functions and companies. Moore (1998) emphasises the notion of 'co-evolution' where for any company to really evolve its capabilities, others must evolve in support. The relationship between Intel, IBM, and Microsoft is a case in point. Without the appropriate hardware and software upgrades Intel's latest microprocessor chips are rendered useless as there is no demand for the product. Furthermore, Nalebuff and Brandenburger (1997) suggest successful companies employ your value net to create added-value for consumers by bundling complementary products. For example, Feldmann (2002) suggests bundling is gaining momentum in the mobile technologies industry. Mobile phones are no longer used for just voice-to-voice communication also bundle news and information services (CNN, BBC). New features are increasingly being added, such as SMS, ring tones, photo messaging, video messaging, music downloads, directory assistance, and Internet access. For example, in Australia information from 3 mobile, includes access to mobile tv: reality television (Big Brother), sporting events (Cricket Australia), adult services (including Playboy, Asian Fantasy, Club Jenna, and Transport Info.) Providers are engaging in co-opetition to 'pool' resources and increase their offering to consumers. The 'lock-in' element is flows from the minimum requirements of 3G mobile technology. Once again, the idea is that not just a product is being sold, but a web of products that creates an experience. This suggests mutual interdependence in the interest of all those involved to maintain and

generate business and sell more. Coalitions by market leaders such as Intel, IBM and Microsoft are able to take advantage ecosystem dominance taking media concentration to another level. However, the ecosystem dynamic does not eliminate competition but rather shifts the focus from company-to-company to ecosystem-to-ecosystem conflict for example, VHS versus Betamax or, more topically, music distribution systems.

If you are Sony, and you are making \$4.6 billion in music sales but taking in \$40 billion in sales from electronics, who are you going to listen to; the music industry complaining about people downloading music without authorisation, or the electronics executives trying to make better, more expensive CD burners and MP3 players? (Strauss, 2002)

Sony has failed to embrace its ecosystem and as a result is faced with ecosystem-to-ecosystem conflict. This example illustrates the requirement for firms to think beyond previous notions of the 'firm' or 'network', as the next shift expands.

Implications for policy in the creative industries

So far, our focus has been on articulating an emerging language for describing the creation of value in the creative industries. Our attention to functional descriptions should not read as an implication that we believe that everything in the ecology "is rosy" and that there are no issues that need a critical as well as a functional assessment². In advocating the term value-creating ecology we are not suggesting that such ecologies are equalitarian, nor that distributive justice is a feature of them. Indeed there are marked inequalities and intense competitive processes at work. Nor are we suggesting that public investments are not important considerations. Indeed to the contrary, one strength of the ecology metaphor is that it recognizes the importance of the collective context (Scott 2006), and hence the need for various

² (For example, the question of the ownership of IP in fan based co-creation is often scrutinised critically Gibson and Hong(2005)).

forms of public intervention. Our point is that the language of the creative ecology can provide a novel frame of reference in thinking about emerging and long term issues for creative industries policy.

In deed, the “value creating ecology” metaphor is consistent with other descriptions of the creative industries. In recent work Scott (2006, p.15) articulates the concept of the “creative field” thus:

“The Creative field that undergirds the new economy is constituted as a constellation of workers, firms, institutions, infrastructures, communication channels, and other active ingredients stretched out at varying densities across geographic space. This network of forces is replete with synergistic interactions variously expressed as increasing returns effects, externalities, spillovers, socialization processes, evolving traditions and so on, and it is above all a locus of extraordinarily complex learning processes and knowledge accumulation. The atmospherics are the private property of none and in principle the collective property of all, although they frequently evade explicit appropriation by the collectivity as such.

Pratt (2004: 60) stresses informal factors in creative production, especially “interconnectedness between creative individuals and firms, related and supporting services, education and training, and the audience”. He suggests the co-location of film and television post-production facilities in Soho, London, is deliberate. “Firms choose to locate there, at very high cost, in order to benefit from rapid exchange of precisely the right goods and ideas. They also pay to remain ‘in the loop’ of informal knowledge exchange that is fuelled by the dense web of multiple interactions” (Pratt, 2004: 62). Jeffcutt (2004) suggests a “creative eco-system” metaphor reinforces a holistic approach to development of the sector and that the inherited capacities of a sector need to be thoroughly appraised.

Current theory building in Australia by Cunningham et al (2004) seeks to explain the performance of the creative sector in Australia. It frames the milieu as incorporating both major and SME players – including enterprising start-ups. Cunningham *et al* describe Australia's creative innovation system, emphasising the importance of multi agent milieus, and the necessity for rejuvenating the links between them.

Creative ecology metaphors have also been applied to venture capital backed internet companies (Zacharakis, Shepherd and Coombs 2003), mobile telephone businesses (Feldman 2002), Danish pop music innovation (Lorenzen and Fredrickson 2003) and the film industry (De Vany 2004). Ninan's (2004) investigation of a local music industry in Australia found a cluster of networks wherein SME's gravitate towards resource rich clusters to benefit from the sharing of knowledge, skills, know-how, personnel, capital and even markets, of other cluster members.

Although the metaphor is prevalent and growing, the implications for policy thinking have not been developed in detail. Much policy for creative industries development proceeds without recognizing the particular dynamics we now have described as value creating ecology.

In some cases creative industries policy derives uncritically from other industry sectors (e.g. resource or manufacturing) which have different dynamics, for example, where diminishing returns or technological innovation drive success. (See Scott 2006 and Shoales 2005 for a discussion of differences in old versus new industry development policy). Or at the other end of the spectrum policy thinking is influenced by arts based thinking and is based towards notions of excellence and public good in isolation from considerations of the market. For example, Hesmondhalgh (2005:11) four pillars that underpin many cultural policy:

- The romantic notion of the isolated artist-genius who works for the love of art, suffering poverty in a garret;
- Culture is a pure public good, one that should be equally available to all;
- The true value of art is transcendent and can be determined by experts commonly accompanied by the idea that the monetary value of art is false and the 'market' cannot decide;
- An idealist-humanist notion that culture is 'good for the soul', and that exposure to 'culture' has a 'civilising effect'.

We want to make the case that a different kind of creative industries development policy arises if we take seriously some of the principles discussed so far. We agree with Scott(2006) that whilst policy making may be far from equal to the task of intervention in the creative ecology, nevertheless, there are promising directions. Effective policy thinking can commence from the simple observation that competitive creative industries are built at least partly around the dynamic of increasing returns. Arthur (1996) suggests there are three strategies for competing in knowledge intensive industries, (which by definition include the creative industries), which evidence to some degree the dynamic of increasing returns:

1. Success of individual firms is often linked to success of the broader ecological niche they are in;
2. Never underestimate the resources required even to be a player;
3. Technology comes in waves. Position for the next wave.

Building on this we suggest there are a number of policy principles that flow from the value creating ecology metaphor: Our premise is that policy make should be "process-oriented, focusing on system design". Bryant and Wells (1998, p. 92). That is, a fundamental role for policy makers is to shape and create contexts in which

value creating ecologies can grow. For example, policy-makers can establish the attractors to create a pattern of operation that is sustainable (for example, educational investment, attracting major talents or companies), on other occasions they may need to break a dysfunctional context (for example, changing tax incentives or grant cultures that create mendicant tendencies) The idea here is to search for achievable high leverage initiatives that can trigger a transition, or cascade of events that shift systems from one attractor to another. Policy-makers may be able to identify such points of development and capitalise on a choice that may have long-term effects on the system as a whole.

A key choice point for policy is to decide whether to pursue incremental innovations or step change innovations. Value ecologies which are operating at equilibrium will be operating according to stable value propositions; for example, according to a standard business model that defines how value is created and appropriated (Walters and Lancaster, 2000). To compete in a stable ecological system would mean, for example, producing better creative product, and finding ways to infiltrate the existing value ecology through improved promotion. However, as we have argued, given the scale-free nature of the networks in the value ecology of the creative industries and the dynamic of increasing returns to market leaders, it is difficult for new entrants to compete with established players regardless of the quality of their work. Arthur (1996) suggests for example, that new entrants must have two or three times the quality to overcome increasing return dynamics.

Another competitive mechanism therefore is through innovation producing novelty in the value ecology (e.g., in terms of product genre, technology, distribution, or business model) to realise what might be called an innovative value proposition. New business models are introduced which create and capture value. Technology can be a frame breaker in this regard. CI policy should encourage innovation in a broad sense. Government can show leadership by innovating itself in the management of

change and in the delivery of services. Crucially, there is need to recognise the opportunity that technological change offers to redesign inadequate institutional underpinnings. Cunningham et al (2004) have argued for the development of an innovation system for the creative industries. They call for better alignment of cultural policies with industry and R and D policies with a particular focus on how the relationships between publicly funded cultural institutions, universities and the private sector of the creative industries, can leverage innovation from these cultural institutions. One mechanism they propose is an industry levy into an innovation fund which also triggers government investment in research around emerging digital content applications.

Put another way, connectedness is the key operating principle of this ecology. Regions benefit by understanding their place in it, specifically, their links to and interdependence on, other elements of their environment. Export capability in the creative industries hinges on one's overall place in the global creative ecology. Emphasis is placed on mutual interdependence and interconnectedness in an attempt to make " ... visible many of the less apparent and perceptible connections between ... phenomena at a regional and even global level" (Heise 2002:162), and their relationship to other industrial ecologies whether local, regional, national or global. For example, the intersection of the services, information and communication technologies (ICT), and, the entertainment and cultural sectors opens up a broad raft of innovation opportunities. In terms of services, of particular relevance here are knowledge services (Miles, forthcoming) – high value-adding complex services which combine professional, technical and creative knowledge skill sets (e.g. design, information technologies, some engineering areas, business services, creative industries, other professional services) Research and commercialisation strategies to meet these opportunities require capacity in a number of disciplines, as well as a capacity to combine these disciplines in innovative ways. We now know that

creative and design professionals are highly embedded in all industry sectors³. In fact, there are more of these professionals employed outside the core creative industry sectors than inside them. This is because the innovation process at play is capillary-like, and is integrated into existing industry/service sectors. In short the key policy principle is: Take a whole system perspective facilitating the growth of the ecology in the long run. More specifically, we suggest human capital, urban policy and institutional reform are key pragmatic policy imperatives that a number of authors all suggest can be important (Scott, 2006; Schoales, 2005; Cunningham et al, 2004; Yusuf and Nabeshima, 2005).

Invest in human capital

We suggest investment in education and training activities, and facilitation of learning and communicating among key stakeholders will yield long-term benefits for the health of the ecology. Florida (2003) argues that human capital is central to success in the creative industries. "Studies of national growth find a clear connection between the economic success of nations and their human capital, as measured by the level of education" (2003: 222). He argues the same is true for regions and cities. Endogenous growth theory suggests it is the capacity to produce and absorb new ideas that is an outcome of education and training, which is one of the underlying mechanisms of growth (Potts, 2006). Blandy (2005) argues that the new economy is made up of a collection of new competitive advantages and not a brand new set of enterprises. It values people with how-to or tacit knowledge, constructing the knowledge from the ground up within groups that innovate within enterprises. Policy should therefore address how to nurture creative human capital within the expanding creative workforce (as per Robinson 2005). In order to attain a sustainable creative workforce, systemic transformation is needed. To some extent, this is underway as formal education is oriented to the challenges posed by an environment characterised by innovation, the increasing impact of knowledge and creativity on the

³ <http://wiki.cci.edu.au/confluence/display/NMP/NMP+Home>

economy, and of globalisation and new technologies across all areas of work and experience. This is especially the case in digital content industries where employment patterns have deviated from those of older industries such as manufacturing for example (QUT, Cutler and Co, 2004). Shoales suggests creative industries require a “thick labour market” and advocates: education in finance and arts, the capacity to rapidly integrate skilled workers into the needs of the local industry, and policies that promote the free flow of information as planks for human capital policy for the creative industries.

Urban Policy

Scott (2006) sees urban planning as another of the instruments for “enhancing the collective order of the creative field”: and points to interventions such as the Malaysia Multimedia Corridor Project and the Los Angeles garment district cultural upgrade. The highly interdependent nature of creative industries clusters can cultivate urban density and support the building of healthy communities (Shoales 2006 p. 175) Moreover, creative industries clusters in large centres, such as New York, maintain a high degree of product innovation and this tends to keep the region “forever young”.

Yusuf and Nabeshima (2005) suggest that the characteristics of cities that dictate the location of firms to an area are no longer purely old economy in style, (land rent, labour supply, urban services, taxation rates), but rather, hinge on the ability of the city to assist in the firm’s creation of value. They suggest these are:

- Urban services and amenity
- Access to human capital
- Access to broad, stable and sophisticated markets
- A diversified industrial structure, because the creative industries are interlinked with other sectors and because a diverse base of interdisciplinary

skills are needed for unforeseen technological advances and commercialisation.

- Openness to new cultures and ideas

Echoing Florida, they suggest that creative industries activities in cities depend on circulation of highly skilled knowledge workers and that urban policies can influence the retention of these workers by engendering cultural amenity, educational and medical services. They also suggest that attention to transportation infrastructure can be an important public strategy to undergird creative industries because this is key to providing mobility and access to human capital. Public transport, major connecting roads, airports and ports are all features of creative industries cities. Zoning and other urban policies that promote recreational and entertainment amenity, inner city re-invigoration are all public sector tools that may have value.

Sectoral Infrastructure

Apart from economic stability and trade liberalisation, which are often overlooked aspects of building the creative industries sector (Yusuf and Nabeshima, 2005), much can be done at the level of technology infrastructure, tax and R & D policy to support a healthy ecology (Cunningham et al, 2004). For example,

- National investment in content and meta data standards and
- Tax credits and for R and D investment.
- Recognition of creative practice and design as R and D.
- Open content repositories of public domain digital content to selectively address barriers to production and unintended cultural outcomes of prevailing copyright IP regimes. Such an alternative “opt in” model which could operate in parallel with existing rights regimes. This becomes particularly important in light of the shift to co-creation described above.

Institutional -building to manage the plethora of information flows (Schoales, 2005;

Scott 2006) might include institutional arrangements for engendering communication and trust amongst members of the creative field (such as San Diego's CONNECT program). Initiatives in all these domains require a clear and holistic creative industries development agenda.

Conclusion

It could be argued that this paper exemplifies the 'uncomfortable fit' between creative industries and national cultural policy making. Caves (2001) has stressed that discussion of the economic properties of creative industries, and those who work in them, should be distinguished from debates about the pros and cons of public subsidy for the arts.(cited in Flew, 2002:6); As Hesmondhalgh notes "... cultural industries raise questions about shifting boundaries between culture and economics, and between art and commerce..."(2005:3) Cultural policy is by definition nation-state specific and so is being squeezed by globally dispersed creative industries and by international trade rules that seek by definition to limit national exceptionalism. Content convergence means that cultural policy has a shrinking sector-specific envelope to work as a bigger mix of new content policies come to the fore, and a set of formidable challenges in collaboration, and the design and delivery of policy and programs (Cunningham 2004: 8).

However, we see value creating ecologies as composed of both private and public entities and hence do not see creative industries and cultural policy as necessarily at loggerheads. To affirm our argument, policy makers need to clearly observe what/who is part of your ecosystem and associated robustness of it. Further, that sustainability is paramount to the successful long term function of any value adding ecology – whether public or private.

The value creating ecology metaphor encapsulates emerging understandings regarding how the creative industries, as part of the knowledge economy, operate. In doing so, it encourages the engagement by economic development agencies, local authorities and businesses themselves in a new strategic policy approach for the development of the creative industries. This reconceptualisation of the sector encompasses much that has been known about the creative sectors for many years (e.g., the uncertainty/non-linearity of product demand, high up-front costs, product externalities), but provides a useful mechanism to assemble these facts to inform the evidence based approach generally employed in developing industry development policy. The shifts described in the paper also have the potential to redefine and realign the creative industries to new growth oriented economic and business strategy paradigms derived from evolutionary perspectives (see Potts, 2000; Stacey, 1996). This ultimately will assist in reassessing and developing holistic, long term policy that is based on a thorough understanding of each sub sector's characteristics, and will be responsive to the dynamic nature of technological change and market forces in the creative industries. Hence, entrepreneurial activity is foregrounded, as a means of realising both private and public cultural ecologies as it does not distinguish between the two.

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Table I: Comparing key strategy elements for different conceptions of value creation

Strategy elements	Supply chain	Value chain	Value ecology
Customers	Consumers	Consumers	Consumers, suppliers, competitors etc
Environment	Static/stable	Static/stable	Chaotic/uncertain
Focus	Supply side OR demand side, not both	Supply and demand sides	Supply and demand sides
Value creation	Limited emphasis on value creation	Emphasises a value creation approach which adds value at every node	Emphasises a holistic approach to value creation throughout the ecosystem
Relationship type	Vertical integration	Timid teaming	Dynamic and evolving
Risk	Low	Medium	High
Profit focus	Increase own profits	Increase own profits	Increase ecosystem profits
Cost focus	Minimise own cost	Optimise own cost	Share costs
Knowledge leverage	Within the enterprise	Within the enterprise	Across the ecosystem
Knowledge approach	Storing	Hoarding	Sharing
Resource approach	Defending	Guarding	Sharing
Time orientation	Short term	Long term	Long term
Key driver	Cost	Revenue	Knowledge

Source: Andrews and Hahn, 1998; Rainbird, 2004.

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² See, for example, Caves 2000; Mitchell, Inouye and Blumenthal 2003.

³ Barabási, op cit., 202.

⁴ Cross, R., Parker, A., & Borgatti, S. (2002). A birds-eye view: using social network analysis to improve knowledge creation and sharing. IBM Institute for Business Value.

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⁶ The terms creative industries and cultural industries have different histories but in this paper we are using them interchangeably, in keeping with the original authors' preference.