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Social network markets: A new definition of the creative industries

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Abstract. We propose a new definition of the creative industries in terms of social network markets. The current definition of the creative industries is based on an industrial classification that proceeds in terms of the creative nature of inputs and the intellectual property nature of outputs. We propose, instead, a new market-based definition in terms of the extent to which both demand and supply operate in complex social networks. We review and critique the standard creative industries definitions and explain why we believe a market-based social network definition offers an analytic advance. We discuss the empirical, analytic and policy implications of this new definition.

Keywords creative industries, economic evolution, social networks, creative markets

1 Defining the creative industries

In cultural economics, there is currently wide-spread attention and interest in the definitional concept of creative industries. This interest ranges from adoration to disgust, and across a domain of indifference, confusion and hostility. For a start, creative industries doesn't look much like cultural economics, as it seems little interested in market failure but more in market dynamics and evolution (e.g. see Caves 2000, Howkins 2001, Florida 2002). It also doesn't seem to be a real industry sector, as it produces only ephemera and rhetoric.

To a first approximation, economists of the arts and culture still view their subject domain through welfare theoretic glasses. What we propose in this paper is an alternative view, based squarely in market analysis, in which the creative industries are part of the innovation system and the enterprise of a market economy.

The concept of *creative industries* has been a feature of academic and policy literature for over a decade. During this time, the standard definition – in terms of creative inputs and intellectual property outputs – has not changed much from its initial DCMS (1998) conception, which was an extension of the *cultural industries* definition to incorporate the *copyright industries* (see Howkins 2001, Hartley 2005, Cunningham 2006). This definition was implicitly accepted by, for example, Richard Caves (2000) in his transaction-cost based analysis of the microeconomics of the creative industries. The creative industries are defined in this approach in terms of an industrial classification of what they do, or what they produce and how they do it. And although there have been many grumbles and even dismissive critique of the details of the classifications – too narrow, too broad, too inconsistent with extant classification, arbitrary and opportunistic, (see, for example Roodhouse (2001), Florida (2002) and Hartley (2005: 26–31)) – the broad notion that an industrial classification should proceed on industrial lines is seemingly on firm foundation (*e.g.* agriculture, biotech and service industries are similarly defined). The creative industries are thus implicitly defined and classified according to industrial sectors.

The standard industrial classification system was developed over half a century ago when the economy could be categorized much more readily than now by the type of industrial activity in which a firm is engaged and the nature of its material inputs and outputs. Since then, however, the economic system has become considerably more complex and service-oriented (Beinhocker 2006, Foster 2006). Yet there is a general problem with this standard industrial classification (SIC): specifically, industries do not actually exist in microeconomic theory: they are not natural categories in themselves. What exists, of course, are agents, prices, commodities, firms, transactions, markets, organizations, technologies and institutions. These are what are economically real at the level of the individual agent's

transformations or transactions. An industry is a derived concept. The creative industries is therefore a loose concept that can benefit from analytic anchors.

The cultural and creative industries fit uneasily into this framework: first, because of they share many generic characteristics of the service economy; and second, because they are to a large extent an outgrowth of the previously non-market economy of cultural public goods and private imagination that seeks new ways of seeing and representing the world. However, the creative industries have come to such recent prominence as these once marginal activities now have significant market value and contribution to individual wealth and GDP.[5]

We therefore propose that a better analytical foundation for the creative industries can be provided by taking the perspective of an emergent *market economy* rather than an *industrial* one. The difference is between being and becoming. Economic evolution is a process of continuous open system becoming as new ways of being are originated, adopted and retained. We can be only what we can become, and the creative industries is part of that process. The economics of the creative industries, then, is not the same as the economics of the agricultural or industrial economy, as is implicitly represented in neoclassical economics (*e.g.* Baumol and Bowen 1966, Throsby 1994, Heilbrun and Gray 2000). The central economic concern, we argue, is not with the character of inputs or outputs in production or consumption *per se*, or even with 'competitive structures, but with the character of the markets that coordinate this industry.[6] We think they are both complex and social, and that this offers a useful analytic foundation.

The central fact about creative industries markets, then, is that complex social networks play at least as significant a coordination role as price signals. For evolutionary and complexity economists, who have long appreciated the economics of open-system processes as different from closed systems, this is unsurprising. What is new, however, is the suggestion that this might also apply not just to science and technology, which is the conventional basis of evolutionary economics, but also to the arts and culture (Potts 2007a). Markets for novelty as social networks are thus moved closer to the centre of the economic analysis of innovation and growth.

The very act of consumer choice in creative industries is governed not just by the set of incentives described by conventional consumer demand theory, but by the choices of others. Examples are given by Arthur (1989), de Vany and Walls (1996), Ormerod (1998, 2005, 2006), Kretschmer *et al* (1999), and Beck (2007). An individual's payoff is an explicit function of the actions of others. Schelling (1973) described this entire set of issues as being 'binary decisions with externalities'. There is overwhelming evidence (e.g. de Vany 2004, Potts 2006, Beck 2007) that this applies generally to the creative industries. Our new definition of the CIs therefore proceeds not in terms of individual 'artistic' or creative novelty in a social context, but rather in terms of individual choice in the context of a complex social system of other individual choice. The CIs, then, are properly defined in terms of a class of economic choice theory in which the predominant fact is that, because of inherent novelty and uncertainty, decisions to both produce and consume are largely determined by the choice of others in a social network.

These social networks thus function as markets, and the CIs are therefore defined in market-based choice-theoretic terms that are, we believe, best analyzed in a complex systems theory framework. So recognized, it becomes equally apparent that the CIs are also a crucible of new or emergent markets that, typically, arise from non-market dynamics (*e.g.* Internet affordances) and that often then stay at the complex borderland between social networks and established markets. For example, *YouTube*'s social networks, which were then bought by *Google* and thus market conditions were brought to bear; *MySpace* is a similar example, which was recently bought by Rupert Murdoch, but not marketised – at least to this date. *Second Life*, however, is being marketised from within, as it were, through the process of many commercial interests not 'buying' the property, but buying into the social space (see Castronova 2006).

The upshot is that the analytic distinctiveness of the CIs rests not upon their cultural value or sublime nature (*i.e.* their non-market value), but upon the overarching fact that the environment of both their production and consumption is essentially constituted by complex social networks. The CIs rely, to a greater extent than other socio-economic activity, on 'word of mouth', taste, cultures, and 'popularity' such that individual choices are dominated

by information feedback over social networks rather than innate preferences and price signals. *De gustibus non est disputandum* is simply not the point, but rather that other people's preferences have commodity status over a social network because novelty, by definition, carries uncertainty and other people's choices therefore carry information (Watts 1999, Earl and Potts 2004).

This sort of 'industry definition' (in terms of market characteristics) does overlap significantly with the extant definition of the CIs. It is not a radical redefinition; rather, it provides an analytic foundation that sharpens economic analysis by isolating the central features that matter: namely, (i) *agent* cognition and learning, (ii) *social networks*, (iii) market-based *enterprise*, organizations and coordinating institutions. These three terms are strongly homologous with the triad that forms the 'unit of analysis' in media and communication studies, namely *audience* (reader, viewer, consumer), *content* or *distribution* (e.g. TV network or press with their associated content or text), and *producer* (especially large-scale state or private corporations). Reconfiguring this standard formula of a 'textual system of modernity' (Hartley 1996, p. 32) as *agent – network – enterprise* has the advantage of removing the assumption held in most political-economy accounts of media that there is a one-way flow of causation along this 'value chain', from (active) producer via text-distribution to (passive) audience. In our formulation, the interrelationship among agents, networks and enterprise is dynamic and productive; all are engaged in the mutual enterprise of creating values, both symbolic and economic. Our definition therefore builds upon and improves a longstanding model of communication flows derived from media and communication studies. This is particularly important in light of the increasing significance of consumer-generated content and user-led innovation in new media (see Hartley 2008).

When triangulated, these components (*agent – network – enterprise*) point to a definition of the CIs in terms of the system of activities organized and coordinated about flows of value through the enterprise of novelty generation and consumption as a social process – with the economic dimension extracted by modeling this as choice on social networks. This perspective entirely transcends the arts/culture basis – and therefore the false

arts/science dichotomy – as well as the neoclassical welfare theoretic basis – and therefore its empirically false closed-system theoretical assumption – to arrive at a 'type of market' classification in an open-system. The CIs, in this view, are defined as the set of industries in which the choices about both production and consumption are predominantly shaped by generic and operational feedback from social networks.[7]

In section 2, we introduce and outline the social network re-conception of the CIs. In 3, we review the basic models that would underpin such an analysis and suggestively develop these analytical implications in terms of empiricism and general theory. In 4, the broad outlines of policy implications arising from this new classification are sketched. Section 5 concludes.

2 The social network market definition of creative industries

A new social network-based definition of the creative industries may be proposed as such:

- *The set of agents and agencies in a market characterized by adoption of novel ideas within social networks for production and consumption*.[8]

In this view, the CIs are not the subsidised arts; although such sectors are routinely incorporated (*e.g.* performing or fine arts, or heritage). They are also not the cultural industries; although again, there is some significant overlap (*e.g.* fashion, media, music). Neither are they firms alone, since cultural and educational agencies are active players. Rather, they are the subset of commodities and services over which consumers do not have well established decision rules for choice (and so must learn them) or where the 'use value' is novelty itself (Caves 2000); and where also, significantly, producers do not have deep knowledge or power regarding what products will be of value (and so must experiment to discover these, and produce repertoire rather than standardization to reduce risk, Garnham 1987).

The CIs, in this view, are defined as the domain of new rules[9] that are both ostensibly socially produced and consumed. The CIs are thus central to the growth of knowledge process that is economic evolution. All new technologies have some aspect of

this, yet the CIs are ostensibly characterized by the dominance of both social production and consumption through the flow of novel rules (as technologies). The principles of this definition derive from both the theory of open-complex-adaptive systems and from the behavioural and social empiricism of the economic agent in the modern economic environment, namely the choice of something new that, while variously socially produced or consumed, involves an individual value assessment based upon social information. This is the domain of the emergence of new choices over things not previously imagined, not the substitution problem between known possibilities. The industries based on the markets in which this open-system process is routine are, recursively, defined as the creative industries.

Before we consider what industries would be included and excluded from this definition below, let us first review this analytic foundation. A *social network* is defined as a connected group of individual agents who make production and consumption decisions based on the actions (signals) of other agents on the social network; a definition that gives primacy to communicative actions rather than to connectivity alone. *Social* here means the ability of one agent to connect to and interpret information generated by other agents, and to communicate in turn; and *network* means that these are specific connections (often technologically enabled), and not an abstract aggregate group such as a nation, a people, or the like. The literature and models of social networks will be briefly reviewed in section 3 below, but for now consider four salient properties.

First, a social network is not necessarily just the group of people an agent knows personally and communicates or interacts with regularly (e.g. family, friends, colleagues). These are plainly examples of social networks, and often important social networks, but there are many others that are also important as information networks. Social network feedback from reviews of movies or restaurants, for example, whether by expert opinion or just observation of box-office totals or whether a restaurant is crowded, provides social network information that agents use in making choices (*e.g.* Schelling 1973, Kirman 1993, Ormerod 1998, Ormerod and Roach 2004, Surowiecki 2004, Beck 2007). Social networks are reticulated throughout the economic system.

Second, a social network is not necessarily regular, but may contain hubs, weak and strong connections, and close and distant connections. Furthermore, agents may exhibit significant heterogeneity with respect to their connections in social networks. Social networks in economic space have complex topology. Yet the inherent complexity of social connections incident from the individual does not necessarily imply that social networks themselves are highly complex. Indeed, one of the main findings of network and complexity theory is how similar many seemingly different networks are in terms of their emergent structural and dynamic properties.[10] Analysis of generic complex networks may thus usefully inform analysis of social economic networks.

Third, a social network implies social origination, adoption and retention processes. In part, this renders social networks generally more complex than physical networks, in that the switching mechanisms (human agents) are far more complex than neurons or genes in cognitive or genetic regulatory networks. Yet because human social and communicative action is more directly knowable (subjective knowledge) than many physical networks, we may yet seek to create more realistic and parsimonious models of the higher-order complexity of socio-economic processes by integrating the behavioural, economic and social sciences with studies of anthropology, culture, media, *etc*, in the context of creative industries.

Fourth, social networks are not separate and distinct from familiar categories of social and economic system coordination, such as mature markets and other institutions, or organizations such as firms and coalitions. Rather, the CIs are part of the structure of a social and economic system, and although threaded through all such order, they are not everywhere to the same extent and degree. There are some aspects of the economic system where social networks play a more significant role than others. This property is what suggests social networks as a basis for identifying and classifying the CIs as the industries predominantly characterized by economic actions that occur in the context of and as a result of social networks, a definition that then holds over both production and consumption.

The creative industries are therefore an emergent category of analysis centred about the economics of complex social networks. Note that by defining the CIs in terms of social

network significance, the logical implication is that (all) other industries and markets have less social network significance. Yet this, we think, is a defensible proposition.

First, it rules out industries such as agriculture, mining, extraction and the primary industries in general, because they are essentially constituted by physical resources and known technologies in production, and as inputs into further transformation into stable and generally mature markets. This does not deny the role of technological change and new markets in these industries, but instead emphasizes that social networks have relatively little role in explaining the dynamics of consumption or innovation in production. In turn, these industries and markets are best analytically described by the atomistic and field-theoretic (*i.e.* parametrically stable) neoclassical model of conventional economics. The CIs are not about the allocation of resources: they are about the creation of new resources.

Second, it also excludes manufacturing industries that are successful according to a matrix of stable prices and technologies within which to combine, through efficient and scaled-up organization, resources and technologies to create commodities for supply. Again, there is little role for social networks in this process, which is largely driven by efficiency through competition on the supply side and income, and wealth effects on the demand side. This is largely what both Keynesian economics and industrial organization theory have shown.[11] Again, note this does not exclude the role of social networks in, for example, the diffusion of innovation in manufacturing, but instead emphasizes that these are not the prime consideration in the definition of these industries. The CIs are not about mature technologies; they are about the evolution of new technologies (Potts 2007a, 2007b).

Third, this definition also naturally excludes skilled professions largely about learning and applying complex knowledge (law, dentistry, accounting, hairdressing, truck-driving, fire-fighting, teaching, etc), except for the components of these industries that do involve social networks (*e.g.* the establishment of a new business, or expansion of a new service, *e.g.* cosmetic dentistry). This is often mediated by advertising and marketing services, which are then properly classified as *social network services* along with media and publishing. The software component of the extant creative industries classification is also naturally included in this definition of social network services as the domain of information

technologies. By this same token, so too is the design of physical social spaces, such as urban design and architecture (Jacobs 1969). The CIs are services; specifically, services to the growth of knowledge and economic evolution.

Social network services, by this classification, are a subcomponent of the CIs,[12] the other being content as new ideas. The value of this distinction is that it allows a systems view of the natural and logical structure of the 'standard' CI definition, but also a clear point of departure for critical review toward further inclusions and specific exclusions. At base is the structure and process of the creation and use of the system. Note this is not a distinction between organizations and markets, or public and private, or commercial and humanistic, for these aspects are everywhere in this distinction. Rather, it signals an important distinction between the services that build and maintain social networks (infrastructure and connectivity) and the services that use these to create value (content and creativity). This is a symbiotic relation, in which each depends on the other, and in which the whole is symbiotic with all other sectors. In general equilibrium theory, everything is connected to everything else (Potts 2000), but in evolutionary theory structural sub-systems are defined that demarcate the complex order of the economic system (Simon 1962). The CIs are part of the *innovation system* of an economy, and not just another industry (QUT *et al* 2003, Potts 2007b).

The CIs are thus part of the innovation system of the economic order, and not just of industry space. They are themselves composed of systems that build and maintain social networks (*e.g.* advertising, architecture, media, ICT software, *etc*) and, logically, systems that create value on these social networks though content (*e.g.* film, TV, music, fashion, design, *etc*). This distinction is certainly not clean; for example, media companies often both create networks and supply content. But the basic principle is, we think, generally and usefully applicable:

- *The creative industries are the set of economic activities that involve the creation and maintenance of social networks and the generation of value through production and consumption of network-valorized choices in these networks.*

Several notable exclusions and differential inclusions are prompted by this new definition. First, and perhaps most controversially, it potentially factures the definition of cultural industries along the lines of 'old' and 'new' culture – where old means heritage, antiques, museums, classic arts and performances *etc* and 'new culture' means anything experimental about which quality is unclear. This crude definition does not diminish the role of 'old culture', but reassigns it to the *social education system* as the knowledge whose value is 'embedded' as self-evident or infrastructural, needing only maintenance and continuity. Strictly speaking, this is not part of the CIs any more than, say, knowledge of the science that enables the production of transistors that are also inputs into the opportunities for the CIs. The maintenance of cultural technology (*e.g.* history) is of no less value than the maintenance of physical technology (*e.g.* science) and social technology (*e.g.* practical ethics). But that makes its proper classification within the education system, not the creative industries. In turn, the new cultural industries, both historically and contextually conditional, are rightfully included as their production and consumption is heavily influenced by social networks for the simple reason that their value is uncertain. New cultural technologies are part of the CIs, old cultural technologies are not. This means that what is in and out of the CI classification will evolve and shift as industries emerge and mature.

Second, it extends the set of CIs shamelessly into often low-brow cultural and highly commercial domains such as tourism, sports and entertainment. This conception has always been a point of contention in the standard definition, as it includes factors rightly regarded as not within the ambit of 'public good' policy attention (*e.g.* major league football, monster truck rallies, fashion magazines and holiday resorts, *etc*). The anti-elitism in this conception is not unfounded, for what matters most to this definition is the value of the new, not the value of the good, which is already known by definition. The problem is that because we can never know where new value will come from, artificial exclusions of some socially produced and consumed services on the grounds of low-brow consumption is not a viable analytic proposition. Novels, for example, were initially regarded as low-brow, as are almost all new ideas. The socio-cultural-political connotation of an idea matters less than its relative novelty, and therefore uncertain value. From this basis, new scientific ideas – which

are both produced and consumed in social networks[13] – are just as much part of the CIs in their formative and adoption phases as new artistic or cultural ideas.[14]

A third notable re-evaluation relates to design, which becomes far more central than previously implied by the standard definition. In essence, design is the new engineering, but between physical and social technologies. Both architecture and software are therein frontloaded into this definition as the design of physical and information spaces for social interaction. Design is also the connection between CI services and the rest of the economy, as design is used to sculpt and position products through advertising and fashion, from cars to kettles to wine labels (Postrell 2005). This is, we think, a significant shift of emphasis. In the standard classification, the performing and visual arts were implicitly regarded as central to the cultural industries, which were in turn tendered as the foundation of an extended conception of the CIs (Throsby 1994, 2001). In the social network definition, however, it is design and media that are elemental. This is not because they are transcendently essential and special, but because they are manifestly functional in the creation of new spaces and opportunities, and therefore choices and markets. The core business of the CIs is, after all, the representation and coordination of new ideas.

So, what do we gain and lose by this new definition? The main loss is that of a political/material definition of the CIs, yet we would emphasize this is not necessarily a bad thing. What we gain is a non-political definition that registers the properties of the structure and process of a market order, not the concerns of aggrieved or self-interested parties in a democratic order. This will change with new knowledge. In the early 20th century, for example, automobiles, social clubs and romantic tourism were significant creative industries.[15] By the late 20th century, these industries had mostly matured and CIs had become deeply embedded in these sectors (as *e.g.* automotive designers, software designers and package holiday designers). Yet the CIs did not just quietly embed along the industrial way, but moved on to new domains (*e.g.* digital content, games, new media, *etc*). Politics is always at a lag to culture and the economy, and the loss of political definition implies a further weakening of the redistributional welfare basis of traditional CI policy. What we gain, then, is a definition of industries as charged by their *generic novelty* (in the sense of

being the industries of new ideas with products of uncertain social value) rather than a definition based about the set of industries which produce known cultural goods, but are yet subject to operational failure in a competitive environment (the Baumol thesis). This enables the shedding of much of the ill-fitting and unnecessary baggage of the standard CI definition.

Another benefit of this new definition is that it offers a deductive assessment of whether or not an industry, or even a firm or economic activity, fits the CI definition by whether its structure and process, and therefore outcome, is significantly determined by social networks. Some activities have this quality, others don't. This affords a micro-based (*i.e*. agent) and meso-based (*i.e.* population and system) classification of economic activity. In making this classification, we get closer to a substantive macro definition of the creative economy as an evolving complex system than we do by industrial classification (Foster and Potts 2006, Dopfer and Potts 2007a).

A further benefit is that it also links directly into analysis of the entrepreneurial process and the formation of new markets and organizations, and in general with the process of innovation as an experimental endeavour of what Schumpeter called 'creative destruction' (Metcalfe 1998, Loasby 1999). This has several aspects. It connects directly to analytic models of social process of the adoption and diffusion of new ideas on social networks. And although most of these are derived from physical and biological models, there is much scope for analysis of consilience between these complex systems domains. In consequence, this new view re-connects cultural studies back into modern science in a fundamental way through recognition of its basis as the study of *emergent complex (social) systems* (Lee 2007).[16]

3 Models of social networks and analytic implications

The standard definition of the CIs had the advantage of immediate relevancy to the concerns of extant policy platforms. However, the main benefit of the social network definition of the CIs is its license to import wholesale analytic models from late 20th century mathematics

and science, in particular those of network and complexity theory (see Watts 1999, Strogatz 2001, Newman 2003, Ormerod 2006, Vega-Redondo 2007). Social network theory is the application of network and complexity theory to the dynamics of social processes.[17] Recently, there has been considerable growth of research into complex networks in social and economic systems that has developed analysis of Random Boolean networks (following Kauffman 1993), *small world* networks[18] and *scale-free* networks.[19] The result is that there now exists a significant body of theory and tools for analysis of complex social networks. Furthermore, this has been connected to the complex network framework of markets and other economic systems (Kirman 1991, Potts 2000, Foster 2006, Ormerod 1998, 2005, Dopfer and Potts 2007a).

Analysis of the creative industries fits easily into the framework of social network models of both production and consumption. Social network theory provides an analytic modeling language that parsimoniously represents the essential features of the sorts of organizations and institutions, including markets and information networks, that characterize both the production of CI output (see Caves 2000) as well as the processes by which consumers make choices over new products (which are often experience goods) of uncertain quality (see De Vany 2004, Earl and Potts 2004, Chai *et al* 2007). Indeed, it is notable that both Caves and De Vany strongly emphasize the *radical uncertainty of demand* as an essential feature of the economics of CIs. The analytic implications of adoption of a social network definition are therefore at very least potentially interesting, and possibly considerable.

First, this offers a first-principles rationale for developing further the so-called 'trident' methodology for statistically tracking the extent of 'creative embedding' in the general economy (see Cunningham 2006, CCI 2006) in terms of network structure based on social network classification. This offers an advance on the early creative industries mapping documents, which could only ever seek to infinitely elaborate maps of the existing classification, which is perpetually out of date.

Second, it makes possible the classification and mapping the types of social networks in the CIs according to theory network types and metrics. The value of network

theory is that it provides a framework to classify and therefore map the connective structure of the CIs. This in turn further allows us to refine the idea of 'emergent socio-markets' by recognizing that almost all industries started as hobbies by enthusiastic amateurs or shunned obsessives, or through unpredicted breakthroughs – in other words, outside established market norms. It is this liminal zone between the social and the market, not just in start-up conditions, but when it is normal in established sectoral activity, that defines the space we are trying to delimit.[20]

Third, developing a new economic model of the CIs from social network theory opens a path toward further unification of analytic frameworks in behavioural economics, institutional economics, media and cultural studies, and other domains that study agent behaviour and changing environments in terms of the *generic rule* basis of the CIs (Dopfer and Potts 2007a). A more refined understanding of the micro rules of CI activities may then be developed into new simulation models or used to calibrate existing models of socio-economic processes (Foster and Potts 2007). The network foundation further suggests a basis for macroeconomic analysis of how the process of growth in the CIs connects to other sectors and to macroeconomic growth when the CIs are re-interpreted in terms of the *innovation system*, not the welfare system (Potts and Cunningham 2007, Potts 2007a).

A fourth and final point, yet one broadly implicit in all the above, is the connection of the network perspective to evolutionary and complexity theory. As first elucidated by Kauffman (1993), networks, complexity and evolution are all tightly interconnected concepts (Loasby 1999, Potts 2000, Newman 2003, Ormerod 2005). The upshot is that evolutionary and complexity theory can be developed consistently in the economics of CIs when defined in terms of social networks. This offers, we suggest, the basis for a systematic research program guided by the framework of network theory, complexity theory and evolutionary theory. Social systems are naturally complex systems, a point that once recognized offers an analytic basis for further integration with other behavioural and social sciences and cultural, political and media studies, which are also studies of complex systems. The particular complexity of the CIs lies in the *social network markets* that form

about the production and consumption of novelty. For this reason, analysis of the creative industries is properly based about the economics of complex social networks.

4 Policy implications

Although a speculative new classification is hardly the place for explicit policy conclusions, what this new definition does serve to highlight is the extent to which the policy landscape is changed by a new social network definition of the CIs. In prime instance, the *social welfare* theoretic basis of the standard definition is replaced by an *innovation system* definition in which the CIs are re-positioned from a lagging to a leading sector, and from which their policy needs are appropriately re-assessed. As a welfare sector, their prime concern is public resource transfer to maintain existing activities (*e.g.* heritage or performing arts, see *e.g*. Throsby 1994). But as a leading sector (*e.g.* design or video games, see *e.g*. QUT *et al* 2003), their prime concern is to apportion risk and uncertainty to the appropriate social domain best able to carry it, and to develop institutions that facilitate experimental behaviour and accommodate the dynamic costs of change.

The standard (DCMS) definition of the CIs is based on an extension of the cultural industries, and so inherits a propensity to view CI policy in terms of market failure in the provision of public goods.[21] The social networks definition, on the other hand, is much closer to the sorts of policy prescriptions that derive from evolutionary or Schumpeterian economics, and in particular the apportioning of the risks and rewards of innovation, the development of capabilities for innovation, and the compensation of the losers from innovation.[22] This approach focuses attention on institutions in relation to education, finance and insurance, taxation, property law and other such aspects of an enterprise economy. The social network market aspect also adds further concern with social technologies and social infrastructure, and of the adoption patterns and coordination properties that result. However, unlike the standard model, there is no implicit presumption that this is a market failure argument, but rather an ongoing process of adapting existing institutions and developing new institutions (*e.g.* in media, communications, *etc*).[23] There is

a role here for institutional entrepreneurs (Dopfer and Potts 2007b) as well as traditional Schumpeterian entrepreneurs (Swedberg 2006, Potts 2006). But the domain of policy is radically shifted from a top-down re-compensatory model to a bottom-up model of experimental facilitation and innovation.

A further implication of the social network market definition is that it allows us to model how technological change may impact on the CIs by evaluating the hypothesized effect on social networks – for example, will it just change the speed of diffusion, or result in different patterns of percolation, or reconfigure a new opportunity space? – or of the differential effect of different structures of network – for example, is it a small world network or a random graph? This offers a theoretical basis for evaluating the effects of public sponsorship of not just how new technologies effect the CIs, but how the CIs may effect the adoption and retention of new technologies.[24]

A final point is the increased significance the social network definition gives to detailed micro data of agents, firms, and markets in the CIs, and the relative devaluation of aggregate statistics, such as gross sectoral product, employment or exports. Aggregate statistics have long been central to the industrial welfare perspective, where industry funding was essentially viewed as a zero-sum game of equity, in which industries were thought deserved of public supported in proportion to their aggregate 'significance'. The only data that matter in this view are those that measure economic significance by aggregate weight. It matters little what is actually occurring inside the industry, for that allocation of funding was almost entirely a political or managerial decision. In the network view, however, the micro details of agents and markets are of prime significance for public policy, as they are the raw data upon which public action is proposed in the face of novel technologies and new economic possibilities.[25] The development of finer and better micro data about the creation and destruction of firms, jobs and patterns of activity has much greater prominence in the social network market definition of the CIs than the standard DCMS definition. CI policy is only as good as the analysis it is based on, and with the theoretical advance of network analysis, coupled with better micro data about these social

networks, a new space for CI policy may open up along similar lines to science, technology and innovation policy.

5 Conclusion

Evolutionary economists have long argued that economic growth is caused by the growth of knowledge. Cultural economists have long argued that the creative arts, broadly conceived, produce knowledge. The concept of creative industries puts these two observations together. What we have added here, in this paper, is the further observation that this takes place in markets that are predominantly coordinated as social networks; and they are perhaps the most interesting markets of all: *social network markets*.

We have argued that the creative industries are not well defined as a set of *industries*, as in the standard DCMS definition, but are better defined as a class of *markets* – namely markets characterized in both supply and demand as (complex) *social networks*. We have mostly resisted the urge to label this *creative agents*, or *creative markets*, or *creative economy*, but that is what we mean. Most interesting from the economic perspective is that these markets coordinate as complex social networks. We have called these *social network markets* and have indicated that this offers a rich analytic base to build upon. It offers, in prime instance, an analytically coherent way to connect the economics of evolutionary growth with the social science and humanities studies of how people socially create adopt novelty for retention as knowledge.

Our implicit proposal has been that the CIs are better defined as the set of economic activities in which production and consumption outcomes are predominately determined by market-like processes on social networks. We have also maintained that this is 'significant' because the origination, adoption and retention of novel ideas is the primary cause of economic growth and development. CI products are not defined as such because they are creative *per se*, but because they are novel and of uncertain value in the creation of new opportunities, a value that is, literally, socially determined by complex networks of individual interactions. This is true of all commodities to some degree, or at some point in

space and time. The CIs, however, represent the domains of economic activity in which social networks are the predominant factor in determining value. The creative industries, in this view, are re-conceptualized as not just another public goods sector, but as essential to the process and structure of economic and socio-cultural evolution, the leading edge of which occurs in social networks that result in emergent structures of coordination.

The analytic basis of our proposed new framework for the economics of the arts and culture (as marked out by JEL classification) is thus in terms of an evolutionary/complexity-based analysis of the creation, adoption and retention of economic novelty, as a market process, over social networks. This offers a new analytic foundation for creative industries economics that, we believe, legitimately advances toward a generalized re-conception of the *creative economy* as distinct from the 'information society' or 'knowledge economy'.

What we have sketched here is of course plainly a preliminary proposal and not yet a comprehensive framework. Further work in this direction might, however, provide a better foundation for cultural and creative industries policy than the implicit extant basis in market-failure and social welfare arguments. For the arts provide an evolutionary service that benefits both society and the economy, both in the individual and the aggregate. The CIs, as the economic generalization of the arts, have positive economic and social value to be sure. But our specific hypothesis has been that this value is greatest when the technological and social conditions of human systems are changing fastest, as is seemingly now the case in 'post-industrial' economies (Beinhocker 2006, Benkler 2006). The social network market perspective thus offers a basis for analysis of how socio-cultural and economic systems co-evolve. Such a framework, we suggest, should be central, not peripheral, to analysis of economic growth, development and the policy that follows. Yet we have also noted that such an analytic framework already largely exists at the interstices of social network theory, evolutionary and complexity economics, and post-modern cultural and media studies. A social network market based definition of the creative industries offers, we think, a way to fix this idea analytically.

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[2] CCI, Queensland University of Technology, Australia.

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[5] See Howkins (2001), Cunningham (2006), Potts (2006).

[6] This position is also advanced by Caves (2000), but in terms of information and transaction cost economics, as opposed to a conception of the market process.

[7] This explains why contemporary emergent producer-consumer integration (as in the neologisms: *prosumer* or *produser*) and the so-called pro-am revolution (Leadbeater and Miller 2004) is a feature of this process, along with the emergence of new organizations and markets.

[8] *cf.* DCSM: 'Those industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property.'

[9] A rule is defined here generically as an operationalized idea (Dopfer and Potts 2007a). Behaviours, organizations and technologies are all instances of rules. See also Nelson and Sampat (2001).

[10] *E.g.* Strogatz (2001) or Barabasi (2002).

[11] *E.g.* see the work of Paul Samuelson, J.K. Gailbraith, Michael Porter or Oliver Williamson. This is most clearly expressed in cultural economics through the work of Will Baumol.

[12] See Shy (2001) on the economics of network industries.

[13] As the science studies scholars have explained, *e.g.* see the work of Philip Mirowski, Deirdre McCloskey, Steve Fuller, etc.

[14] Dopfer and Potts (2007b) argue that this classification should be further extended to 'institutional entrepreneurs' who introduce new social technologies that may evolve into new public goods, thus allowing celebrities, advocates, journalists and politicians into the mix (see also Swedberg 2006).

[15] An obvious problem here is the term 'industries' itself, as what we are essentially arguing is that the creative industries is better defined in terms of social networks and markets. The term 'creative economy' is preferable.

[16] *Cf.* Garnham (2005).

[17] A network (or a *graph*) is formally defined as a set of *vertices*, or elements, with *edges*, or connections between them. Models of complex networks have been widely developed in sociology over the past three decades and have sought to model networks through several key dimensions including *size* (number of vertices), *degree* (average number of edges per vertex), *centrality* (measure of degree distribution), *diameter* (longest shortest path) *clustering* or *transitivity* (measure of triadic probability of vertices) and the existence of *hubs* (measure of preferential attachment of new edges differential degree vertices). An excellent overview of this general literature is Newman (2003) and of social networks in particular, see Vega-Redondo (2007). These methods have been greatly advanced in recent years with the application of computational techniques developed in statistical physics (Ormerod 2005). Models of social networks have been widely used in sociology to study the topology of social network interaction to estimate the connectivity of the social system (which is then applied for the study of *e.g.* the spread of sexually transmitted diseases, political opinions, fashions, *etc*). Social network models have also been in economics (see Kirman 1994, Ormerod 1998, Potts 2000) in the similar context of adoption/diffusion of new messages and technologies in order to explain how market (*i.e.* social) structure effects market dynamics (whether of prices or technological adoption).

[18] Small world networks have the property of balancing high clustering with low diameter, see Watts (1999) and Strogatz (2001).

[19] Scale-free networks with power-law degree distributions in which hubs occur at all scales, Albert and Barabasi (2000).

[20] This then enables us to further develop work, such as by Benkler (2006), who recognises the centrality of networks to the new production-innovation-consumption synthesis, by bringing a network theory (as opposed to model/metaphor) in terms of social and economic systems.

[21] Hesmondhalgh and Pratt (2005).

[22] Note this last point implies a dynamic approach to welfare, which is consistent with the evolutionary approach to policy (see Pelikan and Wegner 2003).

[23] Heilbrun (1991), Cowan (2002).

[24] Interestingly, this would move the CIs from irrelevance to the forefront of *innovation policy*, when understood as a supervening set of industry, competition, cultural and education policy (Cunningham 2006).

[25] This will be adaptive economic policy (Pelikan and Wegner 2003).