

‘Urban Semiosis: Creative Industries and the Clash of Systems.’

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Abstract: This paper has two aims. The first is to make the case that the ‘universe of the mind’ imagined by Yuri Lotman (1990; 2009) may be considered as a foundational model for cultural evolution: i.e. population-wide, dynamic, autopoietic, self-organising adaptation to changing environments. The second aim is to take forward a model of culture derived from Lotman’s work – a model I’m calling ‘the clash of systems’ – in order to apply it to creative industries research. Such a move has the salutary effect of putting the ‘universe of the mind’ literally in its place. That place, now, predominantly, is in the city. Thus, the paper uses Lotman’s model of the semiosphere to link different complex systems, principally the semiosphere with that of the city, in order to explore the productive potential of encounters – clashes – between different systems. Applying these insights to the field of creative industries research, the paper proposes that creative culture in the globalised, urban and web-connected era can be characterised as ‘urban semiosis’.[†]

Keywords: clash of systems, creative industries, the city, Yuri Lotman, urban semiosis, complex systems, semiosphere, noösphere

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‘Urban Semiosis: Creative Industries and the Clash of Systems.’

Mankind taken as a whole is becoming a mighty geological force.

(Vladimir Vernadsky 1943: 19)

Creative industries research and the reordering of knowledge systems

The creative industries domain is a fascinating arena for developing better models of culture, because it brings together what inherited theoretical and disciplinary habits of thought had assumed – or insisted – to be incommensurable opposites: artistic expression and global markets, for instance; or critical thought and entertainment; amateurs and experts; everyday life and global technologies; slum and suburbia; daytime and nightlife; work and leisure; story (text) and reality (action); individual and society; structure and agency; power and freedom; object (element, particle) and operation (process, wave) ... etc. Some of these terms may feature in later discussion; the important matter at this stage is not the detail of each opposing pair but the way polarising distinctions between various values have been systematically produced within cultural and social theory, where they take the place of exploration and explanation.

The creative economy is one of those intersections where culture clashes most noisily with economics, producing a familiar ideological fault line where adversarial rhetoric bubbles up continuously to separate advocates of the arts from advocates of markets (O’Connor 2010), despite continuous reminders that fine art is itself a global market and global markets produce new art in fashion, architecture, literature, design, screen media etc. (Keane 2013: 126). Such ‘critical’ rhetoric is commonly deployed with the avowed intention of producing or exacerbating hostilities between these phenomena, not of resolving differences, or understanding how overlaps might be productive. Thus, cultural theory, not just culture itself, is characterised by the clash of intellectual, theoretical or ideological systems, reminding us that knowledge is not outside but part of the ‘universe of the mind’ that it seeks to explain (*Cultural Studies* 2011; Hesmondhalgh 2013; T Miller 2004; Ross 2010). For researchers interested in modernising cultural, scientific and disciplinary knowledge systems, that can be frustrating as well as fascinating, because scholarly partisanship is itself polarising, running too readily towards a kind of speed-reading caricature of opposing views (‘we’ are critical; ‘they’ are neoliberal). More important (for the purposes of this article), it produces conceptual binaries as a kind of coded version of political difference, attaching positive and

negative evaluations to the terms in an ostensibly analytical binary pair. That essentially structuralist move (which, because cultural studies has sought to politicise the study of culture, is evident in my own work where it seeks to reevaluate popular media) is limiting if endlessly repeated, however.

Thus, the principal goal of this paper is not to produce further polar distinctions (e.g. to oppose culture and economy), or to pass judgement on this or that distinction (e.g. to prefer art over the market or vice versa). In the context of ‘creative city’ research, this paper’s purpose is to contribute to an overall conceptualisation that may also be utilised in problem solving on the ground. Put simply, cultural theory needs a new theory of culture; one that is comfortable with it as a contested, politicised zone of knowledge, but does not make taking sides the purpose of the analysis. Contestation is exactly what needs explanation and reconnection with creative economy discourses and mediated culture. This researcher has found Yuri Lotman’s system-semiotic thinking to be the go-to enabler of that move.

Cities and complexity

Creative economy theory to date suggests that the place where these clashes are most intense and productive is in the urban context. Since 2009, living in cities is the majority human experience, as it has been since 1950 in developed countries, and soon will be everywhere (UN 2009; WHO 2013).¹ In this context, Lotman’s ‘universe of the mind’ (1990) – i.e. culture – should not be thought of as an abstract or merely textual phenomenon, but a situated and dynamic one, a ‘universe’ spatially extended across the planet, which was itself only mapped and explored as a whole for the first time by the 20th century. Very rapidly, humanity as a species globalised and urbanised, such that contemporary cities are characterised as much by their web of interconnections (information, trade, migration, capital etc.) as by their particularities.² It follows that any attempt to understand how meaningfulness, identity, sociality and power are produced, circulated and experienced among human populations – any attempt to understand culture, in short – needs more than ever to think about cities.

Cities were well described by Jane Jacobs as a ‘problem in organised complexity’ (Jacobs 1961; see also Mehaffy n.d and Hélie 2012). Indeed, historically, cities are the *solution* to problems of cultural and economic complexity – practical, self-organising, and adaptive. They were invented independently across cultures and times otherwise entirely alien to one

another, from the Mongolian steppe (Karakorum) to the Amazonian Andes (Kuelap). Jacobs' concept of 'organised complexity' is different from mere complicatedness (as pattern is to tangle) because the components and variables that constitute the 'problem' are connected, requiring what Jacobs presciently called a 'web way of thinking' (Mehaffy 2011). In a web, strength and structure come from links and relationships among components, scaffolded by the organisation of the web itself.

A 'web way of thinking' is another way of describing systems thinking. In practical terms, network thinking takes account of complex systems' self-organising, autopoietic (self-creating) properties (Luhmann 2012: 32-5), and of their propensity for combinatorial evolution (Arthur 2009), to arrive at non-linear planning solutions, not to apply top-down templates ('real estate' solutions). The way forward for the urban activist or expert is not to politicise difference, not even in the name of progress (which has resulted in clearfelling slums without regard to webs of self-created communities and enterprise that are bulldozed for boulevards). Instead, the goal is to catalyse change among existing dynamic and connected relationships, by understanding how 'cohesive – yet nonexclusive – groups' (Vedres and Stark 2010: 1151) can interact complexly, rather than antagonistically.

The work of Balazs Vedres and David Stark on 'structural folds' holds great promise in this respect. They use call 'historical network analysis' to show how entrepreneurship is productive in network systems. They argue that:

Entrepreneurship, as an enabling capacity, proves productive not so much by encouraging the smooth flow of information or the confirmation of fixed identities but by fostering the *generative and productive friction that disrupts the received categories* of 'business as usual' (Vedres & Stark 2010: 1151, my emphasis).

Their suggested model of 'structural folds' is an example of how network analysis can contribute to a reconceptualization of how innovation works, foregrounding the *combination and integration of elements* across existing boundaries, and arguing that the *creative generation* of new connections across these 'structural folds' is the key entrepreneurial move in the growth of new knowledge, rather than importation of existing information.

Cities as organised complex systems are characterised less by sheer size and more by intensity of connectedness and 'non-exclusive' overlap between cohesive groups. Luís

Bettencourt (Santa Fe Institute) argues (2013: 6): ‘cities are first and foremost large social networks. In this sense cities are not just large collections of people, they are agglomerations of social links.’ It is not population scale that constitutes the city but these ‘social links’ – meaningful, identity forming and productive of mutuality among physically and technologically interconnected people, scaffolded by connective infrastructure (e.g. streets, buildings, technologies, language, culture), and creatively responsive to changes in that environment by combining disparate elements to form new meanings.

Social links are continuously renewed, reworked, extended and made productive by myriad ‘users’ going about their daily business, using the physical infrastructure and operating within the equally complex webs of signification and mediation that make the city. These ‘social links’ include but should not be confined to bonds of ethnicity, co-territoriality, affinity, interest or voluntary collaboration; links of *attraction*, in short. They must also include links of *repulsion*, as it were, where social networks operate over against individual will, preference or benefit – links of obligation, coercion, antagonism, enmity, difference, hostility and conflict (including competition), which I’m summing up in the word ‘clash’.

The idea of the civic, of citizenship, is an attempt to describe bonds of ‘association among strangers’ (Hartley 2010) that are required if urban life is to flourish. Civic duty and self-interest may often appear to be at odds, but cities are places where people who don’t share the same values learn to get along, deriving ‘self-interest’ from complex webs and networks that include potential enemies (risk) as well as competitors and co-operators (reward). It is this scenario that needs exploration and modelling: where the ‘clash of systems’ at urban-global intensity can be seen as *productive*. In this context ‘productivity’ clearly implies what Schumpeter (1942) famously calls ‘creative destruction’, where dynamic emergence destabilises incumbent rules and processes, replacing them with new ones.

But at the same time, ‘learning to get along’ in complex interrelated webs of difference also requires processes that do stabilise systems. Lotman took care to include *intra-system dialogue* as well as clash *between* systems. His concept of ‘auto-communication’ (1990: 20-35), referring to *self*-description (not ‘automatic’ communication), offers a recursive or reflexive mechanism for cultural systems to ‘think through’ the tensions of interaction and change, slowing down dynamic processes even while experiencing them. In short, not all communication is disruptive or other-oriented. Some is identity forming, in what Lotman

calls 'I-I' rather than 'I-s/he' mode; and each mode conditions the other in continuing cultural processes.

Cities, language, marriage: the clash of systems

Interestingly, it was Jane Jacobs, the pioneer of systems thinking for cities, who made the connection between complex systems and language. Her view was that apparently disparate systems like the atmosphere, evolution, the economy and language share with cities the characteristic of autopoiesis or self-creation. In *The Nature of Economies*, written as a platonic dialogue and described by one reviewer as 'a search for universal principles that characterize complex systems, both "natural" and "human made"' (Desrochers 2000), she wrote:

'A system can be making itself up as it goes along,' said Hiram. 'The weather is like that. Evolution is like that. Economies, if they aren't inert and stagnant, are like that. Since they make themselves up as they proceed, they aren't predestined. Not being predestined, they aren't predictable.' 'That may be a novel idea for meteorologists, but it's old news to linguists,' said Armbruster. ... 'Language makes itself up as it goes along.' (Jacobs, 2000; 137)

Yuri Lotman's concept of the semiosphere offers a systems model to analyse 'the clash of systems' as a condition for the existence, interaction, and sustainability of creative cities as for creative language, cities being the necessary crucible for the innovation and renewal of creativity itself. Individuals on the ground (persons or enterprises) may experience competitive and adversarial relations, even extending to life-or-death conflicts, as between predator and prey in an ecosystem. But these clashes may, at a higher level of integration, be seen as part of a structure for maintaining sustainability among different users of a given environment.

Conflicts of this type may be 'creatively destructive' in the Schumpeterian sense, leading to greater diversity across the system as a whole. Here it may be useful to mention that Schumpeter's notion of creative destruction and Lotman's later conceptualisation of 'culture and explosion' (2009) are mutually explanatory, in that Lotman and Schumpeter both utilise evolutionary logic to analyse change, finding that periods of gradual or incremental change ('culture') may be disrupted by sudden change with an element of chance or risk ('explosion'). Andreas Schönle and Jeremy Shine point out that the concept of 'explosion', or

unpredictable and abrupt transformation, ‘throws an element of creativity and chance into history’ (2006: 7). Thus, creative cities are those where ‘destruction’, ‘explosion’, risk and chance are structural components of generative productivity among overlapping but non-exclusive groups.

A traditional structural-semiotic explanation of the ‘play of difference’ is confined to the operations of textual signs (Derrida 1978: 278-94). But Lotman’s system-semiotics is social. It derives thought (new ideas) not from mind or even from *langue* but from interlocution. Text is always dialogue, in the sense that meaning is generated from interaction (system to system, as well as person to person). Lotman (1990: 145-6) describes how national cultural *systems* engage in turn-taking dialogue over time. During a period of rapid change one system transmits ideas and innovations while others receive, but then the partners in dialogue reverse roles. Thus Italy transformed from post-Roman dormancy, to being an importer of ideas in the medieval period, eventually to export new ideas in turn that would transform Europe during the Renaissance. France was a major exporter of new ideas during the Enlightenment and Revolutionary period, but not after 1810. Russia switched from cultural importer to exporter of radical novelties – from artistic texts to political ideas – in the decades between Pushkin and Stalin. Here, textual and social systems intersect in intertextual dialogue, or what Valentin Vološinov called ‘colloquy of large scale’, which is where new meanings are most productively generated:

Whether oral or written, all utterances imply a response and are, thus, dialogic in nature. Each book, a verbal performance in print, anticipates, explicitly or implicitly, a response of some kind... The printed verbal performance engages, as it were, in ideological colloquy of large scale: it responds to something, objects to something, affirms something, anticipates possible responses and objections, seeks support, and so on (Vološinov 1973: 95).

Thus, the attempt must be made to link semiotic systems like language with social systems like cities, and both with knowledge systems like cultural theory, to ascertain how the interactions (clashes/colloquy) within and among them can be seen as related and mutually causal. Apparently different phenomena – creativity, cities, complexity, and ‘the clash of systems’ – may be seen as components of larger interacting spheres. Difference, dialogue, turn taking, conflict etc., are not evidence of mutual incompatibility or antagonism, as critical theory has tended to assume, but rather are part of a global process of cultural productivity.

A good practical example of how the ‘clash of systems’ generates productivity out of difference is *marriageability*. Marriage is easily understood a near-universal cultural practice with wide local variation, that is both personal and economic. It requires the bringing together of different families, with the risk of incompatibility and conflict as well as the hope for cooperation and reproductive success, on which individuals, social systems and biological species equally depend. It is always caught up in other systems – religious, legal, economic – and in some places is more formal and rule-bound as a result. However, marriage also requires an open system for optimum choice of partners. Indeed, for George Bernard Shaw (Fabian activist, co-founder of the LSE and the *New Statesman*, and the only person to win both a Nobel Prize and an Oscar), ‘complete marriageability between all sections of the community’ was the only test for ‘practical as opposed to arithmetical equality’ in society (Shaw 1937, v; 66-9). In the 1920s and 30s, when he wrote that, there were still highly marked class differences that separated ‘high society’ from their live-in servants, so this remark must have seemed provocatively socialistic. It was presumably so intended, being proffered as the model for equality in his *Intelligent Woman's Guide to Socialism and Capitalism*. This landmark publication, the first-ever Pelican Book, was addressed to Shaw’s sister-in-law Mary (who was married to a British peer, Brigadier General Cholmondeley). Shaw’s egalitarian challenge remains a very good test for socio-cultural equality and the open society, as current international campaigns against forced marriage and for marriage equality amply demonstrate. But any such equality is produced out of difference. The incest taboo requires marriageability to be looked for among non-kin, the very neighbours from among whom enemies are also selected (Leach 1964). The same overall ‘universe of the mind’ generates positive links (marriage; offspring), and negative ones (warfare, death) from the same structure of relationships. It is this type of risk-laden ‘clash of systems’ that characterises not only marriage and enmity but also the ground and the terms on which they are staged (cities and culture). In other words, at the level of populations, rather than individuals, difference generates productivity and sustainability.

Biosphere to noösphere to semiosphere

Unlike the better-known figure Ferdinand de Saussure, who pursued what he called the ‘science of the life of signs in society’ by using the reductive method and seeking the ‘smallest signifying unit’ (Saussure (1974), Yuri Lotman pursued the science of semiotics from a systems perspective, seeking to explain language as a globally coherent phenomenon

that generated the possibility of difference within it. His key insight is the concept of the semiosphere, the ‘universe of the mind’ within which cultural and textual difference develop through active intra- and inter-system dialogue. As he put it, the semiosphere is the ‘semiotic space necessary for the existence and functioning of different languages’ (1990: 123-5). His version of semiotics is not founded on the abstract signifier or sign, but on ‘separate semiotic systems’ which can only come into their distinctive and asymmetric being within the envelope of a larger unity, the semiosphere, which is the ‘semiotic space or intellectual world in which humanity and human society are enfolded and which is in constant interaction with the individual intellectual world of human beings’ (Lotman 1990: 3). The semiosphere is a scale free concept, encompassing ‘bottom-up’ or micro-scale encounters as well as ‘top-down’ national and world systems, ranging from global media culture down to the interaction between a mother and her newborn infant, which Lotman called the ‘language of smiles’ (1990: 144). The model is essentially fractal, displaying similar structure at micro and macro scale.

Lotman modelled the semiosphere on the biosphere, a term which he credited to Vladimir Vernadsky (1943; 1938; see also Lapo 2001). Vernadsky himself also used the term ‘noösphere’ – the biosphere modified by human thought, work, and invention (Samson & Pitt 1998).³ These concepts – biosphere, noösphere and semiosphere – allow systems thinking to shift away from reductive science and methodological individualism, to countenance ‘downward causation’ from system to species to specimen. But they remain scientific concepts: the concept of the biosphere is derived from geology:

Mankind, as living matter, is inseparably connected with the material-energetic processes of a specific geological envelope of the Earth—its biosphere. Mankind cannot be physically independent of the biosphere for a single minute. (Vernadsky, 1943: 17)

This ‘geological envelope’ of the biosphere includes the earth’s living organisms and species and also their interactions, the conditions for the continuation of life and the links and relationships among all ‘living matter’ (biota). The evolving biosphere provides the conditions of possibility for the life of any species, e.g. *H. sapiens*’ dependence on oxygen produced by other life forms (from marine algae, plants), inherited bilateral symmetry (from fish) and calcium structures for skeletons (from animals), the exploitation of ‘fossil fuels’ and living matter for energy, etc. Humanity and human signification are but evolved components

of chemical and geological matter-energy (Herrmann-Pillath 2010: 41). However, such systems are always in flux, and ‘anthropogenic’ novelties can produce system-level changes. Vernadsky (1943: 20) asks, ‘Here a new riddle has arisen before us. *Thought is not a form of energy*. How then can it change material processes?’ He writes: ‘This new form of biogeochemical energy, which might be called the *energy of human culture* or *cultural biogeochemical energy*, is that form of biogeochemical energy, which creates at the present time the noösphere’ (1938: 18, my emphasis). In Vernadsky’s view, after mastering fire and at an accelerating rate after the invention of agriculture, humankind isolated metals like iron and aluminium, produced entirely new materials and impacted the planet, shoreline, oceans and atmosphere with previously unknown structures, materials and activities. In the last half millennium, ‘the entire surface of the planet was embraced by a single culture’ (1938: 30), characterised by ‘the discovery of printing, knowledge of all earlier inaccessible areas of the globe, the mastery of new forms of energy – steam, electricity, radioactivity ... the creation of the telegraph and the radio...’ etc.

These developments resulted in what Vernadsky refers to as the ‘consciousness of the unity and equality of all peoples, the unity of the noösphere’ in modern, progressive societies. The transition from biosphere to noösphere, as a further evolution of biogeochemical processes and systems, is what some observers are now calling the Anthropocene epoch (Crutzen & Stoermer 2000), where human knowledge is changing the geological as well as biological and climatological makeup of the planet.⁴ This idea suggests that ‘*thought*’ (Vernadsky), *culture* (Lotman) and *social organisation* based on *communication* (Luhmann) and *urbanism* (Jacobs), which between them over a few thousand years have produced the growth of knowledge required for industrialisation and globalisation, should now be considered as a *geological epoch*.

Such large-scale, system-level changes are imperceptible and unconscious at the individual level; they cannot be predicted by reference to individual action, intention or rational self-interest alone, which may be why the response to anthropogenic climate change has become so politicised. Unfortunately, the capture of the climate-change ‘debate’ by politics also demonstrates that adversarial rhetoric can be destructive of understanding. To understand the forces, causation, components, workings, and implications of system-level phenomena, and their encounters with other systems, requires more than mere adversarial politicisation.

Vernadsky's idea of an 'envelope' encircling the earth that includes the atmosphere and the biosphere (1938: n. 48) was extended by Lotman to include culture – the semiosphere or envelope of signs. Here we can begin to glimpse human sense-making, culture, thought and knowledge – as well as the 'product' of those activities, including cities and waste (Maxwell & Miller 2012) – as forces that are part of the web of causation in material processes. Lotman's concept of the semiosphere starts from the system, and interactions among systems, to explain communication. This is important because, as with the shift from Linnaean taxonomic botany (describing difference) to Darwinian evolutionary bioscience (describing causation), it offers a way to conceptualise culture as an adaptive, interactive (communicative) system.

In short, Lotman's semiosphere paves the way to an evolutionary approach to culture. It draws attention from the single utterance, speaker, *langue* or language, and directs it towards interactions among whole populations and intersecting systems. Unique utterances are possible only within global systems of rules, and to get started these rules require the mutual interaction of 'at least two' languages. Thus the elementary act of thinking is *translation*. Lotman uses the analogy of intelligence to introduce the idea of language as a 'mutual psychological process': 'Human Intelligence ... cannot switch itself on by itself. For an intelligence to function there must be another intelligence. ... Intelligence is always an interlocutor' (1990: 2). So, 'human consciousness is heterogeneous. A minimal thinking apparatus must include at least two differently constructed systems to exchange information they each have worked out' (1990: 36). Language, culture, and thought are constituted in the clash of systems.

Lotman's work was literary in orientation, although he was interested in other textual systems including cinema, but his purpose was scientific, in the sense that he wanted to identify what Thorstein Veblen had called 'cumulative causal sequence' in phenomena (Hodgson 1998: 426), within the 'semiotic space' of culture. Thus, his own analysis is empirical and historical in character, but at the same time it is devoted to theory-building, conceptual modelling and the elucidation of causal process in sense-making systems. A systems approach, one that is also interested in historical dynamics and the causal mechanisms of change, is thus a candidate for the status of an evolutionary approach to culture.

Healthcare versus racketeering?

Prompted by Lotman's idea that sense is made when incommensurable and mutually untranslatable systems clash together, which seems to apply with great explanatory power to the city, it is now time to return to creative industries theory.⁵

Over the past decade or so, the idea of the creative industries has become prominent in cultural policy and economic planning internationally. Like other good ideas, it has not gone uncontested. For instance, introducing a collection of papers about creative cities, Phil Cooke and Luciana Lazzeretti (2008) felt the need to produce an adversarial account, making a very pointed distinction between the 'cultural economy' and the 'creative industries'. They distinguish between:

- *Cultural economy*: 'lengthily trained artists, singers, curators and musicians' with 'an aesthetic status comparable to that of many health-care systems'; its source is in the academy and public institutions.
- *Creative industries*: 'entrepreneurship bordering on racketeering' where: 'all make money, some criminally large amounts thereof'; their sources are the street, the market and private enterprise (Cooke and Lazzeretti 2008: 1-2).

This illustrates a strand of thinking in economic and sociological thought, as well as in the arts and cultural critique, which *prefers* public culture to private enterprise, especially in relation to culture and creativity. That preference, for one side only of the public/private 'divide', produces these two different models of creative purpose. If we were to follow Cooke and Lazzeretti's terminology, arguments for subsidised arts and culture, to ensure the wellbeing of the populace, would be called the 'healthcare' model; whereas favouring development for profit would be called the 'racketeering' model. The prejudicial nature of the distinction is obvious, and doesn't fit the facts, but despite the invidious comparison and the ambiguities and mixtures associated with everyday experience, it reproduces some well known and institutionally embedded distinctions, summarised in Table 1:

Table 1: Differentiating Cultural and Creative (adapted from Hartley et al 2012: 68)

	Cultural Economy: 'Healthcare'	Creative Industries: 'Racketeering'
<i>Mode</i>	Art	Entertainment
<i>Locus</i>	Cultural institution (GLAM)	Scene, festival, mall, novelty
<i>Value</i>	National identity	Global diversity and difference
<i>Attractant</i>	Prestige	Social network (street, media, clubs, crowds)
<i>Agency</i>	Citizenship	Digital literacy
<i>Temporality</i>	Daytime	Nightlife
<i>Demographic</i>	Adult	Youth
<i>Research</i>	<i>Journal of Cultural Economy</i>	<i>Journal of Cultural Economics</i>

Defenders of public culture ('healthcare') want to protect it from market forces ('racketeering'), but from the point of view of a creative city, it is important that both of the columns in Table 1 are co-present. This structure of productive opposition is analogous to the model of 'law-forming texts' versus 'anomalous texts' that I used in an earlier application of Lotman's semiosphere model, on that occasion to the 'universe of Indigeneity' in the Australian mediasphere (Hartley and McKee 2000: 71-4). In that context, the argument was that news stories characterised by 'anomaly' (one-off occurrences) could only be understood in contrast to their structural opposite numbers, which were 'law-affirming' texts (e.g. 'myths' such as foundation legends). Thus, for Lotman (1990: 151-3), mobile, one-off stories about difference (surprise, news, accidents), which are in linear time, about the world, and record the violation of some established order, can only be understood in contradistinction to spatially fixed, repetitious stories about identity and sameness, which are in cyclical time, about the listener/reader, and record principles. Lotman is clear that both types are needed within a semiosphere system.

They perform different functions, where 'law-forming' stories are 'auto-communication' (self-description), providing the reflexive/recursive function of stabilising the semiotic system for a given culture, while anomalous stories provide a meaningful structure within which to accommodate 'accidents' and 'anomalies', i.e. the clash with and knowledge of other systems. In our study of Aboriginal issues in the Australian media, it was clear that both kinds of stories were present in the overall mediasphere, but that journalism – unsurprisingly – dealt primarily in the 'anomalous' (newsworthy) rather than the 'law-affirming' ones. The

latter were to be found in drama rather than news (although these are not hard and fast distinctions, because much newsmaking tells mythic stories; while drama may be a harbinger of change). ‘Media bias’ is therefore structural: news media as a whole are only one half of a larger structure of narrative in the semiosphere. But there’s not much journalists can do about that, given the cultural function of news, which is to record anomalies.

The same structuring and differentiating process may well apply here too. In both Table 1 and Table 2 (and possibly also Table 3), the left-side column corresponds to ‘law-affirming’ texts, recording regularities (strictly, myth), while the right-side column generates ‘anomalous’ texts, recording new information. Modernity may also be characterised as a slow shift of emphasis from one side to the other, as ‘interaction and mutual interference’ brings the two sides into conflict, especially in the modern ‘plot-text’ in fiction, cinema and TV (Lotman 1990: 153). In other words moderns have come to *prefer* anomaly (news, originality, explosion) to law-affirmation (myth, repetition, culture), even though they rely on the interaction of both systems.

Rather than choose between the oppositions summarised in Tables 1 and 2, then, I prefer to see them in structured and productive tension (‘clash’); and I propose a different purpose for creativity – not healthcare or racketeering but *innovation*. This model is posited on a systems view of the creative process, where value lies in the ‘emergence’ and elaboration of new ideas that result in change and renewal in complex environments (Vedres & Stark 2010; Hélie 2012). Lotman’s approach would predict that such innovation occurs where systems collide; where there is friction, buzz and complexity in the ‘the hottest spots for the semioticising process’, along the boundaries of the semiosphere (Lotman 1990: 136; see also Leadbeater & Wong 2010). Historically, such tensions are worked through and decided in cities, where asymmetrical, incommensurable and mutually untranslatable systems meet and jostle on the street.

Creative Cities: Urban semiosis

So what is a creative city? Here, a distinction should be made between a great or world city based on power and a creative city, which acts as a ‘zone of attraction’ for creative people and enterprise (Hartley, Potts & MacDonald 2012).⁶ Great cities are associated with empire, and are often planned; creative cities attract new ideas, enterprise and people (disproportionally a youth cohort), and are self-organised. In a pilot study to produce a

Creative City Index, a team led by Jason Potts and myself produced a table to differentiate creative cities from ‘world cities’ (Table 2):

Table 2: Differentiating the Creative City (From Hartley, Potts & MacDonald 2012: 67)

	“World City”	“Creative City”
<i>Source</i>	Empire (court)	Institution (rules)
<i>Outcome of ...</i>	Monarchical power	Mobile-elite choices
<i>Locus</i>	Castle/palace (politics)	Port/hub/fair/marketplace (commerce)
<i>Value</i>	Greatness (past)	Attraction (potential)
<i>Competitive Advantage</i>	Size/power	Inflow/smarts (crucible of ideas)
<i>Dynamics</i>	Growth	Non-linear dynamics
<i>Resources</i>	Sunk capital	Complex of factors (capable, entrepreneurial people)
<i>Driver</i>	Leadership	Enterprise
<i>Temporality</i>	Past	Present/future
<i>Visitor experience</i>	Tourism	Exploration (self-fulfilment)

A creative city is one where ideas thrive, driving both economic and cultural growth. But ideas only thrive where they are competitive, contested, can be implemented in practice, and where difference and variety stimulate originality and novelty, to allow for the emergence of newness (Hutter et al. 2010). Historically, this process is most intense in urban locations, especially regional or national capitals, with a diversity of arts and crafts, as well as mechanisms for the exchange of ideas, including markets. Creativity and cities were made for each other, but the process is ‘non-linear.’ It relies on complex systems interacting and sometimes clashing. The city as a human invention is highly evolved for dealing with variety, change and difference in the growth and coordination of knowledge and ideas. Clash and difference drive change and innovation, which produce increasing elaboration. The creative city is one where ‘clusters of clusters’ emerge, to enable the self-management of increasing complexity and the growth and elaboration of knowledge.

‘Racketeering’ and ‘healthcare’ need to remain in close enough *proximity* to interact and cross-fertilise. In great cities, this productive opposition is literally built in: high-end cultural institutions including galleries, museums and universities are clustered in one district; street

markets, shopping malls and the HQs of global media companies in others. This is the basis for Michael Porter's urban cluster theory.⁷ Clustering is the historic, initially unplanned solution to problems of complexity; cities are the cumulative result. They are clusters of clusters, with functionally and demographically distinct – but interacting – districts. Complexity itself springs from myriad individual and organisational actions, stimulated by competitive difference among creative artists, 'the characteristic dialectic of disagreement, dissatisfaction, even alienation' (Cooke & Lazzarretti 2008: 4) that triggers new work, which is by definition novel, original and innovative. This rationale for the arts is the same as that for the market-based creative industries, despite the differences that divide them (Beinhocker 2006). And both are needed for a creative city – all thrive on complexity, competition, clash, creativity, coordination.

Richard Florida (2009), responding to the global financial crisis of 2008-9 and its impact on American cities, argues that creative personnel will cluster even more intensely in certain types of environment, concentrating in forty-odd competing megacity complexes around the world. He emphasises the importance of these cities as attractors and accelerators of creativity, characterised by:

- The highest velocity of ideas,
- The highest density of creative people,
- The highest 'urban metabolism' rate.

Thus a 'creative city' results from clustering its inhabitants and visitors, both professional artists and creative citizens, not just its industrial plant. Think 'festival' not 'factory.' What is important to creative clusters is not similarity (i.e. a cluster of similar firms) but variety and diversity (Lazzarretti et al 2009: 21) – the clash of opposites.

Artists, consumers and the clash of systems

When applied to the person of the artist, it is easy to see how 'the clash of systems' adds value to individual talent and energy, in China for instance:

In China, the artist might be an impresario, an amateur, an iconoclast or a state-employed 'cultural worker'. She might be a film director, performer, singer, poet, painter or video artist. The role of the artist has changed over time: from agent of change to state functionary, from iconoclast to craftsperson, and more recently to economic agent. (Keane 2013: 127)

It would be hard to maintain these activities, functions and personae if (as *Little Britain's* Daffyd might have said) you're 'the only artist in the village'. Cross-fertilisation among systems is bound to be slower or less rich in choices in regional, rural and remote areas. Artists are part of the productivity of the city; their most innovative activities are best understood as products of *urban semiosis*.

Of course artists have always been economic agents. Indeed, according to Swedberg (2006), the young Joseph Schumpeter used them to model his concept of the entrepreneur, upon which evolutionary economics is founded (Table 3):

Table 3: Schumpeter's parallels between the entrepreneur and the artist (Swedberg 2006: 250; from Hartley et al 2013).

The static majority	The entrepreneur / the artist
– Seeks equilibrium	– Breaks out of an equilibrium
– Repeats what has already been done	– Does what is new
– Passive, low energy	– Active, energetic
– Followers	– Leader
– Accepts existing ways of doing things	– Puts together new combinations
– Feels strong inner resistance to change	– Feels no inner resistance to change
– Feels hostility to new actions of others	– Battles resistance to his actions
– Makes a rational choice among existing alternates	– Makes an intuitive choice among a multitude of new alternates
– Motivated exclusively by needs and stops when these are satisfied	– Motivated by power and joy in creation
– Commands no resources and has no use for new resources	– Command no resources but borrow what they need

This entrepreneurial-artistic formula for the creative city focuses on businesses (enterprise), the labour market (artists, craft-workers and artisans) and the production process (especially in creative media, where it is fully industrialised). There is one element missing: the audience and consumer. The creative industries are unlike other sections of the economy, because *supply precedes demand* (Say's Law) – people don't know whether they will like a new creative production till it comes out. For artists and creative enterprises to succeed, they need a well-informed and attentive audience, with whom they can maintain a dialogic relationship,

using various mechanisms for generating and ‘bundling’ novelty for their attention. Further, since the emergence of digital and participatory media, audiences have become productive in their own right. The historic difference between producers and consumers – experts and amateurs – is under challenge. With the growth of social media and user-created content, the productivity of the system as a whole is increased. Digital technologies link and mix user-created content seamlessly with enterprise-touched content (as in YouTube), and the ease of uploading ‘content’ means that creative activities by non-professionals – musicians, bloggers, pranksters – can command global attention or create new niche markets. Consumers and producers are linked in mutually participatory networks. Hence, creative cities require a creative population – one that’s connected by high-speed broadband as well as open streets – as part of its complement of artists and enterprises.

One of the most prominent signs of this new sensibility is street art deriving from anonymous graffiti. This is ‘user-created content’ with the added spice of official disapproval. It was quickly canonised – shifting from ‘anomalous’ to ‘law-affirming’ textuality – in ‘cool’ cities, via artists like Keith Haring (1980s New York), Banksy in Bristol (UK) and others (Banet-Weiser 2011), with examples preserved *in situ* as tourist attractions (at least temporarily), e.g. the 5Pointz ‘Aerosol Art Center’ in Long Island, the Berlin Wall, or Melbourne’s lanes. It is now so mainstream that city authorities encourage and license it, creating a new distinction between ‘street art’ (allowed) and ‘graffiti tagging’ (erased).⁸

Graffiti is a visible marker of bottom-up creativity in urban life. Sometimes it’s an expression of anonymous nocturnal youthful presence, sometimes of darker moods brought on by contemporary events, e.g.: on official buildings in former East Germany after unification, where I saw the line ‘*First they bring us culture; then they take our flats*’ sprayed (in German) on a wall in Weimar; around Beijing and Hong Kong in support of artist Ai Weiwei in 2011; or across many cities from Istanbul through the Middle East and North Africa during the Arab Spring, for instance following the incident of the ‘woman in the blue bra’ in Egypt, December 2011. This is urban semiosis at its most direct, and it requires a productive, dynamic ‘clash’ between the previously distinct categories of artist and consumer-citizen.

Four phases/models of creative industries

Most policy discussion to date has focused on the ‘industries’ part of creative industries. But the sector has evolved and broadened since it was first identified in the 1990s. Already,

different phases or models can be identified (Hartley 2009, ch2). Each one has supplemented – not supplanted – the one before. The upshot is that it is now much easier to see how creativity relies on citizen-consumers as much as on enterprise-artists, and how much cities rely on their citizens as well as their economy to achieve creativity. Thus, for a truly creative city, what is needed is not just one model of the creative industries, but four *creative systems*: each of them separately describable, often overlapping, and clashing in creative tension as they grow and change in relation to each other. They are summarised in Table 4:

Table 4: Four models of Creative Industries (adapted from Hartley, Potts & MacDonald 2012)

<p>CI-1: CI-1: Creative clusters</p> <p><i>Industry definition</i></p> <ul style="list-style-type: none"> – Closed expert pipeline of innovation (internal to the firm) – Clusters of different industry sectors – advertising, architecture, publishing, software, performing arts, media production, art, design, fashion etc. – that together produce creative works or outputs. – Provider-led or supply-based definition: institutional (meso level) creativity; elaborate production by specialist organizations – Indicators: ‘Creative outputs’, i.e. consumer goods priced on creative values (i.e. adding value to information or material), including music, writing, design, performance <p>The CI-1 sector is reckoned to be anywhere between 3% and 8% of advanced economies (UK, USA, Australia), of growing importance to emergent economies (e.g. China, Indonesia, Brazil), high-growth, with an economic multiplier effect.</p>

<p>CI-2: Creative services</p> <p><i>Economic services definition</i></p> <ul style="list-style-type: none"> – Closed innovation system – ‘Creative services’ – creative inputs by creative occupations and companies (professional designers, producers, performers and writers) – Value-added to ‘non-creative’ sectors (e.g. health, government) by creative services: institutional (meso level) creativity – Indicators: employment of specialist creative people (professional designers, producers, performers and writers) <p>Creative services expand the creative industries by at least a third, according to research at the CCI, using the concept of the ‘creative trident’ (Higgs et al 2008).</p>
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Creative input is high value-add; stimulating the economy as a whole and boosting innovation in otherwise static sectors (e.g. manufacturing).

CI-3: Creative citizens

Cultural definition

- Open innovation network (innovation from beyond firms and professionals)
- Number of ‘creative citizens’ – population, workforce, consumers, users, and entrepreneurs, artists
- Personal (micro level) creativity/microproductivity/market-based and non-market
- Focus now on user productivity (cloud computing, crowdsourcing, etc.)
- Social media/user-created content
- Indicators: emergent production from social networks; called-up via micro-productive institutions (e.g. YouTube, Google)

This is a *user-led* or demand-side definition, where in principle everyone’s energies can be harnessed. It adds the value of social networks and the individual agency of whole populations to the *growth of knowledge*. It is the domain of experimentation and adaptation, where *individual* agency may have *network-wide* effects: thus it is the dynamic ‘edge’ of systemic *emergence*.

CI-4 Creative Cities

Urban mixture definition

- Clash and friction between systems: industry/economy and culture (e.g. in conflicting interests in the sharing of intellectual property)
- Sites for social meeting and mixture as well as friction: connecting culture and economy, diversity, tolerance, civility
- Creative cities are therefore those that cohabit all four types – industry, economy, culture, and urban semiosis
- Population-wide (macro level) creativity

The first two models – CI-1 and CI-2 – are based on the *economy*. CI-3 is based on *culture*, ‘technologically equipped’ (Papacharissi 2010). In Clay Shirky’s (2006) phrase: ‘Here comes everybody!’ In this model, everyone’s creative potential can be harnessed for innovation, which can come from anywhere in the system. In fact CI-3 is radically different from CI-1 and CI-2, because: (i) it focuses on culture not economy, consumer or user not producer, and whole populations (social networks) not firms; (ii) it is the beneficiary of the digital revolution, posing a direct and fundamental challenge to ‘industry’ business models; and (iii)

it is potentially a more productive (because more expansive) model of creativity than those that are tied to expert-systems alone.

CI-3 is therefore another example of how the clash of systems is proving to be the driver of change in creative productivity. Rather than being seen as the output of an industry, creative innovation becomes a property of complex systems, socially-networked relations, and the interaction of cultural and economic activities. Furthermore, social networks themselves are sources of innovation; they are not simply distribution media. The force of innovation coming from CI-3 is putting pressure on CI-1, as can be seen in the realm of intellectual property rights (IPR), which were heavily skewed towards industrial providers. The ‘rights’ of those who wanted to copy and share creative content were not recognised. A ruthless enforcement regime made criminals out of consumers, notably in the recorded music industry. The disastrous effect of this policy on both innovation and the industry itself is beginning to be recognised in recent moves to reform IPR law (e.g. Hargreaves 2011), although lobbyist push-back is also evident, to protect corporate interests.

Thus the four models are not based on trying to define ever more tightly how ‘creativity’ is ‘an industry’ but, on the contrary, on showing how it needs to be accounted for at *ever-increasing distance from industry*. It is not until we reach stages CI-3 and CI-4, where creativity reaches cultural dimensions located in cities, rather than being confined to production processes located in firms, that the productive connections between culture and economy, individual talent and societal scale, can come into focus. Furthermore, it is only at that point that we can take proper account of technological systems – the growth of ICTs, digital media and the Internet – because these are now not simply in-company efficiency-technologies (as IT once was), but whole-of-society cultural forms (as the Internet now is). In other words, if we confine the notion of creative industries to the traditional (i.e. analogue) creative arts and their industrial or occupational form, we cannot account for the importance – both economic and cultural – of user-created content and the burgeoning scale of computer-enabled social networks. Since these are clearly important drivers of the creative industries, we need all four models before we can explain creative innovation and the integration of cultural and economic meanings and values. Finally, CI-4 reminds us that these developments are competitive and uneven across space as well as time. Some cities achieve creative innovation ‘spikes’ compared with others. In abstract terms, cities are ‘hubs’ in globally

extensive social-creative-information-enterprise networks, but in historical actuality, cities rise and fall competitively, and are at the heart of creative dynamics.

Yuri Lotman tended to analyse this dynamism at the level of countries rather than cities, comparing the turn-taking alternation of reception and transmission of ideas between different European nations. But he recognised the power of cities, arguing that ‘in the age of Enlightenment [France] made all Europe speak her language ... Paris became the capital of European thought, and innumerable texts poured out of France to all the corners of Europe’. The Enlightenment itself, glossed by Lotman as ‘religious toleration, the cult of Nature and Reason, and the eradication of age-old superstition in the name of the freedom of Man’ (1990: 146), emanated from a city to the world, via the semiosphere.

Creative destruction and social learning

It may seem unnecessarily complicated to propose a ‘definition’ of creative industries that requires four components, each at odds with the others. But that does seem to be how the ‘system of systems’ works. To make matters more difficult for policymakers, technological and social changes are forcing the pace. In particular, the rapid growth of the internet and social media have had a disruptive effect, especially with the growth of consumer-created content. The existing, ‘analogue’ creative industries were themselves among the first to experience Schumpeterian ‘gales of creative destruction,’ (Schumpeter 1942) which followed the development of global online digital networks and their uptake by ‘everybody.’ The driver of the creative industries is transforming, from copyrighted ‘arts and media’ to ‘publish-yourself’ digital networks. Examples include YouTube, Facebook, Wikipedia, Twitter and other social networking sites, which provide the platform for user-created content and ‘social network markets’ (Potts et al 2008), and the popular, global medium of exchange for urban semiosis.

The most important ‘invention’ of the internet has been ‘the user’ (CI-3). Among the ensuing disruptions, the digital user is in tension with the analogue copyright-holder, a tension that is by no means resolved. The emphasis shifts from copyright (CI-1) to innovation (CI-3); from IPR (CI-1 and CI-2) to emergence (CI-3 and CI-4). While creative industries require strong copyright enforcement by global agencies like WIPO (World Intellectual Property Organisation), a creative culture operates on the axiom that ‘knowledge shared is knowledge gained’.⁹

Given the importance of users as producers, learning and experimentation are vital elements of creativity, but they are missing from standard creative industries models. New ideas may come from outside the industrial context of expert specialisation, to include learning among myriad users, and learning from networks-as-agents. This kind of networked and creative learning is informal, distributed, peer-to-peer, just-in-time and imitative. For the general population, it is often associated with entertainment formats ('plays') rather than the formal education system. But that population is now a productive resource in its own right. Thus a prerequisite for further economic growth is education – formal and informal – for the growth of creative productivity and interaction among users.

However, as for creative industries, so for education: it isn't the 'provider' that matters so much as the 'user.' Cities with high student numbers lead global creativity tables, and those students lead diversification. According to Malcolm Gillies (2013), 100,000 of London's half-million students are international students, and a 'majority of undergraduates studying in London declare themselves to be other than "white British".' Students are global mixers, early adopters, have relatively high disposable income (spare cash for novelties), are mobile, experimental, flock to special events, festivals, and colonise neglected quarters with low rents, frequently reviving them in the process. Thus, they perform a *social learning* function for cities. This is not a job for higher education and schools *as* institutions; it is conducted informally in the 'clash of systems' that people experience as part of urban life. In fact, people need to cluster, both physically and online, just as much as producers do. The strong appeal of informal urban attractions as social learning platforms is demonstrated by negation – many universities are planned as isolated medieval monastic campuses, but those that are most thoroughly integrated with a city are more popular among students, and their city ranks higher for 'buzz' and nightlife.¹⁰

In such a lively environment, creative innovation *accelerates* both formally (education and the arts) and informally (participation and the media). Innovation itself can now be seen as both 'elaborate' production by expert organisations (CI-1 and CI-2), and 'emergent' meanings arising from distributed, self-organising social networks (CI-3 and CI-4). What links them all is ideas. As John Howkins (2009) puts it, 'ideas are the new currency.' This kind of currency is not always monetised. Some ideas circulate entirely outside of the market, operating in social networks and in economies of attention. For others, many creative artists

and start-up businesses make the point that ‘emergent ideas’ and making money, especially Cooke and Lazzeretti’s ‘criminally large amounts thereof,’ may be separated not by sector but by time – today’s YouTube video from the bedsitter may be tomorrow’s HNWI (high net worth individual) in the tax haven.

Cities as the *medium* for culture and economy

In practice, a combination of CI-1 creative clusters, CI-2 creative services, and CI-3 creative citizens, is part of the intellectual infrastructure of a creative city (CI-4), bringing into one place the energies of (the slash denoting both clash and connection): producers / consumers; intellectual property / intellectual capital; elaborate / emergent creativity; work / leisure; supply / demand. The creative city is a ‘medium’ (in the art sense) in which population-wide creativity is mixed and circulated. With broadly distributed digital creativity, the extent and rate of experimentation and adaptation accelerates for the entire economic-cultural system, as does the potential for distributing solutions that can rapidly scale up from ‘garage’ start-ups to global applications (e.g. iTunes app-store). This expanded and accelerated notion of creativity as a broad-based ‘innovation culture’ (CI-3) means that cities will need different policy settings compared with those that see the ‘creative industries’ merely as a sector of the economy (i.e. CI-1 and CI-2).

The creative economy can be understood as *enabled innovation*, where industry clusters (real estate) are only the first stage. Rapid adaptability among ‘the clash of systems’ is required for survival, and innovation needs to be modelled as ‘scale free’ in order to link bottom-up agency to top-down, globally distributed applications (both cultural and economic) via digital media and online social networks. Rethinking creative industries as *enabled social innovation* precipitates changes in city policy settings:

Creativity

- Cultivation of urban semiosis and the productive clash of systems
- Shift from producer to consumer; from experts to users
- Networks as productive ‘places’ within cities

Urban planning

- Shift from real estate to human resources
- Emphasis on enabling and improving social learning
- From provider planning to evolving networks (‘urban emergence’: Hélie 2012)

Economics

- From industry sector to adaptive, complex, open systems
- Interaction of culture and economy
- From copyright to innovation; IPR to emergence.

In terms of physical infrastructure, it will be important to focus not on production plant but on relationship-formation, shifting attention from real-estate solutions to social networks and places to mingle, typically creative ‘quarters’ of cities (Roodhouse 2010). These include ‘scenes,’ festivals, incentive competitions or awards, and venues that allow the integration of cultural and economic approaches to creativity, the mixture of ideas, and a rich interaction between productive, ‘entrepreneurial consumers’ (Hartley & Montgomery 2009) and creative enterprise (Table 5).

Table 5 Cities as incubators of social network markets

CULTURE *	PLACE	ECONOMY
Consumption	<i>Mediation</i>	Production
Demand	<i>Platform</i>	Supply
Novelty bundling	<i>Urban connections</i>	Institutions and firms
Intellectual capital	<i>Community context</i>	Intellectual property
Identity	<i>Knowledge</i>	Growth
Play	<i>Mix / Move</i>	Work
Scene/ Festival	<i>City Quarter</i>	Industry Cluster
‘Social ...	Network ...	Markets’ (Potts et al 2008)
Creative culture	Creative city	Creative industries

* Note: Here, ‘culture’ signifies the cultural sphere as distinct from the political and economic spheres: it does not refer to ‘high’ or ‘public’ culture only, but also to cultural practices in everyday urban life. From this perspective, the cultural sphere should be seen as productive, albeit not formally organised into firms or institutions. Thus this column does not limit ‘culture’ to consumption or play, but reconceptualises these pursuits from their ‘industrial’ status as unproductive, passive or inconsequential to their ‘creative’ status as part of a productive system of systems. Similarly, ‘play’ is accorded a productive position, as Lotman (1976) recognises (see also Konner 2009).

Constructing a creative city requires nurturing all three columns of attributes in Table 5: *culture* for ‘emergence’; a *place* for ‘mixing’; and *economy* for coordination and scaling. Table 5 also shows how the middle column, the city, acts as the *medium* between culture and the economy, the place where ‘structural folds’ come into intense contact, bringing the

different values, actors and knowledge of cultural and economic systems into productive ‘marriageability.’ The systems model of language and culture explains how it works.

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Notes

¹ According to the World Health Organisation (2013): ‘For the first time ever, the majority of the world's population lives in a city, and this proportion continues to grow.’ Currently, ‘around half of all urban dwellers live in cities with between 100,000-500,000 people, and fewer than 10% of urban dwellers live in megacities (defined by UN HABITAT as a city with a population of more than 10 million)’. According to the *Urban and Regional Areas* report of the UN Department of Economic and Social Affairs (UN 2009), the proportion of city-dwellers in developed regions was over 50% by 1950, but ‘it will still take another decade for half of the population of the less developed regions to live in urban areas (around 2020)’. Hence, ‘Virtually all of the expected growth in the world population will be concentrated in the urban areas of the less developed regions’.

² The Global and World Cities research network (GaWC), based at Loughborough University (UK), is a leading centre for the analysis of globalization and cities: see www.lboro.ac.uk/gawc/.

³ Compare this with W. J. Ong’s (2012) concept of ‘noetics’ – the study of how we know what we know, in oral, literate and electronic societies.

⁴ See also: Crutzen and Schwägerl (2011). The article itself explains the ‘Anthropocene’ concept. The comments on it include one from Dallas Blaney that asks whether this term is another word for Vernadsky’s noösphere.

⁵ The following sections include parts of a presentation I made to an Arts and Humanities Research Council research development workshop on the role of the creative economy in developing and sustaining vibrant and prosperous communities in the UK (December 2010). See: www.slideshare.net/AHRC/cchartley.

⁶ The tables in this section are redrawn and revised from Hartley, Potts & MacDonald (2012).

⁷ See Porter’s Institute for Strategy and Competitiveness at the Harvard Business School, where many of his and his colleagues’ publications on business clusters are listed: www.isc.hbs.edu/econ-clusters.htm.

⁸ The city of Melbourne has adopted lane art as a selling point in its tourism profile. It has developed rules for deciding between art and graffiti, and a license for artists and property owners who want to keep their street art: www.melbourne.vic.gov.au/ForResidents/StreetCleaningandGraffiti/GraffitiStreetArt/Pages/Whatisstreetart.aspx.

⁹ WIPO maintains a strong interest in the creative industries, especially in developing countries. See, e.g.: www.wipo.int/copyright/en/creative_industries/; and www.wipo.int/ip-development/en/agenda/flexibilities/resources/studies.html

¹⁰ E.g. *Which* magazine's ranking of 'top universities for nightlife' (UK): 'Perhaps unsurprisingly, city universities featured highly': <http://university.which.co.uk/advice/top-universities-for-nightlife-as-voted-by-students-477>.

Author biography

John Hartley is John Curtin Distinguished Professor and Professor of Cultural Science at Curtin University, Australia; and Professor of Journalism, Media and Cultural Studies at Cardiff University, Wales. He has produced 30 books, from *Reading Television* (with John Fiske) to *Digital Futures for Cultural and Media Studies* (Wiley-Blackwell), *Cultural Science: A Natural History of Stories, Demes, Knowledge and Innovation* (with Jason Potts; Bloomsbury), *Creative Economy and Culture: Challenges, Changes and Futures for the Creative Industries* (with Wen Wen & Henry Siling Li; Sage), *The Creative Citizen Unbound: How social media and DIY culture contribute to democracy, communities and the creative economy* (ed. with Ian Hargreaves; Policy Press) and *Re-Orientation: Studies in Narrative, Language, Identity and Knowledge* (ed. with Weiguo Qu; Fudan University Press). He is founding editor of the *International Journal of Cultural Studies* (Sage) and *Cultural Science Journal* (online). He is an elected Fellow of the Australian Academy of Humanities, International Communication Association (USA) and Royal Society of Arts (UK). In 2009 he was awarded the Order of Australia (AM).