

# MPRA

Munich Personal RePEc Archive

## **Creativity in the Age of the Internet**

Freeman, Alan

University of Sussex

31 October 2008

Online at <https://mpra.ub.uni-muenchen.de/14903/>

MPRA Paper No. 14903, posted 01 May 2009 04:55 UTC

# CREATIVITY IN THE AGE OF THE INTERNET

Alan Freeman

University of Manitoba

Faculty of Architecture

May 2009

## Abstract

This paper was presented on October 31 to a seminar as part of the Freeman Centre Seminar series organised by the Science Policy Research Unit at Sussex University, with the kind support of CENTRIM, of the University of Brighton. The seminar series can be accessed at <http://www.sussex.ac.uk/spru/1-4-11.html> and the presentation slides at [http://www.sussex.ac.uk/spru/documents/freeman\\_slides.ppt](http://www.sussex.ac.uk/spru/documents/freeman_slides.ppt)

The paper's aim is to propose an economic definition of creativity.

I begin by analysing the distinct economic roles of culture and creativity in the 'Creative Industries'. Lax usage has made this term a synonym for three distinct things: creativity, culture and intellectual alienability. My aim is to distinguish Creative Labour, of which this sector is a specialist user, from Cultural Outputs, which it produces. These are found combined in the Creative Industries in an advanced form, but they also exist separately outside it. In order to understand their wider economic impact – in particular, their relation to innovation and Intellectual Property – it is necessary to distinguish them.

I begin from the empirical reality of the 'Creative Industries' as currently defined. I show that this establishes it as an 'industrial sector', in the economically meaningful sense that it is a specialised branch of the division of labour. Its definition, however, has yet to be aligned with this reality. Using the term *Cultural and Creative Sector* (CCS) better to capture its nature, I show that it is the outcome of two processes: the revolutions in service sector productivity which have culminated in the age of the internet, and the separation of mechanical from creative labour, which we inherit from the age of machines.

Creative labour is a general economic resource, employed both inside and outside the CCS. In the CCS, creative labour is found in its most advanced and specialised form, and has applied to maximum effect the new service technologies which have emerged with the internet age. This sector is therefore the appropriate place to study creative labour. However, in order properly to assess its wider impact, the latter has to be defined independent of the assumption that it only produces cultural products. This paper proposes such a definition. It outlines, on the basis of this definition, how the economic contribution of creative labour to society might be assessed.

# CREATIVITY IN THE AGE OF THE INTERNET

Alan Freeman

## Introduction

Economists probably bear the main responsibility for the idea that creativity and innovation are associated. Yet, though they have analysed the concept of ‘innovation’ at some length, they have not scrutinised the idea of ‘creativity’ to anything like the same extent. In this article, I want to try and fill this gap.

This gap goes back a long way. In the work of Schumpeter, who first inserted the idea into economic discourse, creativity bears the burden of explaining why innovation happens. However the term is not itself explained. Its function is, rhetorically speaking, magical: it is a mysterious ingredient that accounts for everything not explained by the theory itself.

This same gap appears today in the term ‘Creative Industries’.<sup>1</sup> The idea of an industry based on creativity has been a runaway marketing success. Technocrats praise it, visionaries rave about it, and politicians appropriate it: yet, pressed to say what creativity is, neither they nor their economic advisors have an answer beyond ‘what creative people do’. They have neither really defined it,<sup>2</sup> nor explained why it should produce industries. Nor, for that matter, have they convincingly shown that apparently different kinds of creativity – for example artistic and scientific – really are, at some basic level, only forms of the same thing.

Moreover, economists have never really reconciled their own use of ‘creativity’ with its existing meaning, which is already embedded in language. Though creatives may not always agree about what creativity is, they use the idea, and base their usage on experience. In borrowing the word, economics has transplanted a non-economic concept from a context in which it is understood, however partially, into a different context where it is not understood at all.

The heart of the difficulty is that the word ‘creative’, in policy circles, has become a substitute for ‘culture’. The two fused concepts are not actually the same thing. The promotional impact of packaging them together has been purchased at the high price of analytical rigour.

As a first step towards that rigour, this paper sets out to disentangle these two ideas. Beginning from first principles, and on the basis of the widest possible consensus, creation is an *activity*. Creativity is consequently a human *faculty*, a capability analogous to talent, strength, or the power of reason. As for culture, most would agree with Williams (1983) that it has come to mean something *produced* – some outcome of past human actions, whether a body of customs and practices, or an ensemble of artistic and literary works. Unlike creativity, both the art world and common speech think of culture as an outcome of the past which ‘stands outside’ individuals and even society, confronting both as a alienated historical inheritance.

This brings out a distinction familiar to economists: we have an activity and a product, creation and culture. However, if we reason that the activity ‘makes’ the product, we meet two further problems: creativity is not the only activity involved in ‘making’ culture, and culture is not its only outcome. Though the two appear together in the ‘creative

---

<sup>1</sup> For the original definition see DCMS (1998). For a history and discussion see Justin O’Connor (2007), Throsby (2008)

<sup>2</sup> Whilst I part company from Florida (2002) for reasons made clear later on, this work is however an important exception.

industries', which for this reason I term the Cultural and Creative Sector (CCS) they also appear separately.

We might conclude that the connection between them is circumstantial, and that they should be studied separately. This paper takes a different tack. Since, in the CCS, we find culture and creativity in a new and intense relationship, this is probably a good place to study them. This does not deny they exist separately; it simply suggests we can understand them better by considering their relationship. The method of this paper is, hence, to identify, in economic terms, those characteristics of creative human labour through which it culture.

Having studied creative labour, as it were, in its habitat, we can ask what it does in the outside world. We can ask if it is in fact meaningful to speak of a generic capacity for creativity, or process of creation, whether it is fully encompassed or explained by artistic creativity, and whether scientific, technical or other kinds of creativity have distinctive and additional attributes. We can finally ask how creativity functions in, and indeed shapes, modern society at large. That is the goal of this paper.

### *The empirical reality of the cultural and creative industries*

Cultural theorists may wish to maintain their own idea of creativity, and my approach does not stop them. I argue that economists should listen to cultural theorists, and vice versa. However, I will appeal over the heads of both to the supreme court of reality. I set a course against any 'ideal' definition of creativity, whether artistic or economic. Instead, I aim to study how creative labour actually functions in society as we now find it.

This I term the 'economic reality principle'. My aim is thus, to borrow a phrase from Rudolf Bahro (1978) to study 'actually existing creativity.' I begin from what 'creative' people actually do, in today's economy. I ask what 'cultural' products actually are, also in this economy. I ask what part creative labour plays in their production, distribution, and consumption. I then ask 'what definition of culture, and creative activity, corresponds to this economic reality?'

This is no different from any other enquiry which fixes the meaning of a concept by referring to its practical usage. Words like 'factory', 'machine' and indeed 'labour' were thrown up by the industrial revolution, not by academicians, and this is where they got their present meaning.<sup>3</sup> I intend only that the concept of creativity should be refined in the same way, basing any definition on its modern form of existence.

This may seem to contradict my plea that economics should respect existing definitions. I hope to show this contradiction is illusory. As already noted, the meanings of 'culture' and 'creativity' have evolved continuously in modern times, both because people have thought about them, and because the reality to which they refer has, itself, evolved.<sup>4</sup> Economics is entitled to take part in this evolution, even if only on an equal basis.

The 'creative industries', notwithstanding the theoretical problems associated with the term, exist empirically. They form an empirically recognisable unity. Most importantly, they employ a similar labour force and sell into similar types of markets.

There are thus grounds for hope – or despair, depending on one's view of economics – that an economic framework exists for talking about them which is rooted in reality. I therefore propose to study creativity as it functions within them and see where this leads.

---

<sup>3</sup> See Braudel(1979:II p269)

<sup>4</sup> See Elias (2000) for a detailed discussion of this process.

## *Plan of the article*

The plan is as follows. In the first section, I confront a basic conceptual issue in economics itself which lies at the heart of its difficulties with culture and creativity: its failure to understand what a *service* consists of in modern society. It has not properly integrated, into its thinking, how the production of services has been transformed by modern technology. Successive advances in the reproduction, transmission, and recording of human outputs have led us to a turning point, an age in which revolutions in the productivity of services have taken the place of revolutions in the productivity of goods, as the main transformative factor at work in society.

This squarely confronts us with the problem of classification. When statisticians reports on an alleged industry, they classify certain types of enterprise – for example agriculture, manufacturing, or retail – as belonging, or not belonging, to it. They tot up the workers in these enterprises and the wealth they generate, and report these two numbers as the industry's employment and output.

If an industry is classified in the 'wrong place' – for example, by treating a CD factory as a part of the plastics industry – we will never understand what is really going on, and no amount of sophisticated econometrics will rescue us. Classification is usually treated by economists as a minor or secondary problem, as if industries were 'given' and did not need to be questioned. Yet it is both logically and practically prior to data analysis: without it, we don't even have data to analyse.

The advent of a new technological age has left us prisoners of its outdated approach to classification. The data it offers is, I show, becoming positively misleading. It treats activities that are in fact aspects of service delivery – such as making CDs, books or newspapers – as if they were the material products of industries completely unconnected to the service they actually deliver. The 'music industry', a foundation-stone of global media giants worth hundreds of billions of dollars, does not even have its own classification.<sup>5</sup> The analytical success of the 'creative industries' approach is that, by grouping together activities whose relationship was concealed by outdated definitions, it revealed their underlying unity.

The next section then asks if creative and cultural activities can be classified in accordance with the same principles as existing industries, such as manufacturing, agriculture or transport. It returns the simple original idea, dating from Adam Smith, of a *branch of the division of labour*, which modern classifications have obscured with additional and often contradictory constraints: that an 'industry' should produce a common output, consume a common input or factor, or employ a common process.

The various components of the CCS not only qualifies it as an industry on Adam Smith's original grounds, but make it the only modern candidate for 'industry-hood' which actually satisfies all three of these requirements. Their common input is a type of labour: creative labour. They produce common outputs – cultural services, or cultural goods functioning as vehicles for cultural services. And – I set out to show – there are also striking commonalities in the processes by which this is done – most critically, that they are *non-mechanical* in nature.

---

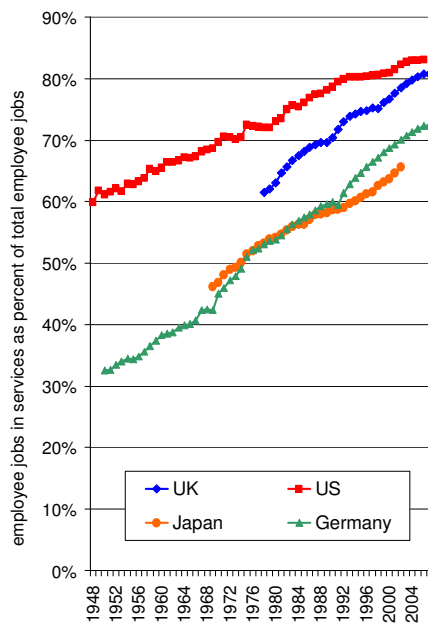
<sup>5</sup> In the UK 'Standard Industrial Classification of Economic Activities' (ONS 2003) music appears under SIC codes 36.30 'Manufacture of musical instruments', 36.50/9 'Manufacture of other games and toys not elsewhere classified' 51.47/5 'Wholesale of musical instruments', part of 52.45 'Retail sale of electrical household appliances and radio and television goods' 22.14 'Publishing of sound recordings', 22.22 'Printing not elsewhere classified', 22.31 'Reproduction of sound recordings', 91.33 'Activities of other membership organisations not elsewhere classified' and that part of 92.31 'Live Theatrical Presentations' defined as 'activities of individual artists such as actors, directors, musicians, stage set designers and builders, etc.'

This, I argue, is because the nature of creative labour corresponds to the service it delivers. It is, in some sense, in the nature of creative labour to deliver cultural outputs. Culture is, by definition, an attribute of human society. Precisely because of these two facts, there is an essential, irreplaceable and irreducibly human content to creative labour. It cannot be mechanised and it cannot be replaced by a machine.

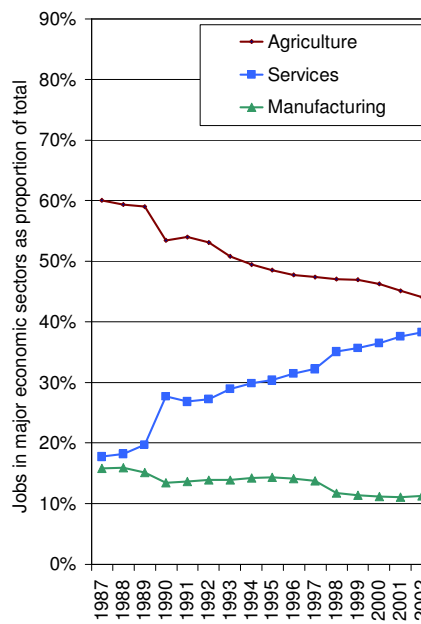
This leads into the final section in which I identify the essential attributes of creative labour which allow it to perform the characteristic function of a specialist resource for making cultural products. On this basis, I outline a programme of research into the wider economic role that creative human labour may play in the age of service revolutions.

## The internet age and the revolution in service productivity

**Chart 1: proportion of employees in the service industries in industrialised countries**



**Chart 2: proportion of employees in major sectors, China**



Sources: UK, US and Germany, national statistical offices (ONS, BEA, and SBD).

Japan, China: International Labour Organisation (ILO).

As stated in the introduction, this paper’s method is to study the CCS in order to understand creativity and culture in the modern economy. In the course of writing, it became clear that the problems thereby encountered are deeper than commonly recognised.

In particular, economic thinking about services – the form taken by most, if not all, creative activities – lags behind the reality. As charts 1 and 2 show, the proportion of employees working in service industries in the USA had risen by 2006 to 83 per cent.<sup>6</sup> In the UK it reached 81 per cent in 2006, in Germany 72 per cent and in Japan it was 66 per cent by 2002, the last date for which data is provided by the ILO.

Economics has yet to catch up with this reality. Adam Smith himself held that services added no value. In 1996 William Baumol still felt happy to repeat his famous 1966 argument that ‘stagnant services’ suffer a ‘cost disease’ of intrinsically slow productivity

<sup>6</sup> All figures following the ILO definition include government services. Private service employment in the US, which is separately available, is 75 percent of all private employment.

growth caused the “handicraft attribute of their supply processes”. He gives the well-known example of live orchestral performance, where the nature of the activity rules out simply playing faster, and the auditorium apparently sets absolute limits on the number of listeners.

This conception of the service relation has, in my opinion, ceased to be relevant or useful. It is just not plausible to suppose that sectors employing three quarters of the working population in the richest countries in the world are subject to some intrinsic technical limitation. Nor is some process of decay or advanced-country hypertrophy involved: as chart 2 shows, China’s explosive development, in net terms, is actually transferring workers from agriculture to services, where employment has now reached 38%. Employment in manufacturing – so far assumed the *sine qua non* of development – is declining.

These are very long-term trends – historical data on the US and UK show that they began in the middle of the last century. They are not cyclic and show no sign of reversal. And, as China and India both confirm, they are not confined to the developed world.

**Chart 3: value added in 2006 and its growth rate since 1986, in goods, information services and the arts sector in the USA**



Source: BEA

This is not compatible with the idea that services, or any part of them, are stagnant. The conclusion goes against everything we know about capitalism. If services are inherently incapable of productivity growth, why invest in them? Private fixed investment in all US service industries, in 2007, was 62% of the total.<sup>7</sup> Why should entrepreneurs sink capital into spheres of activity that yield no increase in output?

Moreover, if they are not more productive, why do they make money? As chart 3 shows, by 2006 nominal value added per worker was significantly higher, and is growing faster, in all sectors whose products are cultural, than in manufacturing. As Frey (1996) and others have noted, this includes the performing arts – Baumol’s archetypal ‘stagnant’ sector.

This conflict between evidence and theory arises because Baumol’s argument is circular. His premise is that a service requires producer and consumer to be in direct contact with

<sup>7</sup> Source: NIPA table 3,1E, <http://www.bea.gov/national/FA2004/TableView.asp?SelectedTable=21&FirstYear=2002&LastYear=2007&Freq=Year> [accessed 10 October 2008]

each. But this rules out growth by definition. Actually, productivity is being raised precisely by separating the producer from the consumer, so that services can be delivered at a distance and at different points in time. The economic reality principle tells us that we should drop such prejudice and ask: how are services, today, actually delivered?

### *Rethinking the commodity: what does a service industry sell?*

When we do not see an answer that stares us in the face, it can only be because the light is coming from the wrong direction. As a starting point, let us return to the basic argument: that the supply of orchestral performance is technically limited. Well, is it? Consider a simple question: what really goes on when a consumer downloads a podcast onto an i-phone? She does not buy the handset, the radio waves, or the digits in the recording; she buys the performance. To 'performances' so defined, no limits apply.

A 'natural' limit to the audience for a performance exists only if we deny that the performance can be enjoyed anywhere except in a concert hall. It only applies if we count CDs, video tapes, or broadcasts as something else. This may have been just about viable in 1996, when these could be classified as tangible goods. By 2006, the download itself had become intangible. The material basis of advanced services persists only as a substrate.

It is now clear that the handicraft model of the service relation is out of date, failing to grasp that a series of innovations have cumulatively, profoundly and qualitatively transformed the nature of the service relation. If these innovations are treated in isolation it is easy to miss their common connection. They contain three components: the mechanical reproduction, mechanical recording, and mechanical transmission of services.

The decisive feature of the internet age is that services can now be delivered at any distance, and with any desired lapse of time. The material medium – live performance, broadcast, recording or download – determines not the essential nature but the perceived quality of this service. Live performance has a higher *utility* than a recording, which is why it costs more.<sup>8</sup> This should come as no surprise to economists who long ago came up with the idea of a 'hedonic' index to explain it.<sup>9</sup> An Alfa Romeo Spider, for example, costs more than a Fiat 500 because the consumer gets more out of it. However both are different kinds of the same commodity – a car. In exactly the same way, music is available to us as a continuum of a single, identical commodity stretching from Bayreuth to the ringtone – the performance.

### *The limits of the machinocratic vision*

Once we grasp that material production is becoming an adjunct to service delivery, we can see that service productivity, so defined, is free to expand without natural impediment. All basic elements of the economy are being reshaped: its markets, its industrial structures, and its property relations. I venture that the CCS is a prototype of this reshaping: a paradigmatic industry which has refined and organised the use of creative labour at a new level, providing a model of organisation which a much wider

---

<sup>8</sup> This is, incidentally, why city agglomeration has intensified rather than diminishing despite its over-hastily predicted demise in the literature on the 'post-industrial society'. The face-to-face is a type of meeting, just as much as a video-call. But it is a *better* type of meeting, and so is valued more highly – so businesses will pay a high premium to be next to each other.

<sup>9</sup> See for example Griliches (1971). Nicholas Garnham has suggested that, in the service industries, the very idea of 'quantity' loses meaning. I am not hostile to this idea, and I hope a careful reader will realise that my argument depends ultimately only on the relation between labour and its wealth-creating capacity, in which use-value is a mere intermediary. But Baumol's argument is phrased in terms of quantitative output and needs to be met on these grounds. My point is that a *consistent* application of economic theory shows it is utterly unreasonable to treat concerts as distinct from recordings, whilst treating tiaras as if they were jewelled baseball caps.



range of service industries are now following.

An analogy is manufacturing, which reorganised branch after branch of production in successive innovative waves beginning with clothing in the industrial revolution, the railways in the age of steam; construction and mobile power in what C. Freeman (1989) terms the age of 'steel, electricity and concrete' before reshaping consumption through the car, household appliances, and 'Fordism'.

The internet, digitalisation, and the portable media device are the basis of a similar wave. We cannot, however, expect the social restrictions imposed by the machine to remain intact while utterly new conditions for personal interaction are being formed. In the age of animal power and transport, the physiocrats could not conceive that machinery would wipe out the countryside they held to be the source of all wealth, and dismissed the cities as 'unproductive' and frivolous. Their machinocratic descendants scorn not merely services but design, aesthetics, creativity, entertainment and even culture as economically irrelevant froth. This is profoundly short-sighted. The history of capitalism teaches us that today's luxury becomes, time and again, tomorrow's necessity.

This brings us to the vexed problem of classification. The difficulty facing economics is incarnated in an approach left over from the age of the machine. The resultant lack of understanding does not arise from want of numbers, but from a far more profound failure to grasp what the numbers mean. This is the subject of the next section.

## **The Empirical Reality of the Cultural and Creative Sector**

Economists tend to react strongly against the idea that the CCS is analogous to an industry. They cling to industrial classifications they regard as tried and tested, organised around different types of material production. The CCS is seen as a seven-day wonder, soon to disappear along with 'knowledge industries', 'bioscience' and all other such transitory fancies.

The problem with this reaction is the economic reality principle. Empirically, the CCS really is a new phenomenon. It really is very dynamic, really is a major employer, really is driving significant processes of innovation and, not least, it really does make a lot of money. If we follow the standard definition, or indeed any definition on offer, we find a set of activities which locate close to each other, buy and sell each other's products, copy from each other, and make similar contracts. They form 'conglomerates' like Disney, Bertelsman, Vivendi and Sony, and their output and employment moves up and down together. They are mainly high value-added, frequently involve intellectual property, and use the distributed risk-handling contracts described in Caves (2000). They are either interdependent, containing component parts which trade with each other, or codependent, selling into, or buying from, linked or identical markets. Not least, they employ a similar labour force and sell into similar types of markets.

I will not rehearse the evidence here in the same detail as elsewhere. Readers may consult Freeman (2008c). In this section my aim is to draw attention to one particular feature of the CCS: the specific nature of the labour force it employs.

Evidence for this arises from the very contradictions of its original definition, in the attempt to conflate the separate ideas of creativity and cultural production. The system lets us measure each of these both separately, and together.

The DCMS system, the *de facto* international standard, first emerged in its present form in 1998 in the UK (DCMS 1998). It was applied, in modified form, to London (A. Freeman 2002) four years later. Higgs et al (2006) introduced the term 'Trident' system to describe it. In this system, Creative Industries are a set of industrial and occupational

classifications taken from the Standard Industrial Classification (SIC) and the Standard Occupational Classification (SOC) respectively. A creative job, according to this definition, is either:

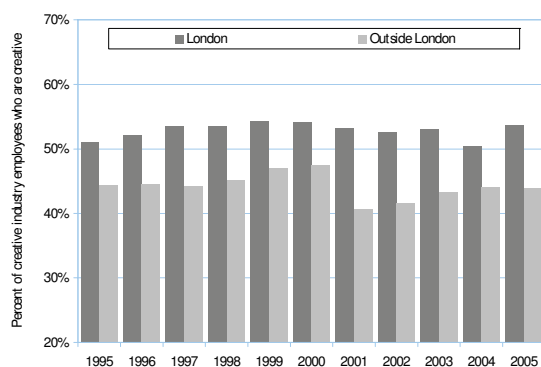
- 1) offered by an enterprise with an SIC code defined as ‘creative’,
- or:
- 2) undertaken by a worker whose occupation, given by its SOC code, is defined as ‘creative’, whether or not offered by a creative enterprise as defined in 1.

This is really two definitions. The phrase ‘creative industries’ in effect assumes that a types of labour and a type of enterprise are more or less the same thing. This is appealing but false. It is tempting to think of accounting as something done by accountants and transport as something done by drivers. Actually, accountants also work in bus companies and accountancy firms often employ drivers, a point we discuss shortly in more detail.

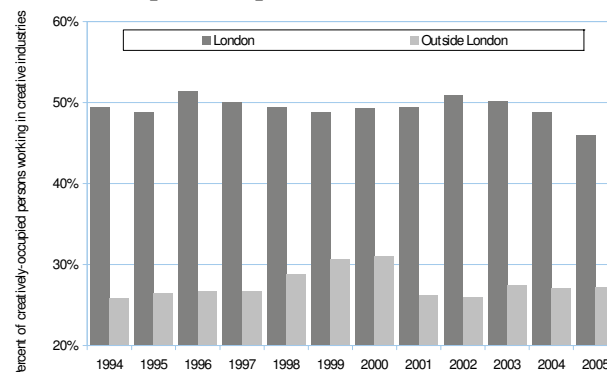
Starting in 2004, I decided to take a fresh look at this issue. Do creative workers *in fact* work in the Creative Industries? At this point, the calculations become interesting.

Creative workers do in fact concentrate in the Creative Industries, above all in the location centres of these industries.

**Chart 8: Creative intensity**



**Chart 9: Occupational specialisation**



Charts 8 and 9 display two measures of this. The first, creative intensity, shows the proportion of the workforce of the CCS which is itself creative.<sup>10</sup> This is consistently above 50 per cent in London, and also higher in London than elsewhere. The second, occupational specialisation, shows the proportion of the creative occupations – creative labour, according to the conception we are developing – which works in the CCS. A very different pattern emerges inside and outside London. Moreover, further research shows that creative intensity is highest where CCS industries are most concentrated. There is thus a direct correlation between geographical concentration and occupational specialisation in the employment of creative labour.

The evidence thus begins to stack up. Not only is the CCS, even on the basis of the existing inadequate definition, empirically unified, but emerges as specialist user of a single resource: its labour force. Does this bring it closer to, or farther away from, the ‘normal’ economic definition of an industry? I now turn to this question.

## What is an industry? Creative labour as a factor of production

The idea of an industry derives from the notion, originating with the physiocrats, that the economy can be understood by dividing it into branches of activity and considering the

<sup>10</sup> Caution is required in interpreting the step changes between 2000 and 2001 which arise from the transition, in the UK, from SOC1992 to SOC2000

exchanges between them. It was expressed by Adam Smith (1982:1) in the opening words of the *Wealth of Nations*:

“The greatest improvement in the productive powers of labour, and the greater part of the skill, dexterity, and judgment with which it is anywhere directed, or applied, seem to have been the effects of the division of labour.”

Smith’s focus, in considering the division of industrial activity, is the division of labour . We should recall the reason for his interest: in his opinion, it leads to specialisation, which he regards as the cause of wealth in commercial society.

Specialisation is evidently under way in the CCS - but in what? The simplest answer that comes to mind is – creative labour itself. The sector’s specific unifying factor is the use it makes of this particular kind of labour. It is, very precisely, a branch of the division of labour, corresponding to the original, classical conception of specialisation *better* than the complicated and often obfuscatory classification systems of today

### *John Henry’s Revenge: Mechanisation and its Opposites in the Internet Age.*

At first sight, the idea that a type of labour defines an industry may seem trivial. Occupations are superficially synonymous with what they produce. Bakers make bread, weavers make cloth, bankers make money, and so on.

Yet this age, at least in the form of the craft specialisations that gave us the City Guilds and industrial ‘trades’ – cobblers, masons, jewellers, and indeed, smiths – is long gone. As noted, there is no necessary correspondence between types of labour and types of product. Occupations are interchangeable: clerks, guards, cleaners, managers, accountants, lawyers, and for that matter plumbers and electricians, populate modern businesses almost indiscriminately. Occupations rarely correspond to products.

When, therefore, we find a branch of industry in which a type of labour is a defining feature, we have found something historically quite unusual, appearing to hark back to an earlier age. This very novelty is the inspiration of this article. Why, quite suddenly, should a form of *labour* become the defining characteristic of an industry? Could the age of mechanisation be something a little more temporary than we have perhaps understood?

To review this point, let us pause to consider how intensely the age of mechanisation has shaped our thinking. Driven by cost-cutting, the replacement of labour by machines has been a driving imperative. We view almost everything through lenses fashioned by this fact. The archetypal modern ‘industry’ – manufacturing – is determined by a type of capital, namely, machinery. When, therefore, an industry finds itself unable to replace labour by a machine – no matter how much it may want to – we need to think afresh.

The most plausible explanation is precisely that this is the *defining* characteristic of the labour so employed: it is that for which a machine cannot substitute.

This idea, expressed baldly, sounds so either so tenuous or so trite as to deter further attention. However, Sherlock Holmes’ advice is relevant. Having rejected the impossible, if all that remains is the improbable, one has the solution. I ask the reader therefore to suspend scepticism for now, in exchange for an option on permanent disbelief once the argument has been stated.

First of all, it makes no economic sense that a branch of the division of labour should increase its productivity by hiring a special type of labour, unless that labour is at least more productive than any machine. The labour itself is functioning as some kind of capital, as an investment bringing future returns, and not the disposable subject of a labour contract. It can only do this if the investment concerns its nature, not its magnitude. The ‘productivity’, therefore, must have to do with some quality of the labour.

Second, what quality can *all* creative industries have in common? It cannot be the specific concrete type of labour – camera operative, dancer, composer or painter – since all these trades have the same wealth-creating effects. We should look, hence, not at their variety but for something they have in common. Here, in my view, we encounter a difficulty in the approach of Richard Florida. He appeals to diversity, or its appreciation, as characteristic of creative labour. This is an important insight but leads us no closer to defining a type of labour. Diversity is a characteristic of populations: a diverse individual is a contradiction in terms. The problem is the reverse: we need to know what all these diverse individuals they have in common. Their very diversity tells us there is only one such characteristic, at the end of the day: they cannot be mechanised.

## **Culture and creation**

We have so far considered no convincing account of cause: *why* creative labour should be irreplaceable. This explanation comes from the purpose for which the CCS employs it: the cultural industries. That is the subject of the last part of this paper.

A clue, to which we will return, comes from the ‘Turing test’. This was devised by the Australian pioneer of computing to answer the question ‘can a machine perfectly imitate a human?’ He proposed that a candidate machine should be made to respond to questions posed by real humans. If the responses were so realistic that the humans could not reliably discover they did not come from another human, then the machine passed the test.

A machine, according to this test, is a device that cannot convince another human it is itself human. Let us then replace the Turing test with a cultural product, and let the device try to sell it. What would fail to sell? One such that the consumer required, of the device that produced it, that this device should be a human. Do such products exist? Yes.

Cultural products.

In Freeman (2008a) I analysed at greater length the specific characteristic of a cultural product, as it appears in today’s economy. This is, in essence, that it identifies a community of taste. A consumer buys a ticket for a film, a game, a play or an exhibition, and wants to see that specific film, team, play, or exhibition. Each artwork, each pair of shoes and even each performance or night out, is in effect a different product. The consumer of cultural products actively seeks this difference, but also actively seeks out the identity associated with the product.

This is clearest in fields considered by many to be far apart from ‘culture’, such as sport. Fans take part in games not just from the abstract love of football but to watch Celtic, Liverpool, Spurs, or perhaps some inferior team. They identify with the audience, the community of supporters. The same applies to cultural consumers across the board. Art-lovers consume not just ‘film’, ‘music’, ‘painting’ or ‘clothing’ in general but genres, directors, actors, composers, performers, conductors, painters, fashions, labels and designs. In doing so, they identify with all others who share this taste.<sup>11</sup>

Reduced to their essence, cultural services are ones in which both sides to the interaction are human ‘by definition’ – because they form part of a community. The aesthetic merit of a performance, a work of art, a beautiful building, a design, or even an article of fashion expresses the specifically human relation of social participation.

This is not at all to reduce aesthetic experience to some kind of mass event, though only

---

<sup>11</sup> Since cultural differentiation is always present, how do we know which products are cultural-creative? Exactly which part, for example, of the textile industry is fashion and which mere clothing? Generally speaking each industry itself makes the distinctions, containing a mass-production sector in which distinction is relatively unimportant, a designer sector, a brand sector, and so on up to elite categories like *haute couture*.

the bravest commentator would claim that religious services have played no role in the history of art. The precise feature which distinguishes modern artistic production from its antecedents is the substitution of symbols and persons for crowds and shared experiences. As Benedict Anderson (2007) notes in his *Imagined Communities*,<sup>12</sup> a community may exist yet never be assembled as a mass.<sup>13</sup> Symbols such as flags, songs, and the implied patriotism of cultural-natural heritages, function as vehicles of communities of nation, class, élite, faith or status. The function of art of all kinds is no different, as Bourdieu (1979) famously shows. Hesmondhalgh (2007) reflects a wide consensus that the attachment of symbolic significance is the primary function of cultural production.

The service relation is a relation *between* producer and consumer, from which flows the defining characteristic of cultural production: a community of taste which includes the producer. Even the most beautiful conceivable mechanical rendering of Beethoven's Choral Symphony could not produce in the listener anything remotely approaching the emotion arising from the contact obtained, through the performance, with the composer, the performers, the immediate listeners and indeed, indirectly, everyone who has ever been moved or touched by this work

Now we have the germ of an economic definition of creativity. Does it have any meaningful relation to its commonly-accepted, artistic, definition? To consider this properly, it is worth considering how the idea of creativity has in fact evolved. I will argue that this evolution converges with the definition we have now arrived at – provided we are willing to review it critically.

### *The creativity of crowds*

Mediaeval theology, turning its back on Aristotle, embraced the idea of a Creator God. In effect, this defined creativity as the prime attribute of God. German Romanticism, according to Safranski (2004), decreed poetic inspiration to be divine, neatly circumventing the implied restriction.<sup>14</sup> The artist could create – as an agent of God.

From this idea, the modern conception of creativity has inherited the idea that it describes the acts of exceptional individuals, who constitute in some sense the 'starting point' or origin of a work. The 'creator' is held responsible for her or his work in a remarkably similar manner to the way God, in the Judaic religions, is responsible for the world.

Yet this enlightenment ideal of the originating superhuman was unequivocally, if sordidly, anchored in the relation between art and money, showing up in the exorbitant prices of artworks. Authenticity – the identification of the 'original creator' – is the critical factor in price. It is the means by which the specialist artist gets rewarded, indeed survives.

The idea of creativity is however changing, before our eyes, in common speech. When the advertising industries define themselves as creative, they do not mean that every copyrighter is a genius. The enterprise, not the individual, is the originator, and the emphasis is on newness: something comes into existence that wasn't there before. Distinctiveness – differentiation – has thus risen stealthily up the league table of metrics to become, for many, the defining attribute of creativity. Along with it, the already-implicit ideas of distinction and newness – that a creative work must be different from anything else, and everything seen before – has come to the fore.

---

<sup>12</sup> See Desai (2008) for a modern and critical discussion of Anderson's argument.

<sup>13</sup> Yet another reason that live performance is not the *sine qua non* of the service relation.

<sup>14</sup> Indian jurisprudence assigns legal personalities to certain gods.

The idea that every creative product must have a 'first producer', a latter-day Prime Mover, marked out from the *hoi poloi* by special, noble, and probably inherited talents, is therefore, though a powerful influence in cultural circles, open to legitimate question.

In the interviews, for example, conducted by John Tusa (2003) with outstanding creatives, there are no performers: no actors, dancers, instrumentalists or even conductors; he reserves the appellation (Tusa 2003: 241) for painters, sculptors, writers and directors.

The attempt to pin the butterfly of creation to the collector's table of authenticity is contested in the world of culture itself. Beside every 'great creator', there sits a community of which the creator is representative and coordinator. Even when this community comes into existence after the creator's death, as perhaps the visionary artists like van Gogh, on examination, a community of admirers, as much as the object of admiration, has given rise to the artist's recognised status as creator. The 'Genius' of Shakespeare is so much a product of late Enlightenment myth-manufactories that we still cannot even agree he existed.

A famous critique by Segovia attempts to identify the creative function of performer, arguing that interpretation is also a creative function. The idea of the 'godlike creator' moreover conflicts with an alternative conception, coming to the fore with the advent of 'crowd' creation. To pose the question as provocatively as possible, are we really prepared to say that Wikipedia contains not a single element of creativity? Almost by definition, Wikipedia is derivative and indeed, its rules expressly forbid new research. Yet it is a creative synthesis which could not have been accomplished by any single individual.

The difficulty can be addressed, as throughout this article, by focussing on the economic nature of the creative labour process itself. If creative labour is treated in the most narrow possible sense, we would indeed only accept as Tusa's prime movers as creative. The vast range of figures that now surround the creative 'originator' – singers, dancers, actors, not to mention lighting technicians, camera operatives, make-up, and so on and so forth, would be ancillary and dispensable. Once interpretation is included, the narrowly individualistic view dissolves. The actor, the musician, journalist, the copywriter, the camera operative or indeed the make-up studio, the graphic designer and the lighting technician, not to mention the festival float designer or the carnival costumier, are all persons without whom the performance itself would not take place. They are communally involved in bringing the 'artistic conception' into existence. They form part of the cultural community which is required in order to bring to the consumer the precise, differentiated product with which she or he identifies. A play without actors is as absurd as a performance without musicians, a film without cameras, or a ballet with no dancers.

The activities of these persons are not mechanisable for two important reasons: first, they are in a cultural relation with the 'visible' or 'known' components of the production team. Second, in fact every creative function is a mix of origination and interpretation. The actor does not simply read the script, the dancer does not simply execute the choreographer's instructions, and the musician does not simply 'play' the score. Creation is, in a word, a 'team' activity. Indeed, in communal societies, artistic creation is a function of the whole community.

### *The diversification of excellence*

It is vital to stress, since this particular path is paved with bad intentions, that none of the above is intended to blur distinctions between good and bad art, or to exclude 'excellence' however defined. There are two vital points to absorb, however. The first is that to my

knowledge, cultural theory has never established that individuality is a prerequisite of excellence. These two ideas – the idea of the excellent individual and the idea of the excellent work – need to be gently but firmly separated. An ‘excellent’ orchestra remains excellent if we do not know the individual name of a single member of it, as for that matter does an excellent exhibition, gallery or indeed, city.

Second, the above in no way denigrates or denies individuality. To the contrary, it is precisely creative labour which affords the reinsertion of the individual into productive existence.<sup>15</sup> This individuality is however an *outcome* of a collective relation, not a negation of it. It is precisely because the interpreter does not reproduce mechanically that the space exists for her or his individuality and creativity. An irreducible element of personal input, an element of originality which Hesmondhalgh (2007) designates ‘cultural autonomy’, which is an expected and necessary part of the cultural process. The community of producers and consumers involved in cultural exchanges is like an iceberg, extending far beneath the visible surface. Indeed in this respect, cultural exchanges never entirely escape the essential and historical nature of culture, which always has been and always will be, by its nature, a social activity.

### *Syntax and semantics: the logics of mechanisation and creativity*

Before leaving this section, we need to cross a final bridge. Is there any *actual* relation between artistic creativity and scientific, technical, or other forms of creativity? This holy grail of creative industry studies – the idea that a talent for music, art, performance or design is somehow translatable, by appropriate forms of social organisation, into a capacity to build better mousetraps – is almost taken for granted by almost all of the literature. But there is no necessary or obvious reason that an artistic society should also be scientifically competent, far less that a good artist should make a good inventor. Indeed, as C.P. Snow (1998) famously observed, a hallmark of modern industrial society has been the harsh line it draws between scientific and artistic cultures. De Bono’s (1970) famous concept of ‘lateral’ thinking has become the stuff of legend, to the point where it has been used to consign art and science to different sides of the brain.

Why should there be any necessary relation at all between artistic and ‘intellectual’ creativity in the broadest sense? The definition we have just arrived at provides an excellent reason for doing so: the notion of a counterposition between the mechanical and the creative finds support in the unexpected quarter of mathematics.

Since the late Nineteenth-Century, logicians have been preoccupied by the profound difficulties of reconciling ‘syntactic’ and ‘semantic’ statements in logic. Semantically-phrased definitions (for example, ‘all liars’) do not translate unequivocally onto syntactically-phrased definitions (‘all the people in this room’). The deepest recent paradoxes, from Russell’s paradox through Gödel’s theorem and beyond, revolve around this issue.

A decisive theorem – the Church-Turing theorem (Church 1933),<sup>16</sup> establishes that syntax – mechanical enumeration – can never encapsulate semantics – prescriptive specification.

---

<sup>15</sup> Both Marx and, interestingly, Oscar Wilde describe socialism – usually regarded as a highly collectivised social form – as a society that removes all impediment to the attainment of individuality. “Under the new conditions Individualism will be far freer, far finer, and far more intensified than it is now. I am not talking of the great imaginatively realised Individualism of such poets as I have mentioned, but of the great actual Individualism latent and potential in mankind generally. For the recognition of private property has really harmed Individualism, and obscured it, by confusing a man with what he possesses” (Wilde 2001:5)

<sup>16</sup> Confusingly Church’s Theorem, described above, which was independently proved by Turing and Church, is different from the related Church-Turing Thesis, which need not concern us. The Theorem (which this article refers to) states that given a formal language and a statement in the language, it is not generally possible for a computer algorithm to terminate with the answer ‘yes’ or ‘no’ to the question ‘is the statement true in the language’. See <http://plato.stanford.edu/entries/church-turing/> for a readable account.

There are outcomes which cannot be attained by enumeration. Moreover, these are everyday, normal outcomes, unlike Gödel's impenetrable constructions. For example, it is impossible to construct a general-purpose translator. The variety of possible languages is without computable limit. This is the main reason the software industry has never yielded to Fordist techniques.

This offers an intuitively reasonable account of what a creative labourer does. Such a labourer produces something defined only by its intended effect. This contrasts with a machine, which, by a sequence of predetermined operations, attains a stated goal. For Church-Turing problems, *no* sequence of predetermined operations can be deduced from the goal. Outcomes therefore exist for which not only is there no plan, but for which no plan is possible.

This also provides a criterion, always a comfort for a classifier. To pass the Turing test, a machine would have to be indistinguishable from a human – as in Philip K. Dick's *Do Androids Dream of Electronic Sheep* 1996, now famous in its film version *Blade Runner*.<sup>17</sup> Yet if machine society reached this stage, actually the machines would simply be another kind of human. The only question facing society would be, as in the science-fiction literature, how to assign androids a juridical status that recognises their equality. Therefore, I do not see why we should not evolve a 'cultural Turing test' in which, in order to ascertain whether a given type of labour should be considered creative, we interrogate the cultural consumer to see if they care, if a machine replaced the human.

This insight also allows us to pin down the characteristics of 'creative innovation' in a way that spans the gulf between art and science. The *common* feature of the two types of creativity lies precisely in the capacity to solve non-mechanisable problems, or to put it another way, to apply non-mechanical capacities to the solution of problems that machines have failed to crack.

### *Creation, procreation, and the process of creation*

We now turn to the nature of the creative process, and demonstrate that this accords with the definition we propose. What singles out the cultural production process, as we now observe it in the modern CCS? Its hallmark is that the cultural product is *imperfectly or abstractly specified*. This is evident when we consider the work of originators – the scriptwriter, designer, composer, choreographer, designer or artist. For an originator, the 'product' begins as little more than a general idea or an inspiration. However the definition applies across the board. The originator knows, or evolve a knowledge of, the effect that they wish to produce. They do not however know, until the work is complete, exactly how this effect will be achieved. They have a conception of the objective – of the judgement that will be made on it by its target audience. They translate this into a 'realisation' that achieves the outcome.

But this also applies to interpreters. The originator does *not* pass on a 'mechanical description' to the performer or executor. S/he passes on another imperfectly specified outcome to the next person in the cultural chain. These are *also* creative, by the above definition. They draw on a wealth of experience and knowledge to apply an interpretative technique that subsequently unfolds mechanically – for example a sequence of dance

---

<sup>17</sup> The Man-Machine distinction is a constant theme of science-fiction literature. The Golem legend is the first instance. 'Robot' was coined by the Czech playwright Karel Capek and derives from the verb 'to work' in most Slavic languages. Asimov contributed his laws of robotics and Fred Saberhagen his anthropobic 'Berserkers'. Frank Herbert's 'Dune' series introduced a society that comes into through the 'Butlerian Jihad' – a war of extermination against thinking machines. Most recently, Ian Banks has introduced a future Civilisation actually calling itself 'Culture' in which artificial intelligences or 'drones' are members of society on an equal basis with organic being, and Ian Gibson's *Idoru* and many of his other novels play with similar ideas.



steps, learning by rote, or simply a standard camera shot or journalistic reporting technique. Ultimately, however, the production of the effect is not in its totality mechanisable; the irreducible creative minimum remains.

This fits very well with the Turing Test. Again, the easiest way to determine whether any of these persons are carrying out mechanisable functions is simply to see if they can be, or are in fact, mechanised; and if the immediate user notices the difference. It connects also with the 'deep structure' of the logic in that the specification received by the creative producer is fundamentally semantic – defined by its meaning or effect – as opposed to syntactical – defined by the sequence of operations required to carry it out.

Thus three capabilities emerge as characterising the creative producer

- (1) producing things defined by the *effect required*, rather than the *method of making*.
- (2) producing *distinctive* and *differentiated* things rather than *identical* things
- (3) producing to an *abstract or imperfect specification*, rather than a completed and invariable prescription

The interesting, and perhaps most important question then becomes: what impact does labour of this type have, when employed in the *non-cultural* industries? To answer this we should ask if the characteristics described above are necessary, or useful, in other fields of human endeavour, a hotly-pursued topic in the study of entrepreneurial talent (Cf Glynn 2007). My answer is a qualified yes. They most definitely describe the characteristics, for example, of almost all labour in the software industry. They fit well with the characteristics required of innovators and scientists. They do not seem far adrift from the ideals sought of entrepreneurs. I would therefore suggest that, taking the above as the initial criterion for a classification of labour.

## **Creative labour and its economic effects: a research agenda**

None of the above implies the abolition of hierarchies of salary, control or status, the abolition of hard work or abuse, or the advent of a society of Lotus-eating opulence and indolence. The market converts creativity into a special kind of labour by a process tantamount to cultural distillation, creating new divisions founded on dispensability, and new hierarchies with the celebrity and the media mogul at one end, and the night cleaner at the other. This may well involve yet more intense inequalities, and perhaps even harsher regimes of exploitation. Nevertheless, it will constitute social evolution – whether negative or positive is yet to be decided. A hierarchy founded on the capacity to perform is a *different* hierarchy from one founded on the capacity to install robots; and this is the point of the analysis.

In the society which is thus emerging, we may reasonably suppose that the commodity relation will organise creative labour to the greatest possible value-creating effect. We should not therefore expect that its use will be confined to the CCS, and in fact it is not.

This is implicit in the Cox (2005) Report, Australia's canonical *Creative Nation* report,<sup>18</sup> and in Florida's (2002) work. My proposal is to make such ideas rigorous: let us apply the criterion of the last section as the touchstone of a definition of creative labour, identify the occupations thus determined to be creative, and then investigate their effects.

The list of occupations thus defined as creative will be larger than the purely artistic, but significantly smaller than Florida's all-encompassing 'creative class'. It will include some surprising people whose work is also non-mechanisable by virtue of their social role – for

---

<sup>18</sup> 'Creative Nation: Commonwealth Cultural Policy', October 1994 <http://www.nla.gov.au/creative.nation/contents.html>

example, lawyers and politicians.<sup>19</sup>

This however has a number of advantages over existing lines of enquiry. It frees us of the requirement to establish connections that do not exist between the economic benefits of creativity and the presence of art. It also leads to a more general focus on the *workforce as an asset*, and in this way connects to the broader agenda of identifying the skills, and education, which a modern service-based economy needs. The metrics on which much skills research is concentrated, such as qualification or specialisation, may well be missing out on the extra dimension of creativity, and this is an important thing to know. Is it, for example, as important, less important, or more important, to bring out an employee's creative capacities than to ensure that he or she is equipped with the mechanical skills of reading, writing and arithmetic?

My approach also suggests a widening of policy stances on the quality of life. One of the most important claims for creative labour is that it is enjoyable. Events sometimes proceed so rapidly that we do not pause to consider what a huge change, in attitudes to work, this constitutes. For the two centuries after the industrial revolution, labour was unequivocally associated with pain. The very words 'wage slavery' betray the common experience. For two centuries, the destructive effect of industrial labour has been the dominant concern of everybody seeking social change from novelists and reformers to Factory Inspectors and revolutionaries.

Yet these destructive effects are, when we examine them carefully, indissolubly associated with the *mechanisation* of labour. Industrial labour was not merely an ancillary to the machine: it became a machine. The Ford Assembly line was only the final incarnation of this development, each labourer being a tiny cog with all independent scope for action treated as positive rebellion.

The very fact that mechanisation is universally described as 'dehumanising' indicates what, as a form of social progress, is wrong with it. If, society by its nature is in fact non-mechanical, then there is an inner contradiction in forcing people to behave like machines. It is at best a necessary evil. If creative labour in itself has become a factor, however limited, in the production and realisation of value, then mechanical work – at least potentially – can in the future become an unnecessary evil. That means it can be abolished – which is indeed worth striving for.

## References

- Adorno, T and Horkheimer, 1947. *The Dialectics of Enlightenment*. London: Verso
- Anderson, Benedict, 2007. *Imagined Communities* 2<sup>nd</sup> ed., London: Verso
- Bahro, R., 1978. *The Alternative in Eastern Europe* London: NLB
- Bakhshi, Hasan, Eric McVittie, and James Simmie. 2008. *Creating Innovation: Do the creative industries support innovation in the wider economy?* London: NESTA. Available at: [http://www.nesta.org.uk/assets/pdf/creating\\_innovation\\_report\\_NESTA.pdf](http://www.nesta.org.uk/assets/pdf/creating_innovation_report_NESTA.pdf) [Accessed March 8, 2008].
- Baumol, William J. 1996. Children of Performing Arts, The Economic Dilemma. *Journal of Cultural Economics* 20, no. 3:183-206. <http://orchestrafacts.org/Baumol.htm> Accessed April 26, 2008.
- Bourdieu, P. 1979 *Sur la Distinction*. Paris: Minuit
- Braudel, F. 1979 *Civilisation Matérielle, économie et capitalisme*, Paris : Arman Colin.
- Carey, J. 2006. *What Good are the Arts?* Oxford: OUP
- Caves, R. (2000) *Creative Industries: contracts between Art and Commerce*. TBA publisher
- Cox, G 2005 *The Cox Review of Creativity in Business*, London: HM Treasury, e-Comms Team [http://www.hm-treasury.gov.uk/cox\\_review\\_creativity\\_business.htm](http://www.hm-treasury.gov.uk/cox_review_creativity_business.htm) (Accessed November 30, 2008).
- Church, Alonzo. 1936. An unsolvable problem of elementary number theory. *American Journal of Mathematics*, 58

---

<sup>19</sup> Yakio Morita, a founder of Sony Corporation, once stated that US law was the main requirement for doing effective business there. See the Sony Corporation History, Chapter 31 'The Betamax Case'. <http://www.sony.net/Fun/SH/1-31/h1.html>

- (1936), pp 345 – 363
- DCMS 1998. *Creative Industries Mapping Document 1998*.  
[http://www.culture.gov.uk/reference\\_library/publications/4740.aspx](http://www.culture.gov.uk/reference_library/publications/4740.aspx). Accessed 30/11/2008
- DCMS 2007 Interim results of the Creative Economy Programme  
<http://www.cep.culture.gov.uk/index.cfm?fuseaction=main.viewBlogEntry&intMTEntryID=3104> accessed 1/10/ 2007
- DCMS. 2008. *Creative Britain - New Talents for the New Economy*. DCMS. Available at:  
[www.culture.gov.uk/Reference\\_library/Publications/archive\\_2008/cepPub-new-talents.htm](http://www.culture.gov.uk/Reference_library/Publications/archive_2008/cepPub-new-talents.htm) [Accessed April 29, 2008].
- De Bono, Edward (1970) *Lateral Thinking: Creativity Step by Step*. New York: Harper and Row
- Desai, R.2008 ‘The Inadvertence of Benedict Anderson: a review essay on *Imagined Communities* on the occasion of a new edition’, *Global Communications and Media*, Volume 4, Number 1, spring 2008.
- Dick, Philip K. 1996. *Do Androids Dream of Electric Sheep?* Del Rey.
- Elias 1939 *Über den Prozess der Zivilisation*, Basel: Haus zum Falken. Translated as Elias, N. (2000) *The Civilizing Process*. Oxford: Blackwell.
- Florida, R 2002. *The Rise of the Creative Class*. New York: Basic Books
- Freeman, A. 2002 *Creativity: London’s Core Business*. London: GLA
- Freeman, A. 2007 *Creative Industries: 2007 Update*. London: GLA
- Freeman, A. 2008b *London: a Cultural Audit*. London: LDA
- Freeman, A. 2008c ‘Culture, Creativity and Innovation in the Internet Age’; seminar presentation to the Freeman institute, Sussex University, 31<sup>st</sup> October 2008.
- Freeman, C. 1989. “The Third Kondratieff Wave: Age of Steel, Electrification and Imperialism.” *Kihlstrom et al.*
- Freud, S. 2004 ‘The Future of an Illusion’ in *Mass Psychology and Other Writings*. London: Penguin
- Frey, Bruno S. 1996. “Has Baumol's Cost Disease disappeared in the performing arts?.” *Ricerche Economiche* 50:173-182. <http://ideas.repec.org/a/eee/ricoco/v50y1996i2p173-182.html> Accessed April 26, 2008.
- Garnham, N. 1990 *Capitalism and Communication: Global Culture and the Economics of Information*. London:Sage
- GBGIS (Great Britain Historical Geographical Information System) website: <http://www.port.ac.uk/research/gbhgis/>
- Griliches, Zvi (1971) *Price Indexes and Quality Change: Studies in New Methods of Measurement*. Cambridge: Harvard University Press
- Glynn, M. A. 2007. “Innovative Genius: A Framework for Relating Individual and Organizational Intelligences to Innovation.” Available at: <http://www.jstor.org/pss/259165> [Accessed April 29, 2008].
- Hesmondhalgh 2007 *The Cultural Industries*. London: Sage
- Howkins, J. 2001 *The Creative Economy*. London: Penguin
- Hutton, W., Á. O’Keeffe, P. Schneider, R. Andari and H. Bakhshi 2007 *Staying ahead: the economic performance of the UK’s Creative Industries*. London:NESTA
- O’Connor, Justin. 2007. *The cultural and Creative Industries: a review of the literature*. Leeds: School of Performance and Cultural Industries, The University of Leeds. Available at: [http://www.creative-partnerships.com/CP\\_LitRev4.pdf](http://www.creative-partnerships.com/CP_LitRev4.pdf) [Accessed February 24, 2008].
- ONS 2003 *UK Standard Industrial Classification of Economic Activities 2003*. London: The Stationery Office.  
[http://www.statistics.gov.uk/methods\\_quality/sic/downloads/UK\\_SIC\\_Vol12003.pdf](http://www.statistics.gov.uk/methods_quality/sic/downloads/UK_SIC_Vol12003.pdf) , accessed 24/9/2007
- Perez, C 2003 *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages*. Aldershot: Elgar
- Higgs, Peter, Stuart Cunningham, and Hasan Bakhshi. 2008. *Beyond the Creative Industries: Mapping the Creative Economy in the United Kingdom*. NESTA. Available at:  
[http://eprints.qut.edu.au/archive/00012166/01/beyond\\_creative\\_industries\\_report\\_NESTA.pdf](http://eprints.qut.edu.au/archive/00012166/01/beyond_creative_industries_report_NESTA.pdf) [Accessed March 25, 2008].
- Ramsdale, Philip. 2000. *International Flows of Selected Cultural Goods 1980-1998*, Montreal: UNESCO Institute for Statistics, UNESCO Sector for Culture. [www.unesdoc.unesco.org/images/0012/001213/121362eo.pdf](http://www.unesdoc.unesco.org/images/0012/001213/121362eo.pdf) Accessed March 9, 2008
- Throsby, D. (2008) ‘Creative Australia: the Arts and Culture in Australian Work and Leisure’ Canberra: Academy of the Social Sciences in Australia, occasional paper 3/2008
- Safranski, Rüdiger. 2004. *Schiller oder Die Erfindung des Deutschen Idealismus*. 1st ed. Hanser.
- Smith, Adam. 1982. *An Inquiry into the Nature and Causes of the Wealth of Nations : Volumes I and 2*. (The Glasgow Edition) Liberty Fund Inc.,U.S.
- Snow, C. P. 1998. *The Two Cultures*. Cambridge: Cambridge University Press
- Sony history: <http://www.mediacollege.com/video/format/compare/betamax-vhs.html> for a rapid summary and <http://www.sony.net/Fun/SH/> for Sony’s own corporate account.
- Tusa, J. (2003). *On Creativity: Interviews Exploring the Process*. Methuen Publishing Ltd.

Williams, R. (1983) *Keywords*. Oxford: OUP  
Wilde, O. (2001) *The Soul of Man under Socialism*. London: Penguin  
Zukin, S. 1995 *The Cultures of Cities*. Blackwell: Cambridge MA.