CULTURE, CREATIVITY, AND INNOVATION IN THE INTERNET AGE

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Abstract

This paper analyses the distinct economic roles of culture, creation, and innovation in the Creative Industries by assessing the fitness for purpose of their statistical definitions. On this basis it proposes a method for studying the relation between creative labour and innovation.

Lax usage has made the term 'Creative Industries' a synonym for three distinct things: creativity, culture and intellectual alienability. I use the term *Cultural and Creative Sector* (CCS).

My aim is to distinguish Creative Labour, of which the sector is a specialist user, from Cultural Outputs, which the sector produces. These are found combined in the CCS 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 which, I argue, 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.

This sector's specialism is that it employs creative labour to produce cultural products. Its emergence is the outcome of two processes: a separation of mechanical from creative labour, which we inherit from the age of machines, and a revolution in service sector productivity, arising from the age of the internet.

Creative labour is a general economic resource, employed both inside and outside the CCS. The CCS is the starting point of an adequate definition, because in it, creative labour is found in its most advanced and specialised form, and because in it, this kind of labour has applied to maximum effect the new service technologies which have emerged with the internet age.

However, in order properly to assess its wider impact, creative labour 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 service sector growth might be assessed.

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This book first arose out of a passage in Borges…, [which] quotes a 'certain Chinese encyclopedia' in which it is written that 'animals are divided into: a belonging to the Emperor, b embalmed, c tame, d sucking pigs, e sirens, f fabulous, g stray dogs, h included in the present classification, i frenzied, j innumerable, k drawn with a very fine camelhair brush, 1 et cetera, m having just broken the water pitcher, n that from a long way off look like flies'.

–Michel Foucault (2001), *The Order of Things*

We have an agreement in this place. The flies don't practice law, and I don't climb walls.

– Groucho Marx

Prologue: the internet age and the revolution in service productivity

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

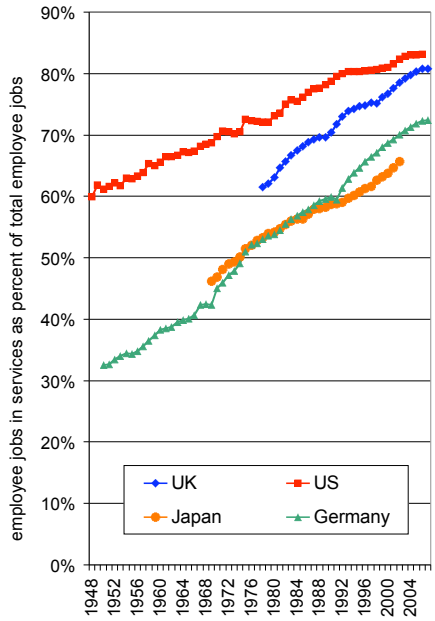
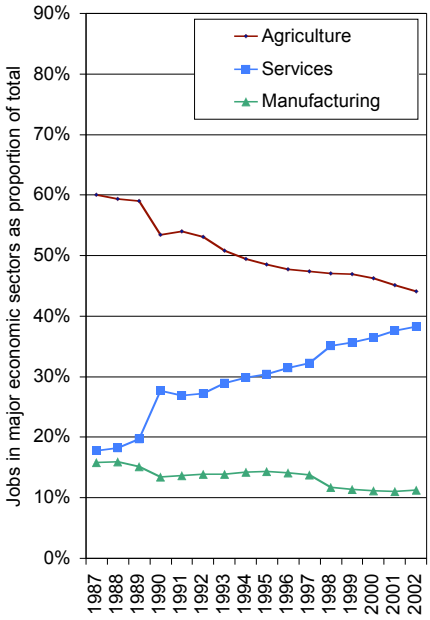


Chart 2: proportion of employees in major sectors, China



Sources: UK, US and Germany, national statistical offices ONS, BEA, and SBD.
Japan, China: International Labour Organisation ILO.

This paper establishes the economic grounds for treating the Cultural and Creative Sector (CCS) – presently termed the Creative Industries – as an industrial sector, and on the basis of these grounds, to determine how its statistical definition and measurement may be improved. Attempts to define this sector have been with us since the early 1940s, but the present level of interest is new. One major reason is its growth, size and dynamism. Consumers were spending more on CCS products than on food by 1994, and by 2004 businesses spent more on them than on financial services.

There is a however a still more critical reason for this attention: the innovations which

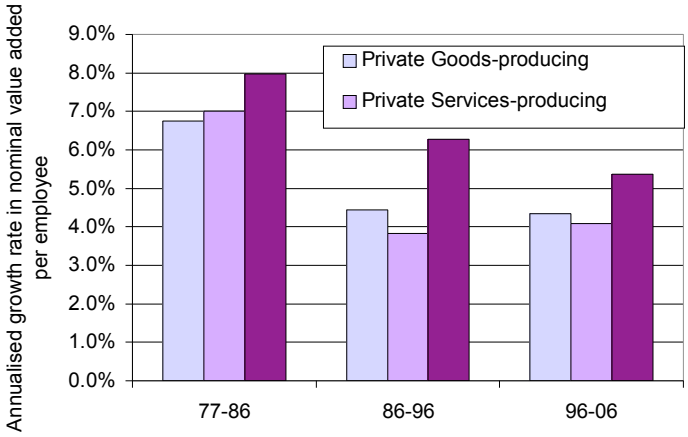
have fuelled its growth. If these are treated in isolation, it is easy to miss their common connection, and also their profound effects on the development of capitalism, which date further back than usually recognised. They contain three components: the mechanical reproduction, mechanical recording, and mechanical transmission of cultural activities.

Their effects begin with printing, the defining innovation of modernity. They were central to the industrial revolution, which was driven (see A. Freeman 2008a) by mechanising the production of cloth – the fabric of fashion. Modern times start with photography and the telephone, gathering speed with broadcasting and the cinema. Electronic communication has now brought digitalisation, portable devices, and the internet age. All these innovations improved the production of tangible goods. Yet they have a different common feature: their impact on *services*, the poor cousin of goods in classical theory.

As charts 1 and 2 below show, the proportion of services in employment in the USA had risen by 2006 to 83 per cent.[2] 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 International Labour Organisation (ILO).

Economic thinking has some ground to cover to catch up with this reality. Adam Smith himself held that services added no value. In 1996 William Baumol repeated his famous 1966 argument that certain 'stagnant services' suffer a 'cost disease' of intrinsically slow productivity growth caused the "handicraft attribute of their supply processes". His well-known example is live orchestral performance, where the auditorium sets absolute limits on the number of listeners, and the nature of the activity rules out simply playing faster.

Chart 3: growth rate of value added in goods, services and the arts sector in the USA



Source: BEA

In the course of writing this article, it became increasingly clear that this view of services has 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. The value added in US services, at 78 per cent of the total, was in 2006 a scarcely lower proportion of the total than the labour employed. Nor is some process of 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 Chinese manufacturing – so far assumed the *sine qua non* of development – has in fact declined.

Not least, as Frey (1996) and others note, the output of the performing arts is in fact growing rapidly. As Chart 3 shows, US value-added per employee in this sector grew

[2] 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.

faster than in the goods sector in every decade for the past thirty years. The 'cost disease', in its canonical industry, does not exist. Either the arts have hit on a hitherto unknown technique to make money for nothing, or there is a flaw in the reasoning.

Rethinking the commodity: what does a service industry sell?

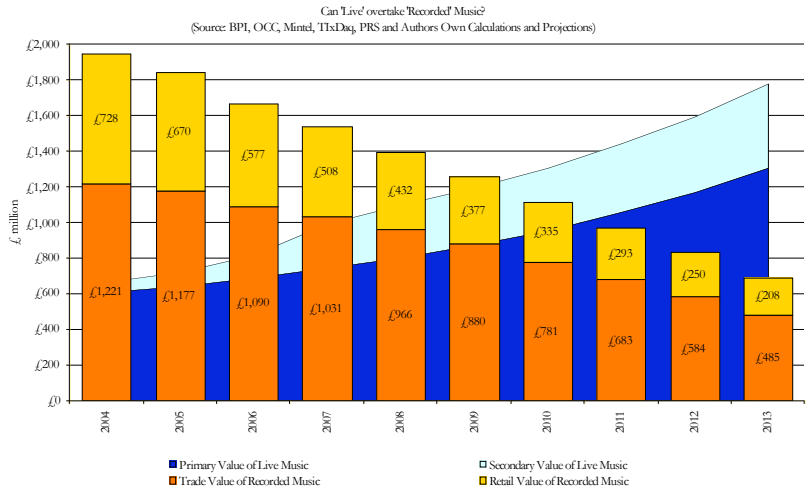
When we do not see an answer that stares us in the face, the light must be coming from the wrong direction. As a starting point, let us return to the basic argument: that the supply of orchestral performance is technically limited. Well, is it? Consider a simple question: what really goes on when a consumer 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.

The argument that there is a natural limit to performances applies *only* if by definition we exclude enjoying them anywhere except in a concert hall. It only applies if we count CDs, video tapes, broadcasts or the internet as something else. This was still just about viable in 1996, when CDs could be classified as tangible goods. By 2006, the download itself had become intangible, and the material basis of advanced services now persists only as a substrate. It is finally clear that handicraft model of the service relation misses the point.

Service interactions can now be multiplied without limit, consumed at any distance, and displaced over any period of time. This has made the *service itself* into the commodity. The CD, the internet, and the broadcast are simply different forms which it takes. The three dimensions of cultural innovation – reproduction, transmission, and recording – have eroded handicraft limits beyond the point at which the handicraft concept remains viable. The disparate material forms in which services are consumed, in sector after sector, are being subordinated to a new underlying new relation.

The decisive feature of the internet age is thus that service productivity, if defined correctly, is free to expand without natural impediment. This marks a fundamental transition. We have left an entire historical period dominated by revolutions in the production of material goods, for one in which the growth of productivity in services is the transformative force of the age.

Chart 4: revenues from live and recorded music



Author: Will Page,MCPS-PRS Alliance. Adapted by the author. Other sources as acknowledged above

Projections begin at 2007

To grasp this in depth, consider the present crisis of the music industry. As 'handicraft' live performance hits new heights, this is now hit by plummeting sales of recordings. Will

Page (2007), in a series of highly informative articles written for the MCPRS-PRS alliance, shows that by 2007, revenues from UK live music at £1bn were already set to exceed the trade value of recorded music. He offers robust projections showing that the falling trend of recorded music, and rising trend of live music, can be expected to continue to the point where, in the near future, live music becomes the principal source of industry revenue.

For anyone focused on the physical medium, this is an atavistic reversal. But for the consumer, recordings and broadcasts are now just another kind of performance. The productivity of 'performance production' when properly conceived is far from a handicraft industry but is among the most advanced forms of production going on today. It is free of the cost disease and, not surprisingly, its output price is falling.

Monetary demand is in good shape: the *sum* of spending on live and recorded music has hardly fallen at all, and according to Page's projections will remain between £2.6 bn and £2.4bn. But unit prices – if recorded media are included – are falling. A simple economic account then suggests itself. Being able to obtain more for less, consumers begin to discriminate, and revenue is migrating to live entertainment, for which they pay a premium.

A recording, on this reading, is cheaper than live performance because its quality is perceived to be lower. This does not, however, turn it into something other than a performance. If we start disallowing performances on the grounds of their quality, Raymond Gubbay's customers will begin asking for their money back. A Fiat 500 is less attractive than an Alfa Romeo Spider, but it is still a car. Disparate products have fused into a single commodity with a spectrum of quality[3] ranging from a weekend in Bayreuth to a ringtone from Carmen.

This is observed in almost every product's life-cycle. Why should music be different? It is only difficult to understand if we persist in treating concert halls, CDs and podcasts as if they had no more relation to each other than fish and bicycles. Music is merely headed down the same path already travelled by phone calls, broadcasts and, for that matter, literature: the formation of a unified market, differentiated on content and quality.

Accessorizing after the fact: the metamorphosis of the global service industry

By rethinking the nature of the commodity in the service economy, we can thus better understand its markets. We can go further however; we can begin to understand its industrial structures and processes. We can make sense in particular of such phenomena as Sony, Apple and Nokia. These companies are in effect metamorphosing, from manufacturing into service industries. They are at different larval stages, which at least in the case of Sony has already hatched, of a new industrial creature in which manufacturing is an adjunct to, and a feeder of, the production of a service or services. These companies may still be in the business of selling devices. On examination, however, the purpose of the device is seen to be the service to which it provides access, be this domestic entertainment, mobile gaming, peer-to-peer downloads or simply fashionable appearance, in which the device is even called, aptly, an accessory.

This metamorphosis is extending across the entire spectrum of consumer goods production, in a kind of postmodern frenzy transforming *aesthetics* into the holy grail of

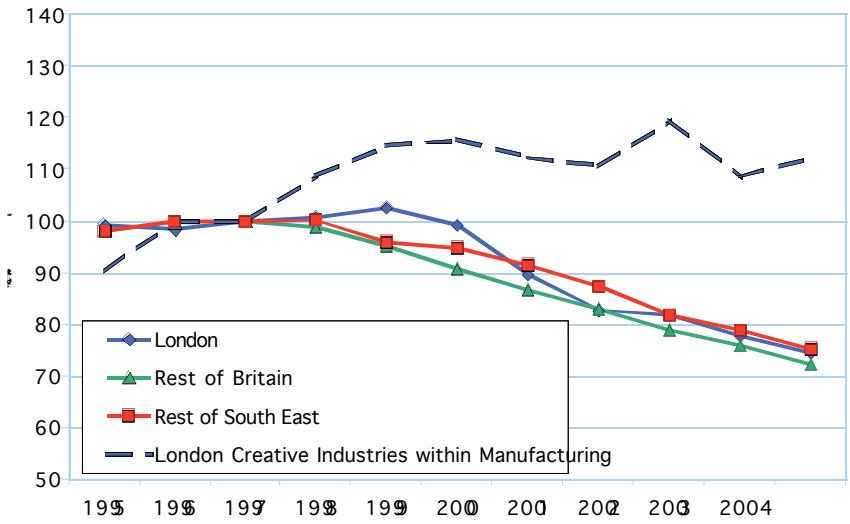
[3] Two elliptic points. First, this assertion is readily open to empirical testing by measuring the cross-elasticities of demand for live, recorded, downloaded and broadcast performance. Second, the above reasoning drives one to conclude that the socially-established use value of a performance is genuinely greater than that of a CD. This is not true in all markets, since deviations of price from its average have a variety of causes. Where, however, there is a persistent average long-term trend, as is the case in the market for performance, I think it is the only robust conclusion to be drawn.

product design.[4] The car designer outranks the engineer; cosmetic pharmaceuticals outweigh the cure of disease; the sale of clothing is ever more indistinguishable from the fashion market, and scarcely a city centre is left in the world that is not instantly identifiable from iconic buildings procured from globally famous architects.

It is particularly striking that the nature of manufacturing is itself being transformed by its increasingly tributary relation to service provision. This is indeed the *reason* the ICT industry is successful. The third computer ever produced was supplied to Joe Lyons, the UK fast food king, and gave its name to the UK's first IT company, Lyons Electronic Office (LEO). Notwithstanding scientific and military clients, IT's *massive* deployment was in finance and commerce. And what would its modern form be without the internet?

Chart 5 illustrates this in an interesting way: it shows that whereas employment in manufacturing has been proceeding with more or less equal pace throughout the UK in the last ten years, the 'creative industries' within London manufacturing those parts of manufacturing to be found within the CCS are an exception. They grew overall, if modestly, between 1995 to 2005, employment there being 11 percent higher than in 1997 and 20 per cent higher than in 1995.

Chart 5: Workforce employment in Manufacturing



Source: A. Freeman (2007)

Culture and the reinvention of property

The emergence of service as the principal output of industry is also the only way to make sense of its emerging juridical mechanisms, notably Intellectual Property (IP). If the only important thing about a recording is the plastic, what economic justification is there for a charge on the content? IP is not without its contradictions, being for example the first form of commodity ownership which places restraints on trade by making it illegal to distribute the material form serving as vehicle for a service. But for better or worse, it expresses the truth of new economic relations in which the service, not the substrate, is now the true commodity.

[4] See, for example, Stoneman 2007

Understanding social transformation: the CCS as prototype

The Greek philosopher Pythagoras held that Music held the key to understanding the universe. This paper advances a neo-Pythagorean hypothesis: music, or more broadly entertainment, is the canonical form of something happening throughout society.

Revolutions in service productivity are, I have shown, reshaping all basic elements of the economy: its markets, its industrial structures, and its property relations. Not least, they are reshaping the labour it employs. We need to appreciate the role of the CCS from this standpoint. The sector of course does not, and will not, substitute itself for all other forms of production. However, with the internet, digitalisation, and the portable media device, it has become the most developed form of a process of far wider significance.

The CCS is, I think, what Perez (2003) terms the 'carrier industry' of a new socio-economic paradigm, comparable to the clothing industry in the industrial revolution, the railways in the age of steam, or the car in 'Fordism'. It is thus a modern economic phenomenon of first-rank importance and if anything, the surprising thing is not that it has attracted attention, but that it has not attracted more. Understanding begins, however, with precision of thought. First and foremost, the specific role of *creative human labour* needs to be properly analysed. I will argue that it should be conceived of as a resource in itself, as the means by which innovation is organised under the new technologies.

The CCS refines and organises this new resource at a new level. It is analogous to the impact of manufacturing, which made the machine into an instrument of social reorganisation in successive innovative waves beginning with train and the era of mass transport; moving into construction in what C. Freeman (1972) terms the age of 'steel, electricity and concrete' which brought New York into existence; and then reshaping the whole of consumption with the car, household appliances, and 'Fordism'.

Understanding something new requires the appropriate means, not just to identify but to quantify it. Economics, so far, lacks these means. Its associated definitions require special study, just as those associated with machinery were rightly the object of intense scrutiny in the age of industry. Our difficulties in understanding service sector innovation do not arise from want of numbers, but from the much more profound conceptual reason that we cannot yet grasp what the numbers mean. This, I think, is what we need to get right.

Envoi: in defence of classification

This paper is about classification, not the world's number one Saturday night entertainment. However, if we wish to count sheep, we must first tell them from goats.

Let us suppose it is accepted that the output of the entertainment industry is, in essence, the 'performance'. Where do we find statistics for this output? The answer is: we don't. Part appears under Reproduction of Sound Recordings SIC code 2231. Videos appear in SIC code 2232. SIC code 2233 'Reproduction of Computer Media' no doubt contains the occasional performance, but also includes games, software and electronic publishing. To this must be added broadcasts, which appear in Radio and Television SIC code 9220/1-2. Which proportion of these are musical, nobody knows. If this knowledge exists, it does not penetrate the UK statistics. Concerts appear in the ever-intriguing 'Other entertainment activities not elsewhere classified' SIC code 9234/1-9, where the cultural economist has to separate them from cinema screenings, pub quiz nights and boxing matches. Internet downloads, the fastest growing of all, simply do not appear at all. Our statistical system, earnestly tracking a world dissolving before it, resorts to stuffing its shreds under a threadbare carpet of industrial nostalgia.

I hope this convinces my reader, however telegraphically, that the classification problem cannot be avoided. The statistics were devised for a bygone purpose: it is time to refit them for a new one.

Culture and the 'Creative Industries'

My investigation begins with a phrase: 'Creative Industries'. It rose to prominence in 1998 when the British Department of Culture, Media and Sport DCMS adopted it, defined it, and began promoting it. The Greater London Authority (GLA) applied this definition to London in 2002. Queensland Institute of Technology researchers have clarified and named it the 'Trident' methodology, which is the name I will use.[5]

Creativity has become a euphemism for culture. A Google search yields 1,130,000 entries for 'Creative Industries' with DCMS at number two and the GLA at number four, compared to 676,000 for 'cultural industries'. The transition has caught many on the hop. Berlin's 'cultural economics' web page retains the word 'Kultur' in a URL whose content refers exclusively to the Creative Industries.[6]

It has also become a substitute for copyright. The original DCMS definition took IP as its point of departure. Google throws up 22,600 entries for 'copyright industries', the term still preferred by the World Intellectual Property Organisation WIPO (2007). Thus, although three quite distinct ideas are involved, little attempt is made to tell them apart, much less assess their independent relation to other phenomena. Finally, although creation is generally not understood as synonymous with innovation, the difference remains to be made clear.

Although the phrase 'Creative Industries' is new, its component parts are not. Raymond Williams (1975) recorded that 'culture' was in use with its modern meaning from the late 18th Century, as was the concept of 'creativity', neither however being linked to an industry. Attempts to measure the 'cultural industries' date back to the 1970s.

The latter phrase comes from Adorno and Horkheimer (1947), for whom it had profoundly negative connotations. UNESCO and other international bodies saw it in a different light, as a factor in national development, and it is now almost universally spoken of in positive terms.[7] DCMS injected a new idea which proved decisive in securing endorsement:[8] the Creative Industries were significant not just for general wellbeing, but as drivers of economic growth, instruments for economic regeneration, and engines of competitive advantage. Reversing the traditional relation between funding and the arts, they were cast as producers of wealth.

The attractions of this idea were not lost on governments. It was adopted worldwide, Canadian and Australian enthusiasm providing a tricontinental launchpad. The 'European Creative Industries Laboratory', testifying to Germanic *Begeisterung*, is the latest recruit. Even Paris, at the time of writing, is just beginning a programme of research under this

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[5] For a history of the term 'Creative Industries' see O'Connor (2007). The principal sources referred to in this article are DCMS (1998), GLA (2002), UNESCO (2000). Higgs et al (2006) explains the term 'trident methodology'.

[6] KreativWirtschaft Deutschland http://www.kulturpolitik-kulturwirtschaft.de/

[7] Indeed, the CCS is remarkable for attracting unqualified approval. Compare it, for example, with responses to manufacturing with its slums, workforce degradation, and pollution, or the car's impact on environment and safety. The CCS is seen as a benefit to the consumer, the producer, the environment and the wider economy alike, the main danger being, if anything, promotion as miracle cure or panacea. Justifiable critical concerns do exist – for example, the impact of television on children, or the implications for both democracy and free trade of the concentrated ownership of media empires. Moreover there is no strong evidence that the CCS is in the process of abolishing or superseding any of the more intractable problems of industrial society such as inequality or poverty. This paper is neither intended particularly to praise or particularly to criticise the new state of affairs, but to report it accurately.

[8] The most recent endorsement of this being the 2008 Strategy document, co-published by DCMS, BERR and DIUS (DCMS 2008, see also Hutton et al 2007)

heading. The idea is hip in East Asia, notably Singapore and, most significantly, China.

Yet profound ambiguity surrounds it. Culture may be a product of creative labour, but unless we define culture following Freud (2004:110) as virtually all mental social activity, there is no evidence it is the only thing that creative labour does. What determines that only computer games should be dignified with the title of creative, instead of the whole of the software industry, surely one of the new economy's most institutionalised innovators. What is the function of creative workers in the banking industry?

Culture Shock and Culture Denial

There is a tempting way to dispel this ambiguity, which is to deny that the CCS sector exists, falling back on traditional classifications – agriculture, mining, utilities, manufacture, transport and communications, retail, finance, health and education and the ever-popular 'other services'. The problem with this reaction is that the CCS really is a new industry. It really is very dynamic, really is a major employer, really is in driving significant processes of innovation and, not least, it really does make a lot of money.

The capitalisation of New York's three media conglomerates Time Warner, Disney and Viacom is half that of Exxon Mobile (A. Freeman 2008b). This provides the simplest proof of industrial status, namely industrial structure, which arises from what business itself has discovered and is therefore not lightly to be discounted by economists. The conglomerates are strictly confined to media activities and integrated in every conceivable direction within them. (See, for example, Abrahamson 2004, Zukin 1995).

A second problem is even more serious. In a changing world, the risk of depending on fixed definitions is that they cease to be relevant. If the CCS were recorded separately from agriculture, mining, utilities, transport, and retail, there would not be the slightest question of its importance: it would be bigger than any of them. If the only reason for not studying it is that our statistical instruments do not reveal it, then this is the worst excuse for ignorance since the Galileo met the Inquisition.

Dependency on fixed classifications is ultimately foolhardy, because of their inherent tendency towards conservatism. They need to remain stable so that changes can be recorded over at least three business cycles, or 25-30 years, to avoid mistaking a cyclic variation for a long-term trend. Such a time-span is comparable to the time in which core innovative transformations completely reshape the economy and, as the BEA's Economic Classification Policy Committee ECPC recognised in 1992, the requirement of statistical stability fatally conflicts with that of keeping up with new developments.

There are two ways to reconcile these two requirements. The first, most systematically undertaken by the BEA, is to revise the primary classification and 'backcast' it to produce long time series by recasting the old data using a new classification. This is what made possible the graphs on service employment which I exhibited in the prologue. The 'North American Industrial Classification System' (NAICS) replaced the SIC system in North America (USA, Canada and Mexico) for the very reasons I have mentioned, following an exceptionally thorough review undertaken by the Economic Classification Policy Committee (ECPC) – a high-level, intergovernmental agency. [9] As the NAICS (1992) web page states:

> NAICS responds to increasing and serious criticism about the SIC. It reflects the structure of today's economy in the United States, Canada, and Mexico, including the emergence and growth of the service sector and new and advanced technologies.

[9] See NAICS 1992, Bureau of the Census 1993

A second method is to produce secondary classifications, otherwise known as cross-cutting or satellite accounts. There is a danger of frivolous or economically irrational such classifications; this paper offers criteria to avoid this and ensure consistency between primary and secondary accounts. There is therefore no technical obstacle and no valid economic objection to a robust re-conceptualisation of the service economy.

If neither of these steps is taken, economics risks discrediting itself by being unable to analyse new developments. In the case of the CCS there is a further imperative, as my prologue sought to establish: it is a key to understanding what is happening in the rest of the economy. Calling 'services' a sector is an even greater abuse of language than giving proper recognition to new ones. The classification system is struggling to keep up; the economists are left spectating at an event in which they once competed. The way to catch up is to race with the foremost. The reality of the CCS should be the starting point for a more general, and specifically economic, enquiry: whether, and if so why, it is a new branch of the division of labour.

Why a sector?

Economics, traditionally, divides the economy into sectors for reasons first given by Adam Smith (1982:1) in the words which open 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."

By arranging the economy into 'branches', as Smith termed them, economists try to quantify a fundamental feature of market economies – the division of labour. Industrial society until now has created specialised productive units which exchange their produce with each other and the rest of society. Attempts to classify these units begin by assigning every workplace, and every job, a branch or 'sector' within the division of labour.[10]

The question 'does a sector exist?' may seem odd, since a sector is at first sight a purely statistical construction. This is particularly true of the Trident definition, which simply amalgamates enterprises and jobs on the basis of existing classifications. Since this construction is arbitrary, doesn't the sector it describes exist by definition? Are we not like Humpty Dumpty entitled to make our own definition 'mean just what we choose it to mean, no more and no less'? No: it must really describe a branch of the division of labour. To find out if it does so, we have to see if labour really is divided that way.

The empirical reality of the cultural and creative sector

There is no guarantee that a new 'sector' defined by a bright idea has useful economic features. Existing sectors, however, do possess such features. The 'transport' sector brings together different means to a single *outcome* – moving an object or person from one place to another. The 'agricultural' sector comprises activities using a common *resource* – land. The 'manufacturing' sector – arguably these days – unites production processes using a single *technique* – the factory, which gave the sector its name. Thus, the NACE/SIC manual ONS (2003) explains itself as follows:

> The main criteria employed in delineating divisions and groups the two and three digit categories, respectively of NACE concern the characteristics of the activities of the producing units… An activity is said to take place when resources such as equipment, labour,

[10] Historically, occupations were classified first, although economic theory first lit on the industries they supplied. UK census- records of occupations are available from 1841 onwards, but modern Industrial Classification dates from shortly before the last war. See Bureau of the Census (1993), NAICS (1992) and the GBHGIS website

> manufacturing techniques, information networks or products are combined, leading to the creation of specific goods or services. An activity is characterised by an *input of products goods or services, a production process and an output of products*.[11]

Thus an industry is defined as an assemblage of enterprises: more precisely, workplaces with common inputs, common process, and common products.[12] How does the CCS square up?

The starting point of any judgement on whether a sector 'exists' is its empirical role in the economy. This is indicated by its growth, relation to other sectors, internal coherence and, perhaps most importantly, the trend of these attributes over time. Following Smith, the ultimate goal of this information is to assess whether the definition in fact identifies a – possibly new – specialist branch of the division of labour.

This presents an apparent problem. In order to ask if a sector is growing, we need to define it. If we have to know if it is growing before we can define it, isn't this circular? Shouldn't we begin from an external, non-economic definition of culture and creativity?

If we proceed in this way we will end up like the apocryphal man who learned swimming from a book, only to drown at his first contact with the sea. If we have to modify our fine definitions, then so be it. We can issue health warnings to explain modified usage, and if really forced, we can find new words. Either way, the scientific point of departure is what really exists, not some preconceived, Platonic, and outdated view of its ideal form.

The problem of circularity vanishes if we understand classification as an iterative process. Every classification begins from inadequate and partial definitions to arrive at tentative conclusions; the empirical object so defined can then be studied to refine the definition, which can be re-applied to obtain more precise information, to re-test the basic theses which led to the original classification, and also to inform and if necessary reconsider the concepts we use to make the classification in the first place.[13]

Three basic points have, I think, been established by research so far:

(1) A set of *growth* industries exists, in terms of both volume of output, trade, and employment

(2) They are *coherent*, in that its components move similarly in time, and locate similarly in space, from which it is reasonable at least to hypothesise that they are governed by similar forces.

(3) They are either *interdependent*, containing component parts which trade with each other, or *codependent*, selling into, or buying from, linked or identical markets.

The longest series of available data are the trade figures provided by UNESCO (Ramsdale 2000), which date back to 1970. Between 1980 and 1998, imports of cultural goods as a proportion of all trade rose from 2.5 per cent to 3.8 per cent, when the world total reached $213.7 bn. This broke down as shown in table 1 in which the last row gives the total for the whole economy, offering a benchmark.

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[11] Note that the SIC system refers to workplaces and not enterprises: parent companies may cover many diverse products and the effects of specialisation and the division of labour are to be found in the individual workplace. In practice, the separation is difficult, and a lot of the 'grunt work' of statistical measurement consists of distinguishing the activity of branches from those of parents.

[12] The NAICs system is defined with respect to the 'single economic concept' of *production process*. In the final section of this paper, I establish the specific nature of the CCS production process.

[13] This issue arises in virtually all systems of classification. Only with the modern theory of atomic structure did science establish a causal explanation for the ordering of the chemical properties which Mendele'ev observed in his periodic table of elements. Mendele'ev accurately predicted the chemical properties of a dozen or more elements that were still undiscovered when he wrote including germanium (Mendele'ev's 'eka-Aluminium'), from which transistors, the original foundation of the microcomputer revolution, were first constructed. The brilliance of this system is still recognised as one of the greatest ever achievements of natural science. If, however, either scientist had given up for lack of a sufficient explanation for their observations, or because these did not confirm the prejudices of the time, modern chemistry would not have seen the light of day.

The growth in global trade is driven, and paralleled, by an unprecedented transformation in the pattern of demand. In 2000 British households, for the first time, spent on average more money on leisure than on food, the share of leisure products having risen from 11.2 per cent of household income in 1980 to 17 per cent in 2000. According to the measure of creative industry output published by the Office for National Statistics,[14] the average annual growth rate of GVA at current basic prices for the Creative Industries, between 1992 and 2004, was 6.7 per cent compared with 5.5 per cent in the economy. This growth is understated by the low growth of the manufacturing component of this output which grew at 1.3 per cent, while the services component grew at 8.0 per cent.

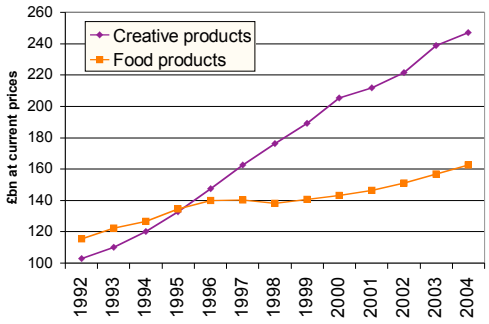
Table 1: growth in world imports of cultural products

Product Type	Annual average growth 1980-1998 (per cent)
Printed matter and literature	7.1
Music	10.4
Visual Arts	6.3
Cinema and Photography	6.4
Radio and Television	8.4
Games and Sporting Goods	11.3
Total Cultural	8.7
Memo: Total World Imports	*6.2*

In comparison, the output of the food sector as defined by the ONS grew, between 1995 and 2004, at an annual average rate of 3.8 per cent. In 1996, the demand for creative products at £147bn for the first time exceeded that on food at £140bn. By 2004, the figures were £247bn and £163bn respectively. The Creative Industries contribution to GVA at £92.0bn reached 8.8 per cent of the total compared with food at £80.3bn, 7.7 per cent of production.

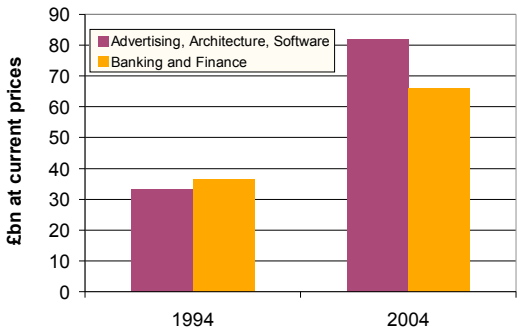
In a parallel development, intermediate business spending on creative products architectural services, software and advertising rose from £33bn to £81bn and investment in these products from £6.8bn to £16bn. The British public, according to UNESCO, in 2004 attained the unexpected status of the world's most cultured consumers.

Chart 6 consumer demand for creative products



Source: Family Expenditure Survey

Chart 7 demand for 'business-led' creative products



Source: Office for National Statistics I-O tables (2004)

The growth also has employment consequences. According to DCMS estimates, UK creative employment reached 2.1mn by 2000. In London, by 2001 there were 394,300

[14] http://www.statistics.gov.uk/downloads/theme_economy/Input_Output_Analyses_2006_edition.pdf . All GVA figures in current pounds unless otherwise stated. ONS estimates of output differ from DCMS estimates. They are consistent with other industrial sectors and the national accounting framework of the UK, so when the purpose is to make comparisons, they are more robust.

people working directly in Creative Industries and a further 131,100 working creatively outside these industries. A new mass body of monetary demand, catering for tastes previously regarded as elite or luxury, has thus emerged over the last 10-20 years.

Despite complex differences, the Creative Industries possess a striking number of features in common. They are urbanised and centred in the large metropolises. London contains 32 per cent of all creative employment compared to 15 per cent of total employment. Large world cities – New York, Tokyo, Los Angeles, Paris, Berlin, and increasingly 'Southern' cities such as Singapore, Beijing, Shanghai, Moscow and Mumbai have all become growth centres. They are characteristically high-value added, with output per person substantially above the general average, and a tendency to rise faster. Between 1995 and 2000, output per employee in the Creative Industries as a whole rose from £27,600 to £34,600 an annualised rate of 4.6 per cent compared with £24,100 to £25,900 for the UK as a whole over the same period.

This establishes not just my elementary first point that these industries are a new focus of growth, but my second point that they are *empirically coherent* (A. Freeman 2002, Hutton et al 2007), behaving very similarly. With few exceptions, they rise and fall together; they are high value-added, involve intellectual property, and use the distributed risk-handling contracts described in Richard Caves' (2000) *Creative Industries: contracts between Art and Commerce*. They locate in the same places, and they use a similar and often interchangeable workforce.

The limits to classification

Since the information provided by the existing classification clearly identifies strong trends of growth, specialisation, and interdependence, why not grant it immediate recognition as a new primary sector? The problems we encounter reveal the limits, not of our conception of creativity or culture, but of the classification system we are forced to measure it with. It is important to understand these limits in order to be certain that, when we do refine our conceptions, they yield quantifiable and determinate measures.

The root of all problems with classification is *exclusivity*, the avoidance of double counting. Industrial and occupational classifications, like library shelving and the Groucho Marxist theory of the division of labour, are mutually exclusive.

Of course, both real and mental life are more complex. Modern wine-making is as machine-intensive as any Lancashire mill. This complexity cedes priority to the need to *measure* – and hence to distinguish sheep from goats. Foucault's apocryphal encyclopaedist could not have been an accountant. If we want to know how many people work in the goods-producing sectors, we cannot place a tractor company in both manufacturing and agriculture, or we will count them twice.

Does this place new sectors are for ever off-limits? No: exclusive classification is *primary*. Other groupings and aggregations can be defined and measured provided they supplement, and do not substitute for, the primary system. Just as libraries can cross-reference books with index entries, industries can be assigned cross-cutting classifications or placed in satellite accounts, a growing feature of modern statistical reporting systems, including the ONS's (2006) annual report on the Creative Industries.

Since this removes any technical objection, should economists and statisticians be given carte-blanche to invent new sectors, of which there is no current shortage – bioscience, 'knowledge', environmental, and so on. My own answer is a firm 'no', and the spurious invention of non-sectors discredits research into a real sector – which the CCS certainly is – by misrepresenting what a sector, economically speaking, consists of.

The real problem is to specify the appropriate criteria to judge want counts as a sector. My suggestion is quite simple: the criteria should be the same as those which motivate the primary classification, namely, a secondary sector should be a genuine branch of the division of labour, specialising in some combination of resources, outputs and techniques.

We can then launch two enquiries. First, what resources, outputs and techniques that identify the CCS? Second, how should the primary system be changed to ensure that the secondary system can detect what it needs to measure? To which the answer is: it should be changed to identify the deployment of the particular resources, outputs and techniques which, economic analysis reveals, canonically characterise this new lead sector.

The trident system and the foundations of robust satellite accounting

Certain points have been now been established. The CCS empirically exists and needs to be defined and measured. This cannot be done within the existing primary classification system. A secondary or satellite classification for the CCS is needed.

I will now add a fourth point: the Trident classification captures its basic empirical elements. We do not therefore need to invent from scratch, but improve incrementally. To explain this, I will return to the methods employed in constructing the primary classification.

It is easy to be fooled into thinking that the idea of an 'industry' is unproblematic. Economists and non-economists alike assume that the idea of an 'industry' is so well-established that industries can be taken for granted. The truth falls well short of this mark. However, strangely enough one can draw an optimistic conclusion. Despite the weaknesses of the primary system, it provides a surprisingly robust picture of the economic reality it sets out to describe. From this, I deduce that the economist has latitude in defining a satellite system, *provided* the object she seeks to describe really does exist.

I call this the 'barndoor principle' (A. Freeman 2008b): provided we are shooting at a large enough target from close enough, even a poor marksman with an antiquated weapon can hit it. However in order to identify these empirical strengths, we must discard any illusions about the analytical weaknesses of the primary classification. We have seen that an industry is in principle defined as an assemblage of enterprises with common inputs, techniques and products.

Actually, however, few if any industries meet all three of these criteria, a point glossed over in those manuals I have seen. Agriculture, for example, is not really defined by what it produces, but where its produce comes from. No product characteristic really unites food, cotton and wood. The first is eaten, the second is worn and the third is a construction material. Transport does produces a single output, but uses no common resource, covering land, sea, air and soon, space. Nor does any common technique unite sailing, driving and flying. Anyone unconvinced that a CD, a broadcast and a live show are simply different forms of the same thing, may want to reflect on what a car, a yacht, and an aeroplane have in common, never mind what any of them has to do with walking – a 'transport mode' that dates from the invention of standing up. As for the archetypal 'manufacturing' industry, the only residual common feature is technique: a manufacturer, allegedly, uses machines to make things. This definition, which may have described something unique a hundred and fifty years ago but now stands on the shaky ground of a world of ubiquitous machines. Even dogs now carry microchips. Does this make their output a manufactured product?

The surprising thing is in fact that the system works at all. Yet, and this is critical, it does. By and large, industries produce what they are supposed to, and products come from

where they are expected.

The evidence for this comes from the Input-Output tables of the UK economy ONS (2006), which record what each industry purchases and produces. For 102 of 123 products listed in the 2004 I-O tables, more than 80% of that product is produced in a single sector. Conversely, for 87 of 123 industrial sectors, a single product is more than 80% of the output of that sector, and makes up 57.9% of the output of the least specialized sector, organic chemicals.[15] Why should this be?

The only possible explanation is that the there are powerful economic forces at work which produce the division of labour and which, by and large, outweigh the forces tending towards diversification. The most likely reason that tractor companies do not make shirts, and shirt companies do not make tractors, is that economies of scope and scale drives them to confine themselves to what Porter (1998) terms a 'core business'. There is always a parallel tendency to diversification, but at the level of the productive unit at least, specialization dominates.

Does some kind of specialisation shape the CCS? If so, in what does it specialise? With this question in mind, we now consider how the Trident system actually classifies the Creative Industries.

How the Trident system works

The Trident system first emerged in its present form in 1998 in the UK (DCMS 1998) and 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.

Chart 8: Creative intensity

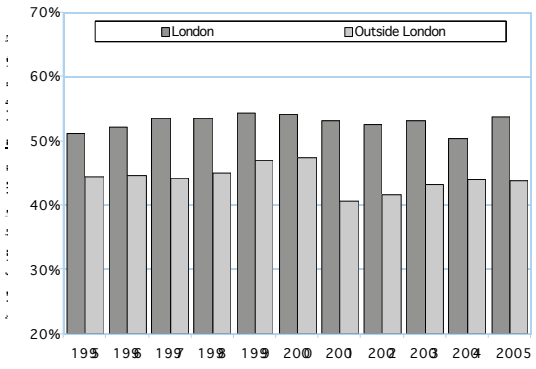
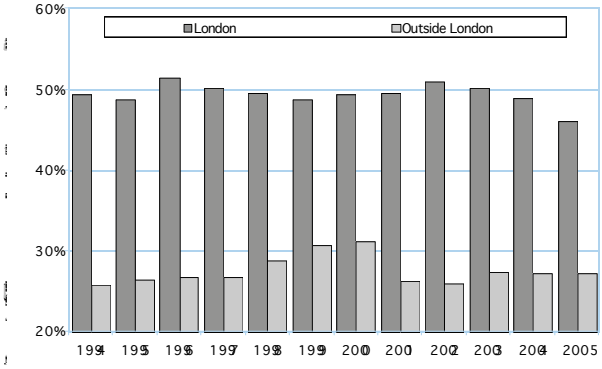


Chart 9: Occupational specialisation



This is really two definitions, not one. The phrase 'Creative Industries' in effect assumes, without proof, that there is some kind of identify between types of labour and types of product. This is not altogether unreasonable, but also not, however, true. It is not incongruous to think of accounting as something done by accountants and transport as something done by drivers. However, first of all things do not work out this way because

[15] This is treated in more detail in Bakhshi et al (2006)

an accountant who works in a bus company is counted industrially as a transport worker.

The sector as defined by trident system differs in this respect from its peers, and this is significant. The category 'creative workers' extends to occupations as well as enterprises. The issue is analytical, not just empirical. Do creative workers *in fact* work in the Creative Industries? At this point the results become interesting. Creative workers do in fact concentrate in the Creative Industries, above all in the location centres of these industries.

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.[16] 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. Further research, which space does not allow, 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.

Creative labour as a factor of production

The *prima facie* evidence is that some process of specialisation is under way. The question is: specialisation in what? The answer which suggests itself is: creative labour itself. If we think of this labour as a resource, and the sector's outputs as a product, then it begins to make sense to conceive of the industry as a specialised branch of the division of labour which uses this resource to produce specialist products.

At first sight, this may seem like a triviality. Occupations, almost by definition, are synonymous with the things they produce. Bakers make bread, carpenters make wooden products, bankers make money, and so on. Actually, this conception harks back to artisanal days, when products were made by specialised craft guilds: goldsmiths, coopers, butchers, haberdashers and so on. These are still with us in the City of London, for example, as the Livery Companies,[17] but as a largely ceremonial form.

There is no longer, as NAICS recognises, any necessary correspondence between a type of labour and a type of product. Each branch of the division of labour uses a range of occupations. The characteristic of most industry workforces is not an individual, dedicated occupation but a combination of them. A car company will have a different overall composition from a chemical company, but both not only employ a range of employees but draw them from pools within which the occupations are interchangeable across industries: clerks, guards, cleaners, managers, accountants, lawyers, or mechanics and assembly line workers The old 'trades' are there but the reason is different. A chemical plant, for example, will employ electricians because it consumes electricity, not because it produces chemicals. Insofar as anything shapes the composition of the workforce, again as the NAICS classification recognises, it is the process, not the product.

Whilst, therefore, it is not unusual for a branch of industry to be the dominant employer of particular occupations, the actual occupational specialisation is contingent. This merits both empirical study and thought. In particular it provokes the question: why should a modern industry specialise in a form of labour at all? The whole prior trend of industrial development has been *mechanisation*, not only of the industrial process but of the

[16] Caution is required in interpreting the step changes between 2000 and 2001 which arise from the transition, in the UK, from SOC1992 to SOC2000

[17] The 100th Livery company, incorpotated in 1992, was the Worshipful Company of Information Technologists

labourer herself. What does the successful industrialist do? Up until now, she innovates by *automating*. She either transforms an aspect of the production process in such a way that a machine can carry out what has previously been the task of a human, or alternatively arranges labour so that the human functions like a machine, the brain being an appendage, a kind of residual quality control apparatus that serves principally to guarantee the accuracy and repeatability of a repetitive process.

Conventional economics recognises this in one of its core notions, the substitutability of labour and capital. It figures also in the notion of a *skill*, which stands opposed to a *talent* or *capability* or even learning, in which the labourer is supposed to play some independent role, in being an attribute indisputably imparted, poured into, the labourer like oil into a car. This is implicit also in Gary Becker's conception of *human capital*, an *acquisition* of the labourer, that is an *external addition* to the labourer's capabilities.

If, therefore, we find a branch of industry in which this traditional road to productivity growth is diminished or reversed, we encounter something historically quite unusual. A hypothesis immediately suggest itself: if an industry is organised around preference for a particular kind of labour, and finds it unable to substitute a machine for it, the most plausible explanation is that this is the defining characteristic of the labour: that the labour so employed is that for which a machine *cannot* substitute.

This idea, when first expressed in this way, sounds either so tenuous or so general as to deter further attention. The advice of Sherlock Holmes is however relevant; when one has explored all the impossible explanations for a mystery and is left only with the improbable, one has the solution. I ask the reader therefore to suspend scepticism in exchange for a futures option on frank 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 reason for this is that there is, as we know, no intrinsic limit on the *quantitative* productivity of a machine, but there are well-known biological limits on the quantitative productivity of a human. The difference, therefore, must have to do with some quality of the labour.

Given that this is so, we should note the very wide variety of creative labourers and types of creative labour, ranging from musicians, artists and dancers to designers, architects and woodworkers. This is one of the empirical features of the industry that comes from the Trident classification, which lists over 30 such occupations. It is the very variety of these forms of labour which leads us to seek out their common feature – an elusive search which has prompted, for example, the writings of Richard Florida. Florida in effect seeks refuge in diversity as the characteristic of the labour.

This, however, is not the definition of a *type* of labour. A labourer can possibly be multi-talented, but cannot in him or herself be diverse, since diversity is a characteristic of populations, not of individuals. Thus the *only* presently-known common characteristic that unites creative labourers is, at the end of the day, that they cannot be mechanised.

Thirdly, the distinction between *mechanical* and *non-mechanical* activities is exceptionally well-founded in the very fundamentals of modern mathematical logic. It was the central problematic established through the genius of Alan Turing, who first devised the well-known 'Turing test' to determine whether a computer could substitute for a machine. The whole purpose of this test is to ascertain whether a mechanical device, of which the computer is the abstract essence, could or could not imitate the actions of a human, to such an extent that the human could not tell the difference.

That is, to be a candidate to substitute for a human, a machine would have to be

indistinguishable from a human – like one of the androids in Philip K. Dick's (1996) *Do Androids Dream of Electronic Sheep*, now famous in its film version *Blade Runner*.[18] But if machine society reached this stage, there would be no such thing as substituting machines for humans, since we would be unable to tell them apart to distinguish them and the only question facing society would be, as in the science-fiction literature, how to assign androids a juridical status that recognises their equality.

Fourthly, a decisive mathematical theorem – the Church-Turing theorem (Church 1933),[19] establishes that this is not possible. This theorem expresses one of the most basic distinctions of logic, between semantics and syntax. It states, in essence, that syntax cannot possibly encapsulate semantics; that there exist semantic problems which can not generally be solved by syntactic or mechanical means. Moreover such problems are everyday, normal ones, unlike Goedel's pathological constructions – for example, it is mathematically impossible to construct a general-purpose translator.

Fifthly, the above provides with an intuitively reasonable account of what a creative labourer does, which connects to what we know. It requires the labourer to produce something *not yet in existence*, something as yet undefined. The defining characteristic of a machine is that, by a sequence of predetermined operations, it arrives at a known goal. Church-Turing problems are precisely those for which *no* sequence of predetermined operations can arrive at the known goal: to be precise, those for which the goal cannot be used as a starting point from which to deduce the sequence. This, interestingly, includes the professions responsible for invention and innovation such as scientists and researchers – which one would expect of an economically workable definition of creativity.

Sixthly, the above should not at all be taken to imply the abolition of labour hierarchies of either salary, control or status. The market converts creativity into a special kind of labour by a process of cultural distillation, separating it from mechanical labour, creating a new workforce with lower ranks founded on dispensability and upper ranks founded on fame. The celebrity the media mogul appear at one end, and the night cleaner at the other. This may be nothing to celebrate: nevertheless, a hierarchy founded on performance is a *different* hierarchy from one founded on the ownership of machines.

Seventh and in a similar vein, it should be noted that the creative-mechanical distinction is not the same as the very well-entrenched 'mental-manual' distinction. Indeed, it requires us in due course to rethink this old distinction, to which it is orthogonal. Many types of creative labour are intensively manual – consider for example sculpture or dancing. Many manual trades are increasingly creative in the sense defined above, for example in the growing gourmet section of the restaurant trade.[20] And many types of mental labour are essentially mechanical – consider, for example, book-keeping.

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[18] The Man-Machine distinction is a constant theme of science-fiction literature. The Golem legend is perhaps the first instance. 'Robot' itself 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 anthrophobic 'Berserkers'. Frank Herbert's 'Dune' series introduced the idea of a society that came into being as a result of the 'Butlerian Jihad' – a a war of extermination against thinking machines and, most recently, Ian Banks introduced a future Civilisation actually calling itself 'Culture' in which artificial intelligences or 'drones' are accepted on an equal basis with organic beings as members of the society.

[19] Confusingly Church's *Theorem*, described above, which was independently proved by Turing and Church, is different from the related Church-Turing *Thesis*. The Theorem, on which is what I rest my argument, 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.

[20] The derisive conception of 'McJobs' which has been used to describe the growing army of manual workers in the service trades illustrates this point. The organisation of MacDonalds is a classical operation of mechanisation, eliminating the autonomy of the retail worker in every detail of the job. It is for precisely this reason that, if customers could get BigMacs from robots, they would almost certainly prefer it and indeed, if a future Turing test were to put a BigMac consumer at one end and a robot at the other, the robot would pass, since there is nothing in the nature of a Big Mac that distinguishes it from a mechanical product. The inquisitive researcher is welcome to try replacing Gordon Ramsay with a robot to see what happens. We await with interest the first film in the forthcoming *Robocook* series.

Classifying creative labour

If we can use the above ideas to classify labour, by occupation, as creative or non-creative, we begin to have a handle on the problem that allows us to carry out real empirical study. We can, for example, study whether the use creative labour is particularly associated with productivity gains, with innovation, or with additional value-added outside the CCS.

Can the above, very abstract idea produce a practical classification? I will argue that it can, provided we understand why the distinction has emerged. This requires us to ask 'what is specific about the products that creative labour makes?' – the last piece of the puzzle. Since it is only in the CCS that we find the dedicated and specialist use of this resource, it is here that we find the answer to the generic question 'what is the nature of creative labour?'

The reader unaccustomed to the vagueness of all statistical definitions may worry that an abstract description, such as 'replaceability by a machine' does not *define* a type of labour, since all humans are both creative and mechanical to different degrees, as are all occupations; even the most repetitive and tedious of tasks includes a degree of discretion and a degree of autonomy. How, therefore, can we classify any occupation as exclusively mechanical or exclusively creative? This is to misunderstand how classifications, at least in the social sphere, actually operate.

All statistical definitions rest on a concept of *degree* – the question is not therefore to find a way to say, beyond a shadow of doubt 'this is creative and that is not' but to establish a criterion for judgement – a threshold beyond which a job is reclassified. Secondly, there is no intention to discuss or identify *innate* characteristics. These may or may not play a role – this is for future study – but I have insisted that the task of analysing an actually functioning economy is to understand the empirical economic reality. If the market, and industry, construct an occupation such as graphic designer which is irreplaceable by a machine, then this should be defined as creative because industry has made it that way, not because the person in post has arrived with certain talents.

Finally, the barndoor principle applies. Since, as we have seen, the empirical reality of the CCS shows up even with relatively poor definitions, we can be confident of homing in by a process of iterative improvement. We can start, for example, from those at present defined as creative by DCMS because they can at least demonstrate the essential economic phenomenon which is specialisation; we can then add additional occupations incrementally and indeed, test various hypotheses by varying the classification.

Culture and creation

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

The necessary clue, I think, comes from the Turing test itself. A machine, according to this test, is a device that cannot convince a human that it, the device, is human. Replace, therefore, the Turing test with a market operation and the device with a production process. Let the device try to sell its product. What type of product 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 ones.

In A. Freeman (2008a) I have analysed at greater length the specific characteristic of cultural products as they appear in today's economy. The particular point I want to focus

on here is that of being *differentiated products* defined by *communities of taste*.

Cultural products, reduced to their essence, are services in which both sides to the interaction are humans. The aesthetic merit of a performance, a work of art, a beautiful building, a design, or even an article of fashion resides in a specific social relation, a shared community of taste. This is actually clearest in fields that are considered by many to be far apart from 'culture' but should be included in any broad definition, such as sport. The consumption of sport is highly differentiated: a fan forms loyalty and takes part in games not just out of abstract love of football but to watch Spurs, Chelsea or Manchester United. In doing so, he identifies not just with the product but with the audience. The same, to cut a long story short, applies to the rock fan, the cinema-goer or the classical music-lover. The consumer purchases not just 'music' in general or 'clothing' in general but a particular kind of music – a 'genre' or even a particular composer or performer – and a particular type of clothing – fashion or design. In doing so, she identifies with all others who share this taste, and also identifies her or himself, for example as an 'Opera-goer'.

The reason for these characteristics is not the innate nature of the artist but the relation between the artist and the consumer. The nature of the labour is determined by the nature of the market in its products. What is the specific nature of the cultural product? In a nutshell, it is a differentiated 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.

In the world of books, music, film, theatre, art, video and, not least, fashion, the consumer in choosing a genre, brand or style defines him or herself as part of a community of persons that share the same tastes.[21]

This is directly obvious with, say, dancing, eating or clubbing, and is visible in visits to the opera, the theatre or a meal out, each with its associated codes of dress and style, in which the *company* is always an element – in events such as Opera or the Rocky Horror Show, as decisive as the action itself – a vital factor in the continued popularity of live performance. Nowhere is it more obvious than in sport, which makes this a prime candidate for cultural-creative status. It may be thought that contact with the crowd is the defining feature of cultural-creative distinction, but if anything, the capacity to invest symbolic meaning is most required of a product when the community cannot be seen, a point which preoccupies Benedict Anderson (2007) in his *Imagined Communities*. In this work he asks but, it has been argued, does not answer[22] the question: how and why are communities of class and nation established, since the people concerned cannot see each other? Hesmondhalgh (2007) indeed regards the attachment of symbolic significance as the primary function of cultural production.

The economic content of the cultural relation

I do not have the space to re-iterate this point at length. The particular question that concerns me here is that a *cultural community of taste is above all else one which includes the producer*. The service relation is a relation *between* producer and consumer and this

[21] Since cultural differentiation is always present, how do we know which products are cultural-creative? This makes it particularly problematic to decide exactly which part, for example, of the textile industry should be treated as fashion and which as mere clothing. Generally speaking the 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*.

[22] See Desai 2008

why the producer cannot be replaced by a machine. Why does the pianola not replace the piano? Why don't we use computers to write music or make art? Why will a team of robot football players[23] never emerge as league champions? The answer is that if a computer did it, we wouldn't want it – not because it wasn't beautiful or stimulating, but *because* it was done by a computer. Robot players may well beat humans in the future, but you wouldn't buy tickets to see them.

Even the most beautiful conceivable mechanical rendering of, say, Beethoven's Choral Symphony, could not produce in the listener anything remotely approaching the emotion, sentiment and perception arising from the certain knowledge that through the performance, she or he participates, by the grace and mediation of fellow-creatures of flesh and blood, in a directly social relation of mutual human experience. This social relation includes at the very least the man who wrote it and the people that perform it, is easily seen to extend to the rest of the audience, and, I will argue, depends at least indirectly as a result of the production and consumption process, on our relation to those drawn by the direct performers into the act of placing it at our disposal.

For this reason, the last stage of our analysis turns to the nature of the cultural industries themselves. First, however, it is necessary to address an important question: if its non-mechanical character in fact correctly identifies the nature of the special form of labour which is employed by the 'Creative Industries', is this definition so far removed from what we normally intend by the word 'creative' that we should abandon it and call it something else, such as, for example 'cultural labour'?

Creation, procreation, and the process of creation

If we seek to understand what creative labour does in the economy, we cannot rest content with any definition it has received from outside. We must at least take into account its economic function, because this is in any case imposes itself on speech. In a wage-earning society, labour is defined by the job it performs, not by its innate characteristics.

However we do have to *reconcile* any new usage with what we find in speech, and also be informed by speech, or we do damage to speech and also to the idea itself. Hence a brief excursus is in order.

Mediaeval theology established the dictum that 'the creator cannot create', locating creativity firmly beyond the reach of humans. According to Safranski (2004) the German Romantics held that true poetic inspiration was divine – an idea not hard to understand if one recalls the religious origins of early modern music, art and poetry.

This humanisation of creation was however an expression of man's rising consciousness of his own powers. In both conceptions, creation is allied to origination, the Romantics replacing the external agency with the person of the poet.[24] Creativity thus became a human capacity of a special but personal nature, associated with special genius or talent. The personal nature or of creativity is evident from the fact that its hallmark remains authenticity which is still the critical factor today in, for example, the fine art market, and this notion still prevails in common speech. Implicit in this idea is that creative output is distinctive – different from anything else.

As with all service labour in the age of the internet, a modified idea of creativity is passing into speech. When the advertising industries define themselves, for example, as

[23] with the possible exception of Chelsea,

[24] Jurisprudence has assigned certain gods legal personalities, which leads one to speculate if they can have intellectual property. This is presumably not relevant in a monotheistic framework where origin cannot be disputed. Notwithstanding, there are disputes about authenticity, and impersonation appears to be strongly deprecated.

creative, they do not mean that the consumer is placed in a personal relation with the advertiser. The emphasis remains on origination but in a different sense: being creative connotes not agency but newness: a creative agent brings something into existence that wasn't there before. Three ideas thus present themselves to us in any search to define the idea of creative labour: authenticity, newness, and distinctness.

Defining creative labour: the nature of the creative labour process

My stated aim was to specify the economic characteristics of creative labour, as it has empirically emerged, and on this basis construct a new secondary classification for labour, identifying its creative characteristics. We have so far concluded that creative labour:

(1) is a form of labour employed in the production of services, associated with the revolutions in productivity associated with mechanised recording, transmission and reproduction

(2) is employed as a specialist resource by industries producing culturally-differentiated products, in which the community of taste involving producer and consumer is an essential characteristic of the product.

(3) is, by reason of the function it performs, not mechanisable or replaceable by a machine.

Two questions are now empirically relevant

(1) Does this extend the range of occupations which might be considered creative, beyond that identified in the existing trident classification?

(2) Are there other required or identifying characteristics of creative labour that can be deduced from the above?

From the above we can deduce two characteristics of creative labour, before applying the definition thus arrived at to attempt to construct an empirical definition. The first concerns the role of *interpretation* and the 'value-chain' in the creative process. The second concerns the nature of the creative labour process itself. These two are interlinked; I will therefore try to deal with them both together.

If creative labour is treated in the most narrow possible sense, we would only consider, as creative, the singer, the composer, and conceivably the librettist. The vast range of figures that now surround the creative 'originator' in this sense would be ancillary and dispensible. There are two reasons for rejecting the narrow view.

We can begin from a rather important activity: interpretation. What exactly is the role of the musician in an orchestra, the dancer in a ballet, the director who stages a production, the actor who performs to the script, the director who stages a production or for that matter the artist who executes a commission? Moving down the chain, what is the relation to the 'original concept' of the journalist, the advertising copywriter, the camera operative or indeed the make-up studio, the graphic designer, or the lighting company?

These are all persons without whom the performance itself would not take place. They are also all 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, a performance without musicians, or a film without cameras, are all absurdities.

Moreover 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. The 'credits list' of a film is in this sense archetypal – it lists the 'little

people' with whom the big people interact in the course of the production and indeed, in the case of a composer the interaction may span the grave. But 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. There is 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.[25]

This in turn, however, determines a particular aspect of the production process which, commentators have noted (see Harvey 1989), is becoming characteristic of a lot more than cultural production, namely flexible specialisation. I suspect that it is when we understand the relation between creative labour and this new form of industrial organisation that we will truly begin to grasp the generic capabilities of creative labour.

Flexible specialisation: labour process in the age of services

The decisive thing about a cultural product, from the point of view of the labour it requires, is that it is *imperfectly or abstractly specified*. This is particularly evident with originators – the scriptwriter, designer, composer, choreographer, designer or artist – but applies across the board. Originator and interpreter know, 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 which may, in the case of a subordinate function, by another person in the cultural chain. They also draw on a wealth of experience and knowledge to be able to apply an interpretative technique that subsequently unfolds mechanically – for example a sequence of dance 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

[25] The 'artist' only differentiates out as a distinct person quite late in the evolution of most art forms. In tribal society and throughout most of antiquity, artistic activity is inherently communal and everyone takes part in it to one degree or another. Plato actually does not include the artist among his list of important persons – as Gombrich notes, the 'artist' as anything more than a humble artesan, someone incorporating in his person some special capability not to be found in the general community of handworkers, is a relatively late arrival. Greek drama itself evolved out of religious ritual in which all participated, the chorus evolving from the specialisation of particular priestly functions. See Thompson, G.W. (1973) *Aeschylus and Athens*

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 basis for a secondary classification of labour, it should be possible to track, in a new and different way, the consequences for the employer of creative labour.

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