Classifying and measuring the Creative Industries

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In collaboration with:

Contents

1 Introduction

The Creative Industries Council Skillset Skills Group has identified as an issue that the current national accounts system needs to be better suited to the needs of the modern knowledge economy and, in particular, to develop a consensus on a definition of the Creative Industries. To this end, a collaborative project, led by Creative Skillset, partnered by Creative & Cultural Skills, and involving the Department for Culture, Media and Sport (DCMS) and Nesta, aims to create a shared understanding of a classification of the Creative Industries. This report describes the process and suggests a new classification.

The paper is closely related to a separate publication from Nesta[1] which develops in greater detail the methodology that this paper applies. Ideally both reports should be read together.

This project also aligns to and underpins the work being undertaken by the Creative Industries Council, which has set up a Technical Working Group to review data and measurement issues for the Creative Industries. The outcomes of the current Creative Skillset-led project, whilst independent, are a key input into this work.

We should highlight at the outset that the research presented here works within the confines of the current classification systems relating to industry sector (Standard Industrial Classification – SIC) and occupation (Standard Occupational Classification – SOC). There are a number of limitations of these which relate to the ability of classifications which are only amended every 10 years or so to continue to capture the underlying reality of the economy; this particularly applies to the creative sectors and occupations which are fast changing. Therefore, we should recognise that there should be a short term and long term aim with regard to the classification of the Creative Industries:

- in the **short term**, within the constraints of the current SIC and SOC classification systems, to achieve the best classification of the Creative Industries that we can; and

- in the **long term**, to propose new SIC codes that better reflect how the industry sees itself, which can feed into the next SIC code revision exercise.

This paper focuses mainly on the short term aim, but discusses areas where the current SIC and SOC codes are thought to be deficient with respect to the Creative Industries, and is structured as follows:

- Firstly, it sets out some of the issues that arise because of the current classification system used;

[1] Bakhshi, H., Freeman, A., and Higgs, P. (2013), 'A Dynamic Mapping of the UK's Creative Industries', Nesta Research Report http://www.nesta.org.uk/areas_of_work/creative_economy/assets/features/a_dynamic_mapping_of_the_uks_creative_industries

- Secondly, it presents a new approach to identifying and classifying creative industries;

- Thirdly, it compares the new classification with that produced by the DCMS in its last creative industries estimates; and

- Finally, it discusses issues which have arisen during this process due to limitations of the current SIC and SOC classification systems.

2 Issues with the current classification of the Creative Industries

2.1 The current DCMS methodology for classifying the Creative Industries

The current classification system used by DCMS has been in existence for a considerable period of time – since the first estimates were produced in 1998.[2] It has a substantial and positive reputation and has been replicated in many countries around the world. However, attention is increasingly being paid to inconsistencies in the DCMS methodology, an issue which resurfaced when the DCMS produced its last creative industries estimates.[3]

The process that the DCMS uses to derive its estimates consists of three stages:

1. It defines the broad industry groups which it considers to be 'creative';

2. These are mapped onto SIC codes and data is produced on the basis of these SIC codes; and

3. Further data on employment is added to capture those individuals working in creative occupations, but which are not working within creative industries.

This approach results in the trident estimates of creative employment, shown below in the shaded boxes:

Figure 1: The Creative Industries Trident

		Creative industry	
		Yes	**No**
Creative occupation	**Yes**	Creative occupation in creative industry	Creative occupation in non-creative industry
	No	Non-creative occupation in creative industry	Non-creative occupation in non-creative industry

2.2 Issues with the DCMS methodology

Issues that have been raised with regard to the DCMS's methodology essentially revolve around two aspects:

- The areas of industrial activity to be included; and

- the use of SIC codes to capture data.

We discuss each below.

[2] '*Creative Industries Mapping Document',* Department for Culture, Media and Sport, 1998.
[3] '*Creative Industries Economic Estimates: Full Statistical Release'*, Department for Culture, Media and Sport, 2011.

Areas of industrial activity to be included

The DCMS estimates define the Creative Industries as being:

> 'those industries which have their origin in individual creativity, skill and talent and have a potential for wealth and job creation though the generation and exploitation of intellectual property.' (DCMS, 2011: p.6)[4]

Whilst the useful beginning of a definition, it suffers from the problem that it could actually apply to **all** economic activities as nearly all such activities do involve some degree of creativity, either in the creation of new products and services or when innovating in the production of goods and provision of services. The issue is therefore not whether there is **any** 'creativity, skill or talent' in a sector, but the **extent** of it. At some point, an industry has a sufficient proportion of 'creativity, skill and talent' to be deemed to be part of the Creative Industries, with other sectors falling below this arbitrary benchmark.

This is further compounded by the fact that we do not have an adequate measure of what creativity actually is. Measures of inventiveness, such as number of patents, are skewed to the manufacturing sector. Other, more specific work examines the extent to which employers have introduced new products and services and introduced new business practices or processes. However, the problem is that any of these measures will have sectors which score highly which will not accord with our understanding of 'creative industries'. In any of the measures of qualifications of workforce, innovation, etc. financial services and business services will score highly but if these do so, do we believe that our measures of creativity are actually capturing that which we want to capture?

In the absence of an accurate measure, the definition of creative industries has ended in a development of lists based on best judgement of what constitutes the Creative Industries. Since the first mapping of the Creative Industries[5] this list includes:

1. Advertising;
2. Architecture;
3. Art and antiques market;
4. Crafts;
5. Design;
6. Designer fashion;
7. Film and video;
8. Interactive leisure and software;

[4] '*Creative Industries Economic Estimates: Full Statistical Release'*, Department for Culture, Media and Sport, 2011.
[5] '*Creative Industries Mapping Document'*, Department for Culture, Media and Sport, 2001.

9. Music;

10. Performing arts;

11. Publishing;

12. Software and computer services;

13. Television and radio.

This is a broad definition, which includes some commercial elements of IT and software.

This list has remained the same since its formation, although the mapping of these broad areas to SIC codes has been subject to some change. This consistency is important in allowing comparisons over time – although its value should not be overstated in relation to the importance of a real and accurate measure.

On first viewing, the use of 13 sub-groups seems to be a high number, particularly given that some of these are very small and (to all intents and purposes) immeasurable using national level data. Such a degree of disaggregation complicates the analysis, creating the need for much splitting of SIC codes (as discussed below). Consideration needs to be given to whether such a level of detail is needed or whether a smaller, broader number of sub-sectors would suffice.

Mapping creative industry areas to SIC codes

In order to move from the broad definitions above to a situation where we can analyse existing Government data (which not only includes a range of measures but allows for comparability with other industries and countries), we have to map these definitions onto Standard Industrial Classification (SIC) codes.

The problems in the use of SIC codes at this level of detail are well documented,[6] but mainly reflect the inability of a standard definition which is only amended every ten years or so to continue to capture the underlying reality of the economy. This is particularly true of the Creative Industries, and particularly so for the increasingly important 'digital media'; for example, the growth of pan-media companies such as the BBC, News International, etc., whose activities span both broadcast and publishing, but which are in separate SIC codes.

Another issue concerns SIC codes for some creative industries that do not fully capture all of the creative industry activity within a given industry because it is embedded within another SIC code. This is sometimes clear – e.g. where those working in designer fashion are normally embedded within the SIC codes which cover the manufacture of clothes – sometimes less so – e.g. if a retail organisation has an in-house magazine, these publishing activities will actually be embedded

[6] See, for example, the *'Creative Skillset: Sector Skills Assessments'* and '*Industrial Strategy: UK Sector Analysis'*, BIS Economics paper No 18, September 2012.

within a retail SIC code. There is also the other consideration, that some creative industry SIC codes include some activities which are not normally considered creative, e.g. photographic activities SIC codes include elements such as passport photos. This can be dealt with in a number of ways. The DCMS creative industries estimates use two methods:

- the use of SOC codes to capture creative occupations which are employed within non-creative industry sectors (this is discussed more fully below); or

- the use of proportioning, which causes difficulties due to (i) the need to decide what proportions to use and (ii) whilst the use of proportions works for gross totals (total employment, total GVA)[7] it is less suitable when trying to look at disaggregated data within the sector – e.g. type of employment, levels of qualifications, etc..

There is an underlying issue with regard to the inclusion of some SIC codes and the exclusion of others, which relates to the extent to which the supply chain should be included within the definition. At one end, it is clear that content creation should be included within the definition, but there is less clarity about the extent to which the post-development distribution should be. Thus, for example:

- publishing has in the relatively recent years regarded itself to be concerned with the development of content, either for book, newspaper, magazine, etc., with the production of that content (printing) a downstream activity not part of the publishing process and often outsourced. Even further downstream, the retail activities of WH Smith and the local newsagent would certainly not be regarded as part of the core publishing activity. This model has changed over recent years, with publishers becoming much more involved with distribution online, but publishing would still not regard the retail element as part of the publishing sector;

- broadcasting would regard these downstream activities as being an integral part of the sector;

- the way that designer fashion is accounted for in the calculations is only a proportion of the manufacturing SIC codes. However it could be, and has been, argued that a significant part of the retail activity is also a creative activity.

This is a complex area. The problem appears at the moment to be a lack of transparency and a lack of consistency, with different parts of the value chain being included for different sub-sectors. This then provides a distortion in the measurement.

The linkage between the broad sectors and the SIC codes used is shown in the figure below (which has been reproduced from the DCMS creative industries estimates).

[7] Where a proportion of the SIC code is taken, this is shown in Figure 2.

Figure 2: DCMS linking of broad sector to SIC codes, 2011 estimates

Broad sector		Standard Industrial Classification (SIC)		% applied	
		Code	Description	GVA	Emp
1	Advertising	73.11	Advertising agencies		
		73.12	Media representation		
2	Architecture	71.11	Architectural activities		
		74.10	Specialised design activities	4.5	4.5
3	Art and antiques market	47.78/1	Retail sale in commercial art galleries	100	3.1
		47.79/1	Retail sale of antiques, including antique books, in stores	100	27.2
4	Crafts	No SIC codes to identify these specifically. The creative industries estimates also say that the majority of businesses in this sector are thought to be too small to be picked up in business surveys.			
5	Design	74.10	Specialised design activities	89.6	89.7
6	Designer fashion	10 codes[8]	Clothing manufacture	0.5	0.5
		74.10	Specialised design activities	5.8	5.8
7	Video, film and photography	18.20/2	Reproduction of video recording	25	7.7
		74.20	Photographic activities	25	25
		59.11/1 & 59.11/2	Motion picture and video production activities	100	33.8
		59.12	Motion picture, video and TV post production activities	18.4	33.8
		59.13/1 & 59.13/2	Motion picture and video distribution activities		
		59.14	Motion picture projection activities		
9 & 10	Music and the Visual & performing arts	59.20	Sound recording and music publishing activities		
		18.20/1	Reproduction of sound recording	25	14.4
		90.01	Performing arts		
		90.02	Support activities to performing arts		
		90.03	Artistic creation		
		90.04	Operation of arts facilities		
		78.10/1	Motion picture, television and other theatrical casting	0.07	0.2
11	Publishing	18.11	Printing of newspapers		
		18.13	Pre-press and pre-media services		
		58.11	Book publishing		
		58.13	Publishing of newspapers		
		58.14	Publishing of journals and periodicals		
		58.19	Other publishing activities	50	50

[8] The Creative Industries estimates note that there are ten clothing manufacturing codes in which designer fashion may sit. This is an over-complication as actually, there is one one-digit SIC code (14, Manufacture of wearing apparel), one three-digit SIC code (15.2, Manufacture of footwear) and one four-digit SIC code (15.12, Manufacture of luggage, handbags, and the like, saddlery and harness).

Broad sector		Standard Industrial Classification (SIC)		% applied	
		Code	Description	GVA	Emp
		63.91	News agency activities		
8 & 12	Software and electronic publishing	18.20/3	Reproduction of computer media	25	2.9
		58.29	Other software publishing		
8 & 12	Digital and entertainment media	58.21	Publishing of computer games		
		62.01/1	Ready-made interactive leisure and entertainment software development		2.3
13	Radio and television	60.10	Radio broadcasting		
		60.20	Television programming and broadcasting activities		
		59.11/3	TV programme production activities		66.2
		59.12	Motion picture, video and TV post production activities	81.6	66.2
		59.13/3	TV programme distribution activities		1.2

The issue with the list above is the absence of rationales for why some sectors have been included and some have been excluded, and in particular when the list of SIC codes in the current estimates is compared with those SIC codes which were included in previous lists. The issues are of two types:

- where some SIC codes have been included and there is some doubt about the validity of these inclusions;

- where some SIC codes have been excluded. These might particularly apply to the broad areas of software activities, where the SIC codes which have been included have been subject to significant change, namely that two SIC codes have been removed in the 2011 estimates – 60.02 (computer consultancy activities) and 62.01/2 (Business and domestic software development).

The removal of these SIC codes has had a dramatic effect on the estimated size of the creative industries sector. In earlier estimates, the software sector accounted for just less than a third of all creative industries employment at nearly 600,000. In the current estimates it has shrunk to one of the smallest (at employment of just over 23,000).

There appears to be general consensus on what the broad areas of economic activity to be included are: (i) interactive leisure software (area eight in the listing) and (ii) software and computer services (area twelve). However, when we turn to the mapping process, the title of these areas has both merged and changed to Software and electronic publishing and Digital and entertainment media. These are then mapped onto SIC codes, with some excluded.

3 A new approach to classifying the Creative Industries

In this paper, we adopt a different approach to classifying the Creative Industries – by applying the calculation of 'creative intensities'. Essentially, this reverses the process currently used by the DCMS in that it:

1. Identifies creative occupations;

2. Measures employment in these creative occupations in each sector to identify those that can be classified as creative industries; and

3. Groups these SIC sectors into broad creative industries groups.

It then adds the employment levels of creative occupational employment lying outside the Creative Industries to recreate the trident as used by DCMS.

In essence, a creative industry is defined as being one which employs a significant proportion of creative people, as identified by those being employed in a creative occupation.

This approach has a considerable track record, which is both used and described in detail in the recent Nesta publication, '*A Dynamic Mapping of the UK's Creative Industry*'.[9] This is an important reference point for this report – many of the processes used are similar and in some areas (discussed below) the Nesta research has used a more in-depth approach – particularly in the area of defining creative occupations. The main difference in the two research approaches has been that: (i) Nesta research has applied its methodology to the 2000 SOC classification to enable comparisons with the published DCMS estimates, whilst this report has done so to the 2010 SOC classification, and (ii) Nesta has used the 2010 Annual Labour Force Survey for its base data, whilst we have used a later data set (an averaged four quarters of Labour Force Survey covering March 2011 - April 2012). As we discuss below this has some important implications for the outcomes.

This approach is not without its issues – those industries that do not have significant support structures (e.g. administrative staff) or physical presence (e.g. buildings to maintain) may be more likely to have a higher concentration of creative people. This may therefore slant the model slightly towards newer, more 21st century methods of working, e.g. outsourced administration, digital rather than physical products, etc..

3.1 Defining creative occupations

The foundation stage of the process is to decide which the creative occupations are. Issues to note are that:

[9] *'A Dynamic Mapping of the UK's Creative Industries',* H Bakhshi, A Freeman and P Higgs, Nesta Research Report, Nesta, 2013.
http://www.nesta.org.uk/areas_of_work/creative_economy/assets/features/a_dynamic_mapping_of_the_uks_creative_industries

- this is not a new process – the DCMS creative industries estimates explicitly estimate levels of employment in creative occupations, for which they use a list of creative occupations;

- the selection of creative occupations is a matter for professional judgement, based on what is known about the occupational group in question, allied to the definition of that occupation in the SOC classification. It is not a data-based analysis.

This process has a number of stages:

1. An examination of the DCMS list of occupations which are used, utilising the 2000 SOC listing and the extent to which these can be transferred across to a 2010 basis;

2. An examination of the new 2010 list of SOCs to consider whether there are any **new** SOC Unit groups which may warrant inclusion;

3. An examination of this list to consider whether there are any occupational groups which should be considered for inclusion and whether there are some whose inclusion is doubtful.

Figure 3 shows the occupations included in the DCMS creative occupations list and identifies where these have been replicated in the 2010 list. In the main, there is a straight transfer across. The exceptions to this are that:

- four occupational groups are not represented in the 2010 SOC which were in the 2000 SOC. These are Broadcasting associate professionals (SOC 3432),[10] Screen printers (SOC 5424),[11] Pattern makers (moulds) (SOC 5493) and Goldsmiths, Silversmiths, Precious Stone workers (SOC 5495).[12]

- some SOC groups have been retitled, in what may seem on the surface to be relatively minor changes, such as:

    - The retitling of some groups in line with the general revision in SOC 1 of including 'Directors' as a title to replace that of 'Managers'. Hence 'Advertising and PR managers' becomes 'Advertising and PR Directors';

    - Some are reclassified to a different place within the SOC classification – hence Journalists are promoted from a SOC level 3 occupation to a SOC level 2;

- some have had minor amendments made to their coverage, so for example 'Authors and writers' become 'Authors, writers and translators'.

[10] Individuals in this group have been split between Journalists, newspaper and periodical editors (SOC 2471), Actors, entertainers and presenters (SOC 3413) and Arts officers, producers and directors (SOC 3416).
[11] Now included in Printers (SOC 5422).
[12] Both now included in Other skilled trades (SOC 5449).

It is worth noting the position of two SOC groups in this list – namely Librarians (SOC 2451) and Archivists and curators (SOC 2452). In the DCMS calculations these are listed as being occupations in which the DCMS has interest, but are not counted in the estimates. Given this, on balance, we decided to include these two occupations here at this stage.[13]

Figure 3: DCMS creative occupations transferred to 2010 SOC
(nec.: not elsewhere classified)

SOC 2000		SOC 2010	
Code	**Description**	**Code**	**Description**
1134	Advertising and public relations managers	1134	Advertising and public relations directors
2126	Design and development engineers	2126	Design and development engineers
2431	Architects	2431	Architects
2432	Town planners	2432	Town planners
2451	Librarians	2451	Librarians
2452	Archivists and curators	2452	Archivists and curators
3121	Architectural technologists and town planning technicians	3121	Architectural and town planning technicians
3411	Artists	3411	Artists
3412	Authors, writers	3412	Authors, writers and translators
3413	Actors, entertainers	3413	Actors, entertainers and presenters
3414	Dancers and choreographers	3414	Dancers and choreographers
3415	Musicians	3415	Musicians
3416	Arts officers, producers and directors	3416	Arts officers, producers and directors
3421	Graphic designers	3421	Graphic designers
3422	Product, clothing and related designers	3422	Product, clothing and related designers
3431	Journalists, newspaper and periodical editors	2471	Journalists, newspaper and periodical editors
3432	Broadcasting associate professionals		
3434	Photographers and audio-visual equipment operators	3417	Photographers, audio-visual and broadcasting equipment operators
3543	Marketing associate professionals	3543	Marketing associate professionals
5413	Footwear and leather working trades	5413	Footwear and leather working trades
5414	Tailors and dressmakers	5414	Tailors and dressmakers
5419	Textiles, garments and related trades *nec*.	5419	Textiles, garments and related trades *nec*.
5421	Originators, Compositors and Print preparers	5421	Pre-press technicians
5422	Printers	5422	Printers
5423	Bookbinders and Print finishers	5423	Print finishing and binding workers
5424	Screen printers		
5244	TV, Video and Audio engineers	5244	TV, Video and Audio engineers
5491	Glass and Ceramics makers, decorators and finishers	5441	Glass and Ceramics makers, decorators and finishers

[13] We do this partially in the knowledge that if we had excluded them, we would probably have included them later in the process anyway. Nesta also includes these two occupations in its creative occupations list.

SOC 2000		SOC 2010	
Code	**Description**	**Code**	**Description**
5492	Furniture makers, other craft woodworkers	5442	Furniture makers, other craft woodworkers
5493	Pattern makers (moulds)		
5495	Goldsmiths, Silversmiths, Precious Stone workers		
5496	Floral arrangers, Florists	5443	Florists
5499	Hand Craft occupations *nec.*	5449	Other skilled trades *nec.*

We now need to add to this baseline list any new SOCs which have been introduced in the SOC 2010 which are of relevance. These, in particular, affect the Information Technology and Telecommunications Professionals occupations (SOC 213). In the 2000 SOC listing there are just two Unit Groups within this Minor Group and in the 2010 SOC group this has been expanded to six Unit Groups, and it has been considered that some of these warrant inclusion, particularly Web design and development professionals (2137), IT business analysts, architects and systems designers (2135) and Programmers and software development professionals (2136).

Figure 4: Definitions of IT-related occupations in SOC 2000 and SOC 2010

SOC 2000		SOC 2010	
2131	IT strategy and planning professionals	2133	IT specialist managers
2132	Software professionals	2134	IT project and programme managers
		2135	IT business analysts, architects and systems designers
		2136	Programmers and software development professionals
		2137	Web design and development professionals
		2139	Information technology and telecommunications professionals *nec.*

In addition, there has been an additional code introduced to reflect changes in the Architects professions. This would suggest that we include the new code of Chartered architectural technologists (2435) in the creative occupations list.

Finally, we have our third consideration as to whether some SOCs should be added (and some deleted). There are two elements to our thoughts in this area, namely:

- whether the inclusion of various SOC codes has been consistent within and between ‘occupational families’;

- whether there are additional occupational groups which, on the understanding of their jobs, and exposure of the creative element within it, could warrant inclusion.

On the issue of consistency, it is helpful to consider the occupational families which exist within the SOC codes and show a broad sense of a hierarchy within occupational groups. Thus, for example we have the occupational family for IT and telecommunications, so we have:

Figure 5: IT-related Occupational Family in SOC 2010

<table>
<tr><td colspan="6">Information technology and telecommunications directors (1136)</td></tr>
<tr><td>IT specialist managers (2133)</td><td>IT project and programme managers (2134)</td><td>IT business analysts, architects and systems designers (2135)</td><td>Programmers and software development professionals (2136)</td><td>Web design and development professionals (2137)</td><td>Information technology and telecommunications professionals nec (2139)</td></tr>
<tr><td colspan="3">IT operations technicians (3131)</td><td colspan="3">IT user support technicians (3132)</td></tr>
<tr><td colspan="2">Telecommunications engineers (5242)</td><td colspan="2">TV, video and audio engineers (5244)</td><td colspan="2">IT engineers (5245)</td></tr>
</table>

Note: occupations in bold are those included in the DCMS creative occupations list, those not in bold are excluded.

And for the occupational group of Marketing and Advertising we have:

Figure 6: Occupational families in SOC 2010 for Advertising and Marketing

<table>
<tr><td colspan="2">Advertising and public relations directors (1134)</td><td colspan="2">Marketing and sales directors (1132)</td></tr>
<tr><td>Public relations professionals (2472)</td><td>Advertising accounts managers and creative directors (2473)</td><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td>Marketing associate professionals (3543)</td><td></td></tr>
</table>

Note: occupations in bold are those included in the DCMS creative occupations list, those not in bold are excluded.

The point here is to decide: (i) at what point to start the inclusion in the list and (ii) how far down the occupation hierarchy to go: i.e. in our judgement at what point does the extent of creativity in a job diminish to the point where we say that it does not warrant inclusion. At the top end and bottom end of the occupational family it may be that the occupations become essentially administrative and not performing discipline-orientated creative tasks. Once this has been decided it needs to be applied consistently across occupational families.

There appears to be some discrepancies here which may need some discussion. In particular:

- for the Advertising and Marketing occupations, it seems unclear why Advertising and PR Directors are included whilst Marketing and sales directors are not, whilst PR professionals are not (although they are part of the same family as the higher included group) and Marketing associate professionals are (even though they are part of the family of a higher level occupation that is not included).

- on the IT and telecommunications side, there are also a number of apparent discrepancies. It could be asked, for example, why TV, video and audio engineers (5244) are included, and Telecommunications engineers (5242) and IT engineers (5245) are not.

- there are also discrepancies between occupational families. On the Advertising family, Advertising and PR directors are included, but the comparable group for IT and telecommunications (Information technology and telecommunications directors (1136)) are not.

Considering exclusions, questions have been raised about the inclusion of a number of print workers – namely Pre-press technicians (5421), Printers (5422) and Print finishing and binding workers (5423). These are typically regarded as being intermediate level skilled jobs, with limited degrees of creativity.

On the basis of these considerations we have arrived at a list of creative occupations which form the basis of our estimates of creative intensity. These are shown below in Figure 7. On this basis, we can see that:

- the Labour Force Survey[14] (LFS) estimates that there are just under 1.5 million people working in creative occupations (1,487,000), some 5.1 per cent of all those working across the UK;

- the biggest creative occupation is the IT-based occupation of Programmers and software development professionals (SOC 2136) with 224,000 people working in this area, some 15.1 per cent of all creative occupations. Equally prominent, however, are marketing-based occupations, with 181,000 (12.2 per cent of all creative) working as Marketing and sales directors (SOC 1132) and Marketing associate professionals (SOC 3543), with 149,793 or 10.1 per cent of all creative occupations;

- smaller occupations, which comprise less than 14,000 (less than one per cent of all creative employment) include Chartered architectural technologists (SOC 2435) (4,000 or 0.3 per cent of all creative occupations) and Archivists and curators (SOC 2452) (11,000 or 0.7 per cent).

If we compare this list with that currently used in the DCMS creative industries estimates, there are a number of points to be made:

- The use of SOC 2010 and particularly the creation of the new IT-related SOCs to replace the broader (more generic) 'Software professionals' has allowed a greater degree of disaggregation and more targeted identification of IT-roles which have a creative element;

- There are no craft roles included here – whilst it is clear that some elements of these craft occupations contain a creative element, the view is that in the main, these roles are more concerned with the manufacturing process, rather than the creative process. The removal of a number of craft roles from the 2010 SOC listing (Goldsmiths, Silversmiths, Precious Stone workers, for example) into the more generic 'Other skilled trades' occupational group has exacerbated this; and

[14] The data used in this analysis is the four quarters of Labour Force Survey March 2011–April 2012, averaged. It covers all those in work – both the employed and the self-employed.

- There is a greater degree of consistency across comparable occupational families.

Figure 7: List of creative occupations and employment size

Code	Description	Employment	
		(000s)	%
1132	Marketing and sales directors	181	12.2
1134	Advertising and public relations directors	19	1.2
1136	Information technology and telecommunications directors	54	3.7
2135	IT business analysts, architects and systems designers	89	6.0
2136	Programmers and software development professionals	224	15.1
2137	Web design and development professionals	60	4.0
2431	Architects	46	3.1
2432	Town planners	16	1.1
2435	Chartered architectural technologists	4	0.3
2451	Librarians	26	1.8
2452	Archivists and curators	11	0.7
2471	Journalists, newspaper and periodical editors	64	4.3
2472	Public relations professionals	38	2.6
2473	Advertising accounts managers and creative directors	26	1.8
3121	Architectural and town planning technicians	18	1.2
3411	Artists	39	2.6
3412	Authors, writers and translators	73	4.9
3413	Actors, entertainers and presenters	37	2.5
3414	Dancers and choreographers	17	1.2
3415	Musicians	37	2.5
3416	Arts officers, producers and directors	66	4.4
3417	Photographers, audio-visual and broadcasting equipment operators	71	4.8
3421	Graphic designers	67	4.5
3422	Product, clothing and related designers	54	3.6
3543	Marketing associate professionals	150	10.1
			100.0 (*)
Total all creative SOCs		**1,487**	**5.1**
Total all non-creative SOCs		**27,619**	**94.9**
All employment (*)		**29,105**	**100**

Source: LFS, authors' own estimates.

* Totals may not sum due to rounding

The Nesta research project has also derived a set of creative occupations. To do this, Nesta first defines a creative occupation as being:

> *'a role within the creative process that brings cognitive skills to bear to bring about differentiation to yield either novel, or significantly enhanced products whose final form is not fully specified in advance.' (Nesta, 2013: p. 24)*[15]

[15] See: http://www.nesta.org.uk/areas_of_work/creative_economy/assets/features/a_dynamic_mapping_of_the_uks_creative_industries

Nesta then operationalises this definition by breaking it down into five criteria:

1. **Novel process:** whether the role most commonly solves a problem or achieves a goal in novel ways;

2. **Mechanisation resistant**: whether the occupation has no mechanical substitute;

3. **Non-repetitiveness or non-uniform function**: whether the transformation which the occupation effects varies each time it is created;

4. **Creative contribution to the value chain**: whether the outcome of the occupation is novel or creative irrespective of the context in which it is produced; and

5. **Interpretation, not mere transformation**: whether the role merely 'shifts' the service's or artefact's form or place or time.

Nesta notes that each one of these five criteria is problematic when considered in isolation, and it does not offer hard and fast rules for determining whether an occupation is or is not creative. There are also connections between the criteria: it is likely that the activities of an occupation which satisfy one of these criteria will also satisfy others. But it is worth noting that whilst this is undoubtedly a more structured and systematic process, the scoring against each of these criteria is again done by professional judgement – there is still no data to measure creativity.

Interestingly, the development of creative occupation lists using these two different methodologies has produced lists which are very similar. The majority of differences in the two separate lists are a consequence of the use of different SOC classifications (2000 for Nesta, 2010 for this research). When like-for-like comparisons are made, there are only three differences in the occupations included in the respective lists, which are:

- Information technology and telecommunications directors (SOC 1136), included in the list for the present paper, but not the Nesta list;

- Information technology and telecommunications professionals (SOC 2139) and Glass and ceramic makers, decorators and finishers (SOC 5495), included in the Nesta list of creative occupations, but not the DCMS list.

3.2 Identifying Creative Standard Industrial Classification groups

The next stage is to identify those sectors which employ a relatively high proportion of creative occupations and from this to propose the sectors which should be included as creative industries. Note, that this is (at this stage) a **completely** data-driven approach, based on the definition of creative occupations.[16] There are two issues here:

[16] And of course, if the definition of creative occupations changes, this may impact on the classification of creative industries.

- The level at which we set the threshold at which a sector is considered to be creative; and

- The existence of a minimum size limit for sectors. This is more of a technical issue – at estimated population sizes of 10,000, the LFS data becomes more variable and is not as reliable. Because of this, any sector which has fewer than this as its **total** employment level is excluded.[17]

The main issue is the threshold level. As we have seen, the proportion of people working in creative occupations is around five per cent, so clearly any threshold has to be greater than this, but the question still arises at what threshold?

In this research we have experimented with a number of different thresholds (10 per cent, 20 per cent, 30 per cent and 40 per cent). Of course, the lower the threshold, the more SIC groups which qualify as creative and the higher the threshold the fewer that do. In this project we concluded that a threshold of 30 per cent was the optimal threshold, which produced the most consistent and coherent list of SICs.

This threshold is also that which Nesta decided was the optimal threshold level, based on a distributional analysis of creative intensities. This suggests that there are two different populations existing – those which are creative and those which are not and which have a bimodal distribution of creative intensity values. This more analytical approach supported the view of the current project and helped us to confirm our choice of a 30 per cent threshold.

This leads to a smaller number of creative sectors included within the classification, but a set which is much more coherent (see Figure 8). They include:

- Publishing activities;

- Motion picture, video and television activities;

- Sound recording and music publishing;

- Programming and broadcasting activities;

- Computer programming and consultancy activities;

- PR and communication activities;

- Architectural activities;

- Advertising activities;

- Specialised design activities;

[17] Where a four-digit SIC would have been excluded on this basis, but meets the threshold criteria and forms part of more aggregated three-digit SIC codes which also meet the threshold criteria, we have amended the size exclusion ruling to be that four-digit sectors which have fewer than 10,000 people in the workforce should be excluded, except where they form part of a three-digit sector which would otherwise all be included.

- Photographic activities;
- Translation and interpretation activities;
- Cultural education;
- Creative, arts and entertainment activities.

Taken together, this classification of creative industries suggests an employment of 1.4 million in the proposed creative industries, of which 749,000 are in creative occupations, leading to a creative intensity of 52.9 per cent.

Figure 8: Proposed list of creative industries

SIC				Employment		
Code	**Description**			**Sector (000s)**	**Creative (000s)**	**% creative**
58.1	Publishing of books, periodicals and other publishing activities, to include			177	91	51.3
		58.11	Book publishing			
		58.12	Publishing of directories and mailing lists			
		58.13	Publishing of newspapers			
		58.14	Publishing of journals and periodicals			
		58.19	Other publishing activities			
58.2	Software publishing, to include			18	8	42.9
		58.21	Publishing of computer games			
		58.29	Other software publishing			
59.1	Motion picture, video and television programme activities, to include			98	55	56.6
		59.11	Motion picture, video and TV programme production activities			
		59.12	Motion picture, video and TV programme post production activities			
		59.13	Motion picture, video and TV programme distribution activities			
		59.14	Motion picture projection activities			
59.2	Sound recording and music publishing activities			13	5	43.1
60	Programming and broadcasting activities, to include			60	34	57.4
		60.1	Radio broadcasting			
		60.2	TV programming and broadcasting activities			
62.01	Computer programming activities			215	118	54.9
62.02	Computer consultancy activities			255	80	31.4
70.21	PR and communication activities			22	14	63.3
71.11	Architectural activities			99	62	63.0
73.1	Advertising, to include			123	56	45.5
		73.11	Advertising agencies			
		73.12	Media representation			
74.1	Specialised design activities			103	61	59.0
74.2	Photographic activities			47	35	73.9
74.30	Translation and interpretation activities			20	16	83.6
85.52	Cultural education			28	12	43.9
90.0	Creative, arts and entertainment activities, to include			140	101	72.5
		90.01	Performing arts			
		90.02	Support activities to performing arts			
		90.03	Artistic creation			
		90.04	Operation of arts facilities			
All (*)				**1,415**	**749**	**52.9**

Source: LFS, authors' own calculations

* Totals may not sum due to rounding

Sectors which have been excluded on the basis of size, but which would have qualified on the basis of the 30 per cent threshold, include Reproduction of recorded media (SIC code 18.20) and Wholesale of china and glassware and cleaning materials (SIC code 46.44).

However, it is worth noting that this is a data-driven approach only based on the way that the data is presented to us within the current SIC and SOC classification systems. The above list should be questioned on the basis of professional judgement and by bringing to bear other more qualitative information. For example, two issues seem to warrant further discussion:

- The use of a threshold of 30 per cent excludes the sectors of **Library and archive activities** (SIC code 91.01) and **Museum activities** (SIC code 91.02) which have creative intensities of 23.1 per cent and 22.5 per cent respectively. We are therefore left with the situation that: (i) we have accepted that Librarians and Curators are creative occupations; (ii) we note that the majority of people in these roles work in only these two sectors – for both about a third of employment in each occupational group is within their respective SIC group; and that (iii) they do not do so in sufficient numbers for the sectors to be classed as creative. This is because of the high number of support (non-creative) staff working in Libraries and Museums. But the question remains: should these sectors be excluded because of the institutional nature of the organisations in which they work?

- A sector which has passed the threshold is **Translation and interpretation activities** (SIC 74.30). It could be argued that this is a false position. The SOC code of relevance here is 'Authors, writers and translators' and it could be argued that: (i) whilst authors and writers are clearly creative, translators are less so, (ii) we note that all the creative people on this SIC group are undoubtedly Translators and (iii) so conclude that this SIC group is included because the SOC does not separate out sufficiently creative roles (authors and writers) from non-creative roles (translators).

The discussion points raised above are examples of the professional judgement that can be brought to bear. And, of course, changing the list of occupations which are considered to be creative has a direct knock-on effect on the industries which cross or do not cross the threshold.

3.3 Creating broad industry groups

The use of a SIC code listing is not the most accessible listing and is not always a useful communication tool. So, we need to group these SIC codes into groups which are recognisable to the wider user. These will be comparable to the sectors in the original DCMS estimates.

The industry groups suggested below are offered up for discussion and consultation. On this basis we have groups for:

- Advertising and marketing (which forms 10 per cent of creative industries);

- Architecture (seven per cent);

- Design and designer fashion (also seven per cent);

- Film, TV, video, radio and photography (14 per cent);
- IT telecommunications, software and computer services (the biggest group at 33 per cent);
- Publishing (15 per cent);
- Music, performing and visual arts (13 per cent).

Of these, some seem to be the obvious grouping (and indeed are formed only of the one SIC code), others are perhaps more tenuous. It may seem odd that Performing Arts is placed within the Music group: however, in reality the majority of creative people working within the Performing Arts sector are musicians and without this to construct a separate, broader 'Music' group is not viable with the current SIC codes. However, this Performing Arts SIC code also includes such activities as West End theatres and publically funded arts centres, which are not part of the music industry.

Figure 9: Broad creative industry groups

Broad sectors	SIC codes		N (000s)	%
Advertising and marketing			**144**	**10.2**
	70.21	PR and communication activities		
	73.1	Advertising		
Architecture			**99**	**7.0**
	71.11	Architectural activities		
Design and designer fashion			**103**	**7.3**
	74.10	Specialised design activities		
Film, TV, video, radio and photography			**205**	**14.5**
	59.1	Motion picture, video and television programme activities		
	60	Programming and broadcasting activities		
	74.20	Photographic activities		
IT, software and computer services			**470**	**33.2**
	62.01	Computer programming activities		
	62.02	Computer consultancy activities		
Publishing			**214**	**15.1**
	58.1	Publishing activities		
	58.2	Software publishing		
	74.3	Translation and interpretation services		
Music, performing and visual arts			**182**	**12.8**
	59.20	Sound recording and music publishing activities		
	85.52	Cultural education		
	90.01	Performing arts		
	90.02	Support activities to performing arts		
	90.03	Artistic creation		
	90.04	Operation of arts facilities		
All (*)			**1,415**	**100**

Source: LFS, authors' own calculations

* Totals may not sum due to rounding

4 Comparisons between proposed definitions and the DCMS estimates

4.1 Structure

In comparison with the broad sectors used in the DCMS estimates, the proposal reduces these from thirteen to seven. The table below shows the comparison, but the main changes are:

- the removal of sectors for (i) Arts and antiques and (ii) Crafts;

- the conflation of some sectors to form one, namely (i) design and designer fashion into a single sector; (ii) Film and video and TV and radio into a single sector; and (iii) Interactive leisure software and Software and computer services into one.

In reality, the reduction is not as great as it seems – the DCMS estimates, although listing 13 broad sector groups, actually only measured 11 because the SIC codes could not support an identification and estimation of two of the groups.

Figure 10: Comparison between DCMS broad sectors and proposed broad sectors

DCMS sectors	Proposed sectors	Changes
Advertising	Advertising and marketing	Widened to include marketing
Architecture	Architecture	Same
Arts and antiques	None	Does not figure
Crafts	None	Does not figure
Design	Design and designer fashion	Conflated to form a single sector
Designer fashion		
Film and video	Film, TV, video, radio and photography	Conflated to form a single sector
Television and radio		
Interactive leisure software	IT, software and computer services	Conflated to form a single sector
Software and computer services		
Music	Music, performing and visual arts	Conflated to form a single sector and defined differently in terms of SIC codes
Performing arts		
Publishing	Publishing	Same

The second comparison is to compare the SIC codes contained within the DCMS definition with those used in the new proposed definition. This is shown below, but the main points are that:

- a number of SIC codes are removed from the estimates, mainly related to manufacture, printing and retail;

- a number of SIC codes are added which mainly relate to the IT and telecommunications industry and to ‘cultural heritage’;

- many SIC codes remain the same.

Figure 11: Comparison between DCMS broad sectors and proposed broad sectors

Used in DCMS definition only		Used in both		Used in new proposal only	
14	Manufacture of wearing apparel	58.1	Publishing of books, periodicals and other publishing activities, to include book publishing, publishing of newspapers, publishing of journals and periodicals and other publishing activities	62.01	Computer programming activities[18]
15.12	Manufacture of luggage, handbags, and the like, saddlery and harness	58.2	Software publishing, to include publishing of computer games and other software publishing	62.02	Computer consultancy activities
15.2	Manufacture of footwear	59.1	Motion picture, video and television programme activities	70.21	PR and communication activities
18.11	Printing of newspapers	59.20	Sound recording and music publishing activities	73.20	Market research and public opinion polling
18.13	Pre-press and pre-media services	60	Programming and broadcasting activities, to include radio broadcasting and television programming and broadcasting activities	74.30	Translation and interpretation activities
18.20	Reproduction of video recording	71.11	Architectural activities	85.52	Cultural education
47.78/1	Retail sale in commercial art galleries	73.11	Advertising agencies		
47.79/1	Retail sale of antiques, including antique books, in stores	73.12	Media representation		
63.91	News agency activities	74.10	Specialised design activities		
78.10/1	Motion picture, television and other theatrical casting	74.20	Photographic activities		
		90.01	Performing arts		
		90.02	Support activities to performing arts		
		90.03	Artistic creation		
		90.04	Operation of arts facilities		

[18] The new proposal suggests including all of the SIC code, much wider than that in the current estimates.

4.2 Size estimates

The proposed definition of creative industries gives an estimated total employment in the Creative Industries of 1,415,000 to which we need to add the employment in creative occupations which lie outside the Creative Industries of 738,000. This gives a total of creative employment of **2,153,000**.

This estimate is considerably higher than the numbers generated by the DCMS in their last estimates. The main differences lie in the number of people employed **within** the Creative Industries. Whilst there is a higher number of people employed in creative occupations outside the Creative Industries (738,000 compared to 601,000), the bigger differences are in employment in the Creative Industries themselves (1,415,000 compared to 897,000).

Figure 12: Comparing proposed creative employment to DCMS creative estimates

	New estimate (000s)	DCMS creative estimates (000s)
Creative employment within creative industries	749	477
Non-creative employment within creative industries	666	420
Total in creative industries	**1,415**	**897**
Creative employment in non-creative industries	738	601
Total creative	**2,153**	**1,498**

Source: LFS, authors' own estimates

It is also useful to compare the estimates we have produced here to those produced by Nesta in its project. Analysis shows that much of the difference is due to differences that have arisen because of the move from the use of SOC 2000 to SOC 2010, namely that:

- the identification of a wider number of disaggregated IT-related SOC codes in the 2010 SOC classification means that fewer IT-related staff are identified and included when compared to the broader 'software professional' groupings used in the SOC 2000 classification;

- the SOC code of Marketing and sales directors (SOC 1132), whilst it appears to be the same (having the same title and code number), actually covers a different range of staff to a significant degree. Estimates suggest that this SOC in the 2000 classification included over 500,000 people, whilst in the SOC 2010 classification it contains some 181,000 – with the difference in the main having been relocated to a new SOC code (SOC 3545) of Sales accounts and business development managers.

This means that the Nesta baseline estimates appear to be larger than those suggested by the proposed estimate above. In reality, the differences are caused by the shift from SOC 2000 to SOC 2010 and when estimates are produced which eliminate these differences, the two estimates lie reasonably close to each other.

Figure 13: Comparing proposed creative employment to Nesta creative estimates

	New estimate	Nesta creative estimates (revised for changes to SOC 2010)
	(000s)	*(000s)*
Creative employment within creative industries	749	708
Non-creative employment within creative industries	666	430
Total in creative industries	**1,415**	**1,138**
Creative employment in non-creative industries	738	785
Total creative	**2,153**	**1,923**

Source: LFS, authors' own estimates and Nesta (2013: p. 60)[19]

5 Issues which arise because of the current SIC and SOC classifications

It should be noted that the definition as created above is located entirely within the constraints of the current classification systems, i.e. the Standard Industrial Classification and the Standard Occupational Classification.

To the extent that these fail to describe creative activity, the definition accordingly fails to describe creative activity – we have stated at the outset that a long term aim of this activity would be to review SIC and SOC codes and perhaps make suggestions for how the Creative Industries should be treated in the future. This ambition should not be lost. For example, the current SIC codes have single digit representation for Agriculture, fishing and farming, for Mining and quarrying and Manufacturing – it is not beyond question that there should be a single digit SIC code for 'Creative Industries'.

In developing these creative industries estimates, we have identified where difficulties arise out of the use of the current SIC and SOC classification systems, for example:

- where the creative elements of a job are embedded within a wider job, but are not sufficient to enable that occupation to be classed as creative. This may particularly be the case for craft jobs, where the designer/maker roles are contained within the same individual. A judgement call has to be made as to which side of the creative/non-creative divide these jobs fall;

- where specific jobs are contained within a wider occupational group for the SOC codes and this wider SOC group is not considered to be creative. In this respect, whilst the move to the 2010 SOC coding has generally helped the process of more accurately identifying creative occupations (particularly in the area of IT-

[19]See:http://www.nesta.org.uk/areas_of_work/creative_economy/assets/features/a_dynamic_mapping_of_the_uks_creative_industries

related occupations), the reclassification of creative occupations such as Goldsmiths into a broader 'Other skilled trades' has not.[20]

- where the creative elements of an industry are embedded within a wider industry sector. This may be the case for the Heritage craft sector, which contains many creative elements, but which forms part of, and is swamped, by the larger construction sector within which it is embedded;[21] and

- where the SIC codes fail to identify what is regarded by industry as a discrete sector. This appears to be the case for the music sector, where discrete and significant activities (such as live music) are not identifiable.

It is also important that any classification systems are better applied, with self-classification of companies suspected to be a significant issue. Based on largely anecdotal information it is thought that a large number of companies within the Creative Industries are self-classifying under a range of SIC codes that fall outside the proposed definition: partly because these companies carry out a range of activities that do not sit neatly within one SIC code, and also because they do not have the time or incentive to search through a list of mostly irrelevant SIC codes without a means of filtering. A move to streamline specific creative industries definitions would simplify this process, leading to more reliable data.

It is not within the scope of this project to develop a solution to these issues, but we strongly suggest that further work is undertaken to develop a suitable response – mainly to develop and propose alternative SIC and SOC codes, which better capture economic realities.

6 Summary

This paper has considered the methodology behind the DCMS creative industries estimates and has identified issues with it. As a consequence we have proposed a new methodology, based on identification of creative occupation and calculations of creative intensities. In essence, we define a sector as being creative if it employs a significant proportion of creative people.

This process overcomes some of the issues which have been highlighted in the DCMS estimates, namely (i) the absence of rationales for why some sectors have been included and some have been excluded and (ii) the extent of the value chain. Sectors are included if they have a sufficient proportion of their workforce working in creative occupations, as are parts of their value chain.

This has resulted in a proposed definition of the Creative Industries which has fewer sub-groups (seven rather than thirteen), and one that can be estimated by a simpler (and more robust) method of calculation.

[20] The new SOC definition could be considered a setback for 'craft' in terms of classification, as it becomes impossible to separate the truly creative jobs from the wider (and lower skilled) occupational group in which they are bound together.
[21] For a wider discussion see: *'Craft in an Age of Change'*, The Crafts Council, 2012. Available at http://www.craftscouncil.org.uk/files/professional-development/Craft_in_an_Age_of_Change.pdf

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