Discussion Paper

Estimating Gross Value Added of the Creative Economy

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1 Background

In a recently published paper, *A Dynamic Mapping of the UK's Creative Industries*[1], Nesta have proposed a new method of estimating the Creative Industries within the UK. This is based on the use of Creative Intensities (*i.e.* the proportion of people engaged in creative occupations) as a means of identifying those sectors which collectively form the 'Creative Industries'. It identifies the Creative Industries as a branch of industry with a set of well-defined inputs, process and outputs.

This method estimates the number of people employed in the Creative Industries as being 1,357,300 (4.7 per cent of the total UK workforce). If we add to this the extra element of the Creative Economy 'trident' the number of people who are employed in Creative Occupations outwith the Creative Industries of 1,138,400 (4.0 per cent), this suggests that the total Creative Economy employment is 2,495,700, or 8.7 per cent of the total UK workforce (see Table 1).

Table 1: Employment in the Creative Industries and Creative Occupations

Sector		Employment	
		N	%
Creative Industries, of which		1,357,300	4.7
	Creatively occupied jobs	*794,000*	*2.8*
	Support jobs	*563,300*	*2.0*
Creatively occupied jobs outside of creative industries		1,138,400	4.0
Total Creative economy employment		**2,495,700**	**8.7**
All other employment		**26,178,900**	**91.3**
Total workforce		**28,674,600**	**100**

Source: Nesta, 2012

These estimates use only a single indicator of the size of the Creative industries and economy – employment. The DCMS Creative Industries Estimates[2] also uses measures of Gross Value Added (GVA). The purpose of this note is to provide a more sophisticated understanding of the value of the Creative Industries and Economy by producing GVA estimates which are consistent with Nesta's 'Dynamic Mapping' employment estimates.

2 Approach

There are two elements to the approach:

- A GVA estimate for the creative industries baseline; and

[1] Bakhshi H, Freeman A and Higgs P, *A Dynamic Mapping of the UK's Creative Industries*, Nesta, 2012
[2] *Creative Industries Economic Estimates, Full Statistical release*, Department for Culture, Media and Sport, December, 2011

- A GVA estimate for the wider creative economy, which includes the creative industries and also the contribution of 'embedded' creative workers who work outside the creative industries in the wider economy.

The definition of Creative Industries and Creative occupations which are used are consistent with those used in the Nesta Dynamic Mapping research and report.

GVA estimates are readily available from the Annual Business Survey (ABS)[3]. The ABS is the Office for National Statistics' financial information and structural business survey. The estimate of Gross Value Added at basic prices (approximate or aGVA) estimated in the ABS is a measure of the income generated by businesses within their industries and sectors, less the cost of goods and services used to create the income. The main component of income is turnover, while purchases are the main component of the consumed goods and services (referred to as intermediate consumption). Stock levels which may rise or fall can also have an impact on aGVA, as can the values of subsidies received or duty paid. Businesses' labour costs (for example, wages and salaries) are paid from the value of GVA, leaving an operating surplus which is a good approximation for profit. The cost of capital investment, financial charges and dividends to shareholders are met from the operating surplus. The ABS publishes aGVA at 'basic prices': Gross Value Added (GVA) at basic prices is the output at basic prices minus intermediate consumption at purchaser prices. The basic price is the amount receivable by the producer from the purchaser for a unit of a product, minus any tax payable plus any subsidy receivable on that product.

There are differences between the ABS approximate measure of Gross Value Added and the measure published by National Accounts. The ABS measure of aGVA is called 'approximate' because it does not fully allow for some National Accounts concepts such as taxes, subsidies or income earned in kind. National Accounts carry out coverage adjustments, quality adjustments, coherence adjustments and conceptual and value adjustments such as subtracting taxes and adding subsidies not included in the ABS measure. The National Accounts estimate of GVA uses input from the ABS and a number of other sources, and covers the whole UK economy, whereas ABS does not include:

- Parts of agriculture (SICs 01.1, 01.2, 01.3 and 01.5);

- Significant parts of Financial intermediation (SIC 64, 65.3 and 66);

- All of Public administration and defence (SIC 84);

- Parts of health (SIC 86.2 and 86.9).

The reasons for these exclusions in that the ONS use information from administrative sources if available, rather than ask for it via a survey. Information on these sectors is available from such

[3] For the ABS, data are collected by ONS from around 62,000 businesses in Great Britain, and by the Department of Finance and Personnel Northern Ireland (DFPNI) from around another 9,000 businesses in Northern Ireland. Full details of the methodology can be found in the technical report at: http://www.ons.gov.uk/ons/guide-method/method-quality/specific/business-and-energy/annual-business-survey/quality-and-methods/index.html

administrative sources: that on financial institutions is available from the Financial Services Authority (FSA), that for Public administration and defence from the relevant Government Departments and that on the missing parts of the Health Service from the Department of Health.

The ABS measure covers only market output, whereas National Accounts add non-market output (e.g. government services supplied for free such as education, and charities), and own account output (products and services produced and consumed by a business, for example a farm growing feed for its own livestock). The ABS total aGVA for the UK Business Economy is around two thirds of the National Accounts whole economy GVA, because of these differences in coverage and calculation. The ABS estimates are also not adjusted for inflation[4].

In addition, it is thought likely that the ABS will under-represent the self-employed and small employer population because businesses will only be included in the sample frame if they have a turnover level which exceeds the VAT registration threshold.

None of these sector omissions directly affect the Creative Industries, so the estimates of these are not affected. However, as stated above, these will (i) reduce the total 'UK' GVA estimates produced by the summation of the SIC codes and (ii) omit the contribution of embedded Creative workers who are employed in these excluded sectors. As we will want to use the full economy value of Gross Value Added we will source this from the National Accounts, available via the Blue Book[5]. If (as is considered to be true), the relative importance of such small businesses is greater in the creative industries than across the economy as a whole, it is possible that such an under-representation is greater amongst for the creative industries than elsewhere.

The second step, calculating the contribution of embedded, is the more difficult as GVA data is not produced on an occupational basis. We have therefore to calculate a proxy measure for GVA for these, and do so on three different basis to enable a comparison to be made.

3 Calculating the GVA of the Creative Industries

3.1 Issues with the ABS data

The data from the Annual Business Survey on employment and GVA , specifically for the defined Creative Industries is shown in Table 2 below. It is worth making a number of observations about the data as shown below before we consider making detailed GVA estimates using this data.

Employment data

Employment data for the ABS is taken from the Business Register and Employment Survey (BRES): the ABS does not itself gather employment data. The employment levels suggested by the ABS/BRES

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[4] Details on the calculation of GVA from the ABS can be found at: http://www.ons.gov.uk/ons/rel/abs/annual-business-survey/2011-provisional-results/abs-2011---provisional-results-statistical-bulletin--nov-2012-.html#tab-background-notes

[5] *The Blue Book, UK National Accounts 2011*, ONS, 2011

for the Creative Industries totals to 849,000, which is some 508,300 (37 per cent) less than the comparable figure generated from the Labour Force Survey in the Dynamic Mapping estimates. Having said that, the total workforce estimates are also lower at 20,379,000 compared to 28,674,600 – some 8,295,600 lower, or 29 per cent. The differences could be caused by:

- The incomplete coverage of the ABS compared to the LFS. The LFS covers all the economy, the ABS only about 2/3rds; and

- The ABS employment estimates, taken directly from the BRES, which whilst including sole traders, self-employed and working proprietors, only does so if they are registered for VAT or PAYE (i.e. are on the Inter-Departmental Business Register - IDBR) and so will not cover smaller scale self-employment. The higher proportion of such self-employment in many of the creative industries may explain why the 'shortfall' of employment in the creative industries is proportionately higher than that for the whole economy.

In addition to this, many of the Creative Industry sub-sectors show a zero employment level in the ABS. In some cases, the corresponding LFS estimates show that these sectors are indeed small (3212 Manufacture of jewellery has a LFS employment of 6,000; 59.12 Motion picture post-production activities, 4,000; 60.10, Radio broadcasting, 16,000; 74.30, Translation and interpretation activities, 14,000). But some are not. SIC 59.11, Motion picture, video and television production activities has an LFS employment estimate of 56,000; SIC 60.20, Television programming and broadcasting, 39,000; Advertising agencies, 87,000; 73.12, Media representation, 24,000; 73.20 Market research and public opinion polling, 42,000; 74.10, Specialised design activities, 105,000. These are significant employment figures which are clearly under-represented in the ABS, which will be due to issues of either (i) level of response in the specific sector or (ii) ONS rules of non-disclosure where the number of employers in a sub-sector is small.

Whilst the overall proportion of employment accounted for by these Creative industries is similar in the ABS and LFS – 4.2 per cent and 4.7 per cent respectively, we do not think that the actuals are a reliable estimate, because of the reasons given above. **Our view, therefore, is that when we use estimates of employment for our calculations (see below) we use the employment data from the LFS as reported in the Dynamic Mapping study**.

GVA data

Whilst we have no reason to doubt the veracity of individual sector level GVA data from the ABS (and indeed we have no other source), it is clear that we should not use a total GVA figure for the entire UK economy which has been estimated by totalling up the sectoral GVA –because of these reasons given above. **The total (all economy) UK GVA figure will be imported in from another source.**[6]

[6] *The Blue Book, UK National Accounts 2011*, ONS, 2011

Table 2: GVA and Employment data for the Creative Industries from the ABS

Sector		GVA		Employment	
Code	**Title**	**£ million**	**%**	**000's**	**%**
18.20	Reproduction of recorded media	171	*	-	0
23.41	Manufacture of ceramic household and	140	*	-	0
32.12	Manufacture of jewellery and related articles	268	*	-	0
58.11	Book Publishing	2,246	3	26.0	3
58.13	Publishing of newspapers	2,310	3	54.0	6
58.14	Publishing of journals and periodicals	4,093	6	46.0	5
58.19	Other publishing activities	808	1	19.0	2
58.21	Publishing of computer games	53	*	-	0
58.29	Other software publishing	580	1	9.0	1
59.11	Motion picture, video and television programme production activities	-334	*	-	0
59.12	Motion picture, video and television post-production activities	367	1	-	0
59.13	Motion picture, video and television	1,777	3	-	0
59.20	Sound recording and music publishing	396	1	-	0
60.10	Radio broadcasting	488	1	-	0
60.20	Television programming and broadcasting activities	3,522	5	-	0
62.01	Computer programming activities	8,149	12	109.0	13
62.02	Computer consultancy activities	18,576	27	288.0	34
62.09	Other information technology and computer service activities	8,967	13	125.0	15
70.21	Public relations and communications activities	1,023	1	17	2
71.11	Architectural activities	2,508	4	62	7
73.11	Advertising agencies	4,653	7	-	0
73.12	Media representation	954	1	-	0
73.20	Market research and public opinion polling	1,850	3	-	0
74.10	Specialised design activities	2,049	3	-	0
74.20	Photographic activities	726	1	19	2
74.30	Translation and interpretation activities	59	*	-	0
90.01	Performing arts	1,211	2	42	5
90.02	Support activities to performing arts	142	*	4	0
90.03	Artistic creation	1,468	2	29	3
Total creative industries		**68,909**	**7.8**	**849**	**4.2**
Total non-creative industries		**811,022**	**92.2**	**19,530**	**95.8**
Total		**879,931**	**100**	**20,379**	**100**

*Source: Annual Business Survey, 2010 (*http://www.ons.gov.uk/ons/rel/abs/annual-business-survey/index.html)

*Notes: GVA = approximate gross value added at basic prices (aGVA); Employment = Average during year. * = less than half of one per cent.*

It is worth noting the degree of volatility in the ABS aGVA values. Table 3 below shows the aGVA values for each of the creative sectors and a total for the four years 2008 – 2011. The total for the creative industries varies relatively slightly, and in ways which are consistent with movements in the overall economy over a period of recession. Hence total GVA declined 2008 to 2009 (by £6,174 millions, or nine per cent), before stabilising 2009 – 2010, and increasing 2010 – 2011 to a higher level than was seen in 2008 – at £69,774 millions, an increase over the period of £2,621 millions, or four per cent.

However, some individual sectors are more volatile. Particularly these include:

- Motion picture production activities (SIC 59.11) which show negative GVA for the first three years, followed by a substantial increase to a positive figure of £1569 millions in 2011;

- Publishing of computer games (SIC 58.21), which shows an increase over the period from £46 millions to £220 millions (an increase of 378 per cent);

- Radio broadcasting (SIC 60.10) which decreases from a aGVA of £650 millions in 2008 to £462 millions in 2011 – a decrease of £188 millions or 29 per cent;

- Computer facilities management activities (SIC 62.03), which increases from an aGVA of £10 millions in 2008 to £63 millions in 2011, an increase of 530 per cent; and

- Supporting activities to performing arts (SIC 90.02) which increases from £40 millions in 2008 to £201 millions in 2011, an increase of 403 per cent.

We cannot be sure whether these changes are due to actual in the business performance of the sectors, reflect changing accounting patterns or are variability introduced by the survey methodology.

Table 3: GVA 2008 - 2011

Sector		aGVA levels				Change, 2008 - 2011	
Code	**Title**	**2008**	**2009**	**2010**	**2011**	**n**	**%**
18.20	Reproduction of recorded media	348	195	171	216	-132	-38
23.41	Manufacture of ceramic household and	142	125	140	172	30	21
32.12	Manufacture of jewellery and related articles	195	218	268	226	31	16
58.11	Book Publishing	1,770	2,005	2,246	1,917	147	8
58.13	Publishing of newspapers	2,463	2,139	2,310	2,356	-107	-4
58.14	Publishing of journals and periodicals	3,958	3,920	4,093	4,161	203	5
58.19	Other publishing activities	966	816	808	905	-61	-6
58.21	Publishing of computer games	46	42	53	220	174	378
58.29	Other software publishing	540	644	580	855	315	58
59.11	Motion picture, video and television programme production activities	-579	-627	-334	1,569	2,148	-371
59.12	Motion picture, video and television post-production activities	716	572	367	858	142	20
59.13	Motion picture, video and television	1,303	1,525	1,777	1,565	262	20
59.20	Sound recording and music publishing	387	419	396	488	101	26
60.10	Radio broadcasting	650	655	488	462	-188	-29
60.20	Television programming and broadcasting activities	4,938	2,966	3,522	4,407	-531	-11
62.01	Computer programming activities	18,610	18,463	18,576	17,995	-615	-3
62.02	Computer consultancy activities	10	17	30	63	53	530
62.09	Other information technology and computer service activities	10,731	8,674	8,967	10,887	156	1
70.21	Public relations and communications activities	1,188	1,039	1,023	805	-383	-32
71.11	Architectural activities	3,565	3,205	2,508	3,269	-296	-8
73.11	Advertising agencies	5,442	4,944	4,653	5,516	74	1
73.12	Media representation	1,717	984	954	1,504	-213	-12
73.20	Market research and public opinion polling	2,228	2,145	1,850	2,530	302	14
74.10	Specialised design activities	1,856	1,886	2,049	2,507	651	35
74.20	Photographic activities	779	739	726	878	99	13
74.30	Translation and interpretation activities	70	71	59	111	41	59
90.01	Performing arts	1,013	1,020	1,211	1,366	353	35
90.02	Support activities to performing arts	40	71	142	201	161	403
90.03	Artistic creation	2,061	2,107	1,468	1,765	-296	-14
Total creative industries		67,153	60,979	61,101	69,774	2,621	4

Source: Annual Business Survey, http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-276587

Notes: GVA = approximate gross value added at basic prices (aGVA);

3.2 GVA estimates

On the basis of the discussion above, we estimate that the total GVA produced by the Creative Industries comes to £68,909 million, some 5.3 per cent of the total UK GVA of £1,301,118 million.

On the basis of the sectors included above, consistent with that used in Nesta's Dynamic Mapping report, more than half (52 per cent) of the Creative Industries GVA is produced by the three IT-related sectors: Computer consultancy activities (SIC 62.02), £18,576 million (or 27 per cent); Other information technology and computer service activities at £8,967 millions (or 13 per cent; and Computer programming activities (SIC 62.01) at £8,149 millions (or 12 per cent). The estimated overall GVA contribution of the Creative Industries is clearly very sensitive to the inclusion (or otherwise) of these sectors.

GVA per person employed across all sectors of the UK is £45,376 per person employed. GVA per person employed in the Creative Industries is higher that of the wider (non-creative) industries at £50,893 compared to £45,103.

Table 4: GVA and Employment estimates for the Creative Industries

Sector		GVA		Employment	
Code	**Title**	**£ million**	**%**	**000's**	**%**
18.20	Reproduction of recorded media	171	*	6	0.4
23.41	Manufacture of ceramic household and	140	*	7	0.5
32.12	Manufacture of jewellery and related articles	268	*	6	0.4
58.11	Book Publishing	2,246	3	37	2.7
58.13	Publishing of newspapers	2,310	3	51	3.8
58.14	Publishing of journals and periodicals	4,093	6	45	3.3
58.19	Other publishing activities	808	1	37	2.7
58.21	Publishing of computer games	53	*	2	0.1
58.29	Other software publishing	580	1	22	1.6
59.11	Motion picture, video and television programme production activities	-334	*	56	4.1
59.12	Motion picture, video and television post-production activities	367	1	4	0.3
59.13	Motion picture, video and television	1,777	3	9	0.7
59.20	Sound recording and music publishing	396	1	10	0.7
60.10	Radio broadcasting	488	1	16	1.2
60.20	Television programming and broadcasting activities	3,522	5	39	2.9
62.01	Computer programming activities	8,149	12	207	15.3
62.02	Computer consultancy activities	18,576	27	202	14.9
62.09	Other information technology and computer service activities	8,967	13	35	2.6
70.21	Public relations and communications activities	1,023	1	27	2.0
71.11	Architectural activities	2,508	4	96	7.1
73.11	Advertising agencies	4,653	7	87	6.4
73.12	Media representation	954	1	24	1.8
73.20	Market research and public opinion polling	1,850	3	42	3.1
74.10	Specialised design activities	2,049	3	105	7.8
74.20	Photographic activities	726	1	41	3.0
74.30	Translation and interpretation activities	59	*	14	1.0
90.01	Performing arts	1,211	2	45	3.3
90.02	Support activities to performing arts	142	*	11	0.8
90.03	Artistic creation	1,468	2	71	5.2
Total creative industries		**68,909**	**5.3**	**1,354,000**	**4.7**
Total non-creative industries		**1,232,209**	**94.7**	**27,320,000**	**95.3**
Total		**1,301,118**	**100**	**28,674,000**	**100**

Source: Annual Business Survey, 2010

Notes:

1 GVA = approximate gross value added at basic prices (aGVA);

2 Employment data taken from the LFS

3 Total GVA figures generated from the Table 1.1, page 23 of the Blue Book, not from ABS sectoral estimates

Comparing this to the DCMS estimates is informative and is shown below, along with the (LFS-based) employment estimates from the Dynamic Mapping document. Of course, the Creative Industry definition used by the two estimates is very different, so we should not expect the two estimates to be the same. But just as the Nesta Dynamic Mapping study produces an employment estimate greater than the DCMS estimates (due to their different definitions) so too does the Dynamic

Mapping study produce a GVA estimate which is greater – at £68,909 millions compared to the DCMS £36,290 millions. **The Dynamic Mapping definition of Creative Industries suggests that the Creative Industries account for 5.3 per cent of UK GVA, compared to 2.9 per cent in the DCMS estimates.**

Table 5: Comparing Dynamic Mapping and DCMS estimates

		Nesta Dynamic mapping		DCMS	
Employment					
		N	**%**	**N**	**%**
Creative Industries, of which		1,357,300	4.7	897,300	3.1
	Creatively occupied jobs	*794,000*	*2.8*	*476,800*	*1.6*
	Support jobs	*563,300*	*2.0*	*420,500*	*1.4*
Creatively occupied jobs outside of creative industries		1,138,400	4.0	600,900	2.1
Total Creative economy employment		**2,495,700**	**8.7**	**1,498,200**	**5.1**
All other employment		**26,178,900**	**91.3**	**27,622,800**	**94.9**
Total workforce		**28,674,600**	**100**	**29,121,000**	**100**
Gross Value Added					
		£ million	**%**	**£ million**	**%**
Creative industries GVA		68,909	5.3	36,290	2.9
GVA for other economic sectors		1,232,209	94.7	1,200,642	97.1
Total GVA for all industries		1,301,118	100	1,236,932	100

Source: Nesta, 2012

4 Calculating the GVA of Embedded creative occupations

Thus far we have essentially been replicating the approach of the DCMS in estimating GVA of the Creative Industries, without trying to take account of that produced by those individuals working in Creative Occupations, but which are not working with the Creative Industries, as defined by the sectors above. At this point we are in new ground, as compared to the DCMS estimates, which do not attempt to capture these wider contributions, and so the work below is (at this stage) exploratory.

We use two methods to try and estimate this wider contribution:

- Apportioning GVA from the non-Creative sectors to the creative economy in proportion to the degree of Creative Intensity; and

- Calculating an occupational GVA, using earnings data from ASHE and the LFS.

Apportioning

The rationale here is quite simple. If 'x per cent' of a non-Creative Industries workforce are deemed to be creative (as defined by the Dynamic Mapping analysis and report) then we take 'x per cent' of that sectors GVA and assume that it is due to the efforts of the Creative occupations. We can do this in two ways:

- A simplistic approach is to take the estimate of GVA per job in the non-creative industries of £45,103 and multiplying it by the number of creatively occupied jobs outside of the Creative Industries (1,138,400), which would suggest a GVA contribution of £51,345 millions;

- A more sophisticated approach of applying the Creative Intensities for all 4 digit SICs to the GVA produced by the same 4 digit SICs and totalling the GVA produced. If we do this we get a total GVA from these non-creative sectors of £57,950 millions.

Whilst the calculation of GVA in the second method is done on a 4-digit SIC basis, we show below how this varies by broad sector. There are a number of sectors which stand out as being generators of GVA from creative occupations – Wholesale and retail trade (18 per cent), Manufacturing (17 per cent) and Financial and insurance services (also 17 per cent). We do need to bear in mind here the fact that this is probably an under-estimate of the value of GVA produced in the financial services sector as only small parts of this are covered by the ABS

Table 6: Embedded occupational GVA by broad sector

Sector	**GVA**	
	(£ millions)	**%**
Agriculture, forestry and fishing	22	*
Mining and quarrying	231	*
Manufacturing	9,819	17
Electricity, gas, steam and air conditioning supply	747	1
Water supply, etc	-	0
Construction	1,710	3
Wholesale and retail trade	10,555	18
Transport and storage	1,152	2
Accommodation and food service activities	332	1
Information and communication	9,736	17
Financial and insurance activities	6,101	11
Real estate activities	1,025	2
Professional, scientific and technical activities	8,239	14
Administrative and support service activities	5,765	10
Public administration and defence	-	0
Education	425	1
Health and social work activities	145	*
Arts, entertainment and recreation	627	1
Other service activities	630	1
Total	**57,950**	**100**

Source: ABI and LFS, author's own calculations

Clearly there is a major simplifying assumption with both of these approaches, that of applying an average GVA per employee for all of the non-creative sector to creative jobs – which may have a different level of GVA to the average. To overcome this we have attempted to calculate an occupational measure of GVA.

Creating an occupational measure of GVA

A third, more complex approach is to try and create occupational GVA estimates and apply these to the proportion of Creative occupational employment which is engaged outside of the Creative Industries. We do this in a number of steps:

1. Deriving 4 digit industry estimates of GVA per person employed by dividing the industry GVA estimates by employment estimates;

2. Creating a factoring indicator by dividing these GVA estimates by mean gross annual earnings, to enable us to convert earnings to GVA[9];

3. Constructing a matrix of numbers employed by four digit SOC2000 occupation in each four digit SIC2007 industry in the UK;

4. Obtaining initial GVA estimates by multiplying the numbers employed in every occupation in each industry by mean earnings in the occupation. This produced estimates of total earnings by occupation and industry, which we could then multiply by each industry's GVA mark-up. In most cases when rows of GVA estimates were summed and compared with ABS industry GVA estimates the figures were very close to each other – in over half of all cases the estimate was within 10% of the ABS estimate;

5. Adjusting these reasonable first estimates by multiplying the cells in each row by the value of ABS GVA divided by the sum of occupation GVA, so that each industry row now sums precisely to ABS industry GVA; and

6. Summing the occupation columns of the matrix to provide estimates of GVA by four digit SOC2000 occupation.

While this methodology seems capable of yielding useful GVA estimates for most industries it cannot be used for deriving GVA estimates for occupations in industries not covered by ABS GVA estimates, mainly within the government and financial sectors. This estimate of occupational GVA, when totalled, produces a total occupational GVA of £866,472 millions, some 66 per cent of the national GVA as presented in the National Accounts. Therefore, just using this unadjusted will lead to a considerable under-estimate. To overcome this, we upgrade the individual occupational GVA by a factor of 1.5 to bring these into line.

[9] Mean annual earnings at the four digit SIC2007 industry and four digit SOC2000 occupation are published in the Annual Survey of Hours and Earnings (ASHE).

We have applied to the occupational GVA the proportion of the creative occupation which is employed outside the Creative Industries[10] and then uprated it as described above to take into account shortfalls in the calculation of occupational GVA.

Points to note:

- The GVA generated by the embedded creative occupations is £124,954 millions, some 9.6 per cent of total UK GVA;

- The greatest proportion of this GVA (some 59 per cent) is produced by a single occupational group – Marketing and sales managers, who are (i) a large group, (ii) mainly working across the economy, not particularly within the Creative Industries and (iii) with relatively high average earnings. To this we must add the 14 per cent generated by Software professionals and seven per cent by Marketing associate professionals.

Table 7: Estimating GVA generated by embedded occupations employed outside the creative industries

Occupation		Total occupational GVA	% employed outside the Creative Industries	Non-embedded GVA	Uprated non-embedded GVA	
Code	Title	(£ millions)	%	(£ millions)	(£ millions)	%
1132	Marketing and sales managers	56,340.7	0.87	49,016	74,048	59.3
1134	Advertising & public relations managers	3,265.5	0.5	1,633	2,467	2.0
2131	IT strategy and planning professionals	15,543.9	0.47	7,306	11,036	8.8
2132	Software professionals	20,478.5	0.57	11,673	17,634	14.1
2431	Architects	1,948.3	0.25	487	736	0.6
2432	Town planners	552.2	0.49	271	409	0.3
2451	Librarians	143.0	0.99	142	214	0.2
2452	Archivists and curators	343.8	0.95	327	493	0.4
3121	Architectural technologists & town planning technicians	352.5	0.44	155	234	0.2
3411	Artists	887.1	0.18	160	241	0.2
3412	Authors, writers	1,670.1	0.26	434	656	0.5
3413	Actors, entertainers	922.3	0.54	498	752	0.6
3414	Dancers and choreographers	46.3	1	46	70	0.1
3415	Musicians	487.2	0.41	200	302	0.2
3416	Arts officers, producers and directors	1,125.2	0.36	405	612	0.5
3421	Graphic designers	2,494.0	0.3	748	1,130	0.9
3422	Product, clothing & related designers	1,702.3	0.44	749	1,132	0.9
3431	Journalists, newspaper & periodical editors	3,132.8	0.22	689	1,041	0.8
3432	Broadcasting associate professionals	2,469.4	0.11	272	410	0.3

[10] This taken from Table 8.2 of the Dynamic mapping report

3433	Public relations officers	1,265.3	0.64	810	1,223	1.0
3434	Photographers & audio-visual equipment operators	1,863.2	0.29	540	816	0.7
3543	Marketing associate professionals	7,102.4	0.82	5,824	8,798	7.0
5491	Glass & ceramic makers, decorators and finishers	246.0	0.68	167	253	0.2
5495	Goldsmiths, silversmiths and precious stone workers	318.9	0.51	163	246	0.2
Total		**82,714**			**124,954**	**100**

Our immediate view of this estimate of embedded creative occupational GVA is that it seems to be high – and is certainly higher than that produced by the two apportioning approaches above.

A major factor in inflating the GVA figure is the 'uprating' element and here we have followed the approach used by the DCMS in its earlier work on estimating the size of the Creative industries. In reality, the proportion of Creative occupational employment engaged in these 'missing ABS industries' is very small - in employment terms accounting for 0.6 per cent of total UK employment and 10 per cent of creative occupations employment. So it seems unlikely that their omission will reduce the total GVA by a third. On this basis, we could regard the GVA contribution of £82,714 millions as the upper bound.

To examine this further, we show below the average earnings of the creative occupations and that for the non-creative occupations.

It is certainly the case that the overall average earnings for those employed in creative occupations is higher (at £40,989) than that of those in non-creative occupations (£25,112). This pattern is not however, the same for all creative occupations – with seven having average earnings lower than the non-creative average. These include Glass and ceramic makers (SOC 5491), Goldsmiths and silversmiths (SOC 5495), Librarians (SOC 2451), Archivists and curators (SOC 2452), Musicians (SOC 3415), Graphic designers (SOC 3421) and Photographers (SOC 3434). However, the average levels of earnings of these occupational groups are by far outweighed by a number of high earning occupations, particularly marketing and sales directors (SOC 1132), IT strategy and planning professionals (SOC 2131) and Advertising and PR managers (SOC 1134). The average is further uplifted by the very high numbers employed in some of these above average earning occupations – marketing and sales managers (again), Software professionals (SOC2132) and IT strategy and planning professionals (SOC 2131).

Table 8: Annual earnings and employment levels of Creative Occupations

Code	Title	Mean annual gross earnings (£)	Employment
1132	Marketing and sales managers	58,322	531,423
1134	Advertising & public relations managers	47,842	54,424
2131	IT strategy and planning professionals	48,457	155,352
2132	Software professionals	38,654	326,568
2431	Architects	42,615	52,947
2432	Town planners	35,061	20,681
2451	Librarians	21,719	27,695
2452	Archivists and curators	24,368	12,676
3121	Architectural technologists & town planning technicians	27,026	16,738
3411	Artists	31,038	39,680
3412	Authors, writers	26,528	53,975
3413	Actors, entertainers	27,470	37,238
3414	Dancers and choreographers	27,470	4,913
3415	Musicians	21,208	34,859
3416	Arts officers, producers and directors	33,829	37,494
3421	Graphic designers	24,668	90,935
3422	Product, clothing & related designers	28,760	54,248
3431	Journalists, newspaper & periodical editors	33,308	61,787
3432	Broadcasting associate professionals	43,407	51,090
3433	Public relations officers	25,668	35,626
3434	Photographers & audio-visual equipment operators	24,514	65,339
3543	Marketing associate professionals	28,996	137,479
5491	Glass & ceramic makers, decorators and finishers	18,810	13,932
5495	Goldsmiths, silversmiths and precious stone workers	22,818	10,153
Average creative occupations		**40,989**	**1,927,249**
Average non-creative occupations		**25,112**	**26,890,503**

Source: Annual Survey of Hours and Earnings, 2010, ONS

We know that there are issues with the use of the SOC 2000 code Marketing and sales directors and software professionals, with employment in these far higher than the equivalents in the 2010 SOC and this may be what contributes to the very high GVA estimation we have derived. But looking to the future we are also aware that future estimations of GVA (which use SOC 2010 classifications) will be lower, purely because the numbers coded in these occupations will be lower. Because of this, at this stage we propose that the estimation used by this approach is treated with caution, pending further analysis based data which is couched in terms of the SOC 2010 classification.

4 Estimating the GVA of the Creative Economy

We can combine estimates above to measure the contribution of the creative economy. Of course, we have at the moment a range of estimates for the Creative economy. Depending on the method used to calculate the GVA contribution of the embedded Creative occupations, the estimate of GVA for the wider creative economy ranges from 9.2 to 14.9 per cent.

Table 9: GVA estimates of the Creative Economy

	Method 1		**Method 2**		**Method 3**	
	(£ million)	**%**	**(£ million)**	**%**	**(£ million)**	**%**
Creative Industries	68,909	5.3	68,909	5.3	68,909	5.3
Creative occupations not in creative industries	51,345	3.9	57,950	4.5	82,714	6.4
Total creative economy	**120,254**	**9.2**	**126,859**	**9.7**	**151,623**	**11.6**
Non-creative jobs outside the creative industries	**1,180,864**	**90.8**	**1,174,259**	**90.3**	**1,1149,495**	**88.4**
Total economy GVA	**1,301,118**	**100**	**1,301,118**	**100**	**1,301,118**	**100**

It is useful to compare this with estimated employment and GVA contribution of other sectors. If we take the 'middle' GVA estimate of 9.7 per cent we can see that the Creative economy is larger in both employment and GVA contribution than other sectors such as Advanced manufacturing, Construction and Financial services.

Table 10: Creative economy compared

	GVA		Employment	
Creative economy	126,859	9.7	2,495,700	8.7
Advanced manufacturing	58,662	4.5	1,262,288	4.4
Construction	68,023	5.2	2,218,941	7.7
Financial services	57,055	4.4	1,165,736	4.1

Of course, when such comparisons are made we need to be clear about the definitions. Here, we have taken as our definitions of Advanced manufacturing, Construction and Financial services to be those as used by the Department of Business Innovation and Skills in its recent UK sector analysis[11]. The data for Financial services sector may be understated as the ABI does not fully cover this sector. In addition, we need to be aware that the comparisons between the Creative economy (which

[11] http://www.bis.gov.uk/assets/BISCore/economics-and-statistics/docs/I/12-1140-industrial-strategy-uk-sector-analysis.pdf

includes the Creative industries **plus** the contribution of creative occupations working outside the Creative industries) and the comparator sectors. It could be argued that a more accurate comparison might be between the Creative industries (with a GVA contribution of £68,909 millions - 5.3 per cent of the economy and with employment of 1,357,300 – 4.7 per cent of UK employment), but even this more restrictive comparison shows the Creative industries to make a greater contribution to UK GVA than the three comparator sectors identified.

5 Conclusions

We have estimated the GVA contribution of (i) the Creative Industries and (ii) the embedded creative occupations employed outside the creative industries to give a Creative Economy GVA estimate.

We estimate the GVA of the Creative Industries to be £68,909 millions, some 5.3 per cent of the UK economy.

This compares with the DCMS estimate of £36,290 millions (2.9 per cent). We should expect the GVA calculation of the Dynamic mapping estimates to be above the DCMS estimates, because the Dynamic Mapping definition of the Creative Industries is wider than that used by the DCMS. These GVA 'differential' is in line with the differences in employment estimates of the two definitions (1,357,300 for Dynamic Mapping compared to 897,300 for the DCMS).

We have used three different methods to calculate the GVA contribution of the embedded Creative Occupations who are working outside the Creative Industries. Two of these estimates lie relatively close to each other (£51,345 millions and £57,950 millions) and are intuitively in the right ball park – being in proportion to the relative employment totals. However, the third estimate produces a GVA of £82,714 millions which intuitively seems too high and we suggest is treated with caution.