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Priority Sector Report: Creative and Cultural Industries

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Executive summary

- In 2006 European creative and cultural industries firms employed a total of 6.5 million persons.
- Regions with high concentrations of creative and cultural industries have Europe's highest prosperity levels.
- Large urban areas and capital city regions dominate the creative and cultural industries, but some city regions do better than others. The super clusters London and Paris stand out, followed by Milan and Amsterdam.
- The creative and cultural industries are significant generators of intellectual property, in particular copyrights, and the largest creative and cultural industries regions are also among the largest employment centres for copyright-based industries.
- Among the regions of Europe which rank among the top 25 either by population or creative and cultural industries employment the following have a disproportionally large creative and cultural sector: Athens, Berlin, Budapest, Denmark, Frankfurt, Helsinki, Ireland, Inner London, Outer London, Maastricht, Madrid, Munich, Nijmegen, Oxford, Rome, Stockholm, and Stuttgart.
- As a share of the regional labour market, creative and cultural industries account for the largest shares in Inner London (5.95%), Stockholm (5.87%), Prague (5.81%), and Bratislava (5.01%).
- Most of the regions in the top 25 highest cultural and creative growth regions are small and medium sized regions. However, the following regions with labour markets over 1 million people were in the top 25 for annual employment growth: Seville (7.78%), Southampton (7.22%), Valencia (6.25%), Bilbao (6.51%), Galicia (5.45%), Lithuania (5.79%).
- The highest annual employment growth rates in the period 2001-2006 are found in Austria (6.2%), Lithuania (5.79%), Estonia (4.02%), Slovakia (3.88%), Latvia (3.87%), and Slovenia (3.76%).
- Creative and cultural industries manufacturing and production activities are the most regionally concentrated, and consumer oriented activities such as retail the least regionally concentrated.
- Further statistical work is needed to measure the true size of the creative and cultural industries. The data used in this report covers employees but not sole traders (i.e. firms with no employees but one active owner) or freelancers.

Introduction

The European cultural and creative industries (CCI) represent a significant set of industries. Social, cultural and technological changes have helped fuel our thirst and demand for cultural products, new forms of entertainment, distraction, and inspiration. Driven by these changes entirely new industries have emerged (e.g. computer games, web design), older cultural industries have gone from being the preserve of the elite to mass market global industries (e.g. books, high fashion, designer goods), and traditional consumer industries have tried to redesign and repackage what they have always done to suit consumers' insatiable desire for culture and creativity.

Europe's creative and cultural industries are global leaders and competitive exporters in a wide range of fields. They are the heart of creating Europe's culture and identity, and central to promoting Europe's identity around the world. Moreover they are an aggregate group of industries that in 2006 employed a total of **6,576,558 persons** or **2.71%** of the European labour market.

This report presents regionalised data and trends for these 6.5 million employees in 30 European countries. The report rests upon a methodology that has aimed at caution, minimalism and accuracy above all[1]. It is important to note at the outset then that, the number of people working in Europe's creative and cultural industries is likely much higher. The data used in this report covers employees but does not include sole traders: i.e. it excludes firms with no employees but one active owner. The cultural and creative industries are fields where many micro-businesses and freelancers are active and it is important to note they may account for a significant number of people actively engaged in the European creative and cultural economy. Taking Sweden as an example, the number of establishments with no employees in Sweden is presently 73,150 out of a total of 88,372 creative and cultural industries establishments: i.e. Sweden 82.7% of establishments are not covered by employment statistics compared to 73.2% in the overall Swedish economy.

1 Creative and cultural industries and prosperity

The creation of employment opportunities is crucial to economic and social well-being. There is a strong relationship between the presence of creative and cultural industries and regional prosperity. Figure 1 shows that those regions with above average concentrations[2] of Europe's creative and cultural industries employees are generally those where economic prosperity is highest.

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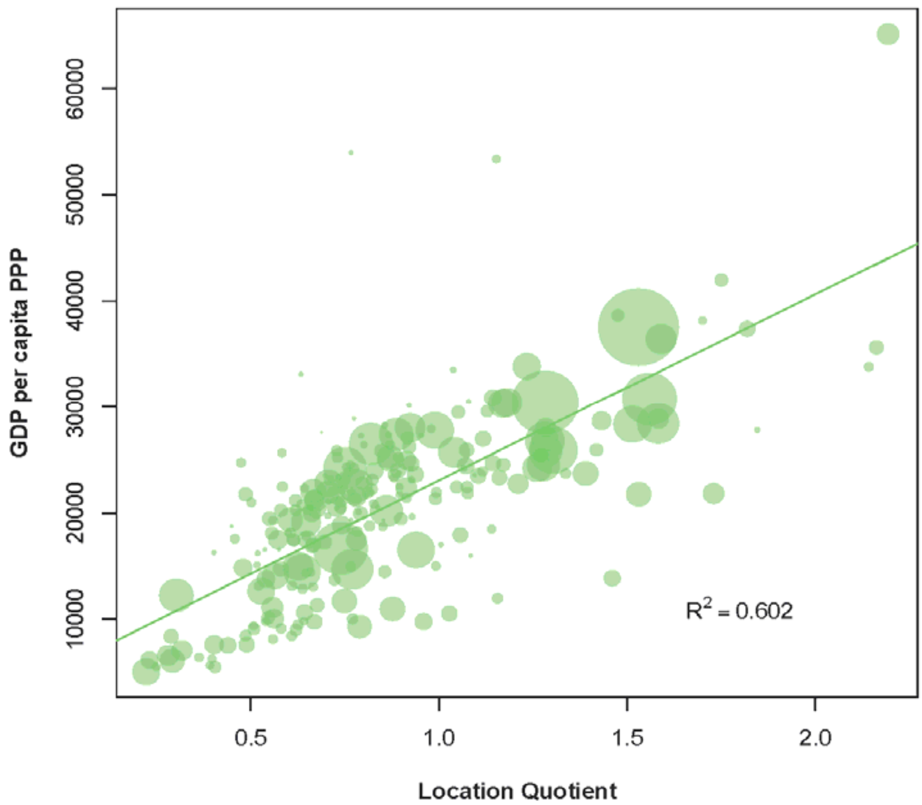
[1] An extensive methodological appendix to this report goes into detail in how we have defined creative and cultural industries and the various measures and data we have used in this report.

[2] Measured by location quotients. Location quotients measure the level of regional specialisation. Values over 1 indicate above-average levels of concentration.

Figure 1: Creative and cultural industries concentration and regional prosperity.



If we take into account no other factors, regional creative and cultural specialisation explains 60% of the variance in GDP per capita. Europe's wealthiest regions are home to disproportionate levels of creative and cultural industries concentration. It is likely that creative and cultural firms and employees are drawn to the markets represented by prosperous regions but also that the creative and cultural industries are themselves important components of and contributors to the economies of Europe's wealthiest regions.

2 Principal labour markets

The largest concentrations of creative and cultural industries employees in Europe are major urban areas. This confirms academic research findings and literature that suggests that creative and cultural activities that become industrialised are concentrated in and attracted to large urban areas. Creativity and cultural innovation, of course, happen in many different types of region across Europe but it seems that large scale industrialisation of these activities occurs in large urban areas.

Table 1. Europe's Top 25 regions for creative and cultural industries employment clusters.

Region	CCI Rank	Employment	LQ
Île de France (Paris), FR	1	301,895	1.53
Inner London, UK	2	235,327	2.19
Lombardia (Milan), IT	3	195,848	1.28
West-Nederland (Amsterdam), NL	4	195,646	1.56
Madrid, ES	5	172,800	1.58
Cataluña (Barcelona), ES	6	153,202	1.30
Danmark, DK	7	124,352	1.28
Lazio (Rome), IT	8	118,047	1.51
Oberbayern (München), DE	9	97,050	1.59
Stockholm, SE	10	86,239	2.16
Kozep-Magyarorszag (Budapest), HU	11	82,429	1.73
Outer London, UK	12	80,845	1.28
Berks, Bucks and Oxon (Oxford), UK	13	80,628	1.82
Attiki (Athens), GR	14	78,920	1.26
Oost-Nederland (Nijmegen), NL	15	74,064	1.39
Andalucía (Sevilla), ES	16	71,843	0.74
Ireland, IE	17	70,602	1.18
Zuid-Nederland (Maastricht), NL	18	70,543	1.28
Darmstadt (Frankfurt am Main), DE	19	68,238	1.23
Piemonte (Turin), IT	20	66,291	1.04
Köln, DE	21	65,341	1.28
Etelä-Suomi (Helsinki), FI	22	64,500	1.43
Veneto (Venice), IT	23	63,024	0.89
Stuttgart, DE	24	61,626	1.17
Berlin, DE	25	60,736	1.53

Note: LQ is an indicator of CCI employment relative to the total employment of the region, where LQ>1 indicates an over-representation of CCI employment.

Most of the largest employment clusters have higher than average levels of CCI concentration. This can be seen from location quotients listed in the Table 1 above. However, two of the top 25 clusters have lower than average shares of CCI employment: Seville and Venice.

Table 2. Regions which rank in the top 25 either by regional population size or creative and cultural industries employment.

Region	Largest City	Population Rank	CCI Rank
Île de France (FR)	Paris	1	1
Lombardia (IT)	Milan	2	3
Andalucía (ES)	Sevilla	3	16
West-Nederland (NL)	Amsterdam	4	4
Cataluña (ES)	Barcelona	5	6
Vlaams Gewest (BE)	Antwerpen	6	31
Rhône-Alpes (FR)	Lyon	7	37
Campania (IT)	Naples	8	39
Madrid (ES)	Madrid	9	5
Danmark (DK)	-	10	7
Düsseldorf (DE)	Düsseldorf	11	26
Lazio (IT)	Rome	12	8
Mazowieckie (PL)	Warszawa	13	42
Sicilia (IT)	Palermo	14	58
Provence-Alpes-Côte d'Azur (FR)	Marseille	15	50
Slaskie (PL)	Katowice	16	160
Veneto (IT)	Venice	17	23
Outer London (UK)	Outer London	18	12
Valencia (ES)	Valencia	19	27
Köln (DE)	Köln	20	21
Piemonte (IT)	Turin	21	20
Oberbayern (DE)	München	22	9
Emilia-Romagna (IT)	Bologna	23	28
Ireland (IE)	-	24	17
Puglia (IT)	Bari	25	72
Stuttgart (DE)	Stuttgart	27	24
Attiki (GR)	Athens	28	14
Darmstadt (DE)	Frankfurt am Main	30	19
Zuid-Nederland (NL)	Maastricht	35	18
Oost-Nederland (NL)	Nijmegen	36	15
Berlin (DE)	Berlin	39	25
Inner London (UK)	Inner London	46	2
Kozep-Magyarorszag (HU)	Budapest	49	11
Etelä-Suomi (FI)	Helsinki	60	22
Berks, Bucks and Oxon (UK)	Oxford	82	13
Stockholm (SE)	Stockholm	98	10

Note: CCI rank is the rank in CCI employment

Whilst there is a relationship between CCI and large urban areas this is not always so. Though many of Europe's most populous regions are home to highly ranked CCI clusters, some of the largest regions are lagging in CCI employment.

Among the regions of Europe which rank among the top 25 either by population or CCI employment the following cities host an over-representation of the creative and cultural sector: Athens, Berlin, Budapest, Denmark, Frankfurt, Helsinki, Ireland, Inner London, Outer London, Maastricht, Madrid, Munich, Nijmegen, Oxford, Rome, Stockholm, and Stuttgart.

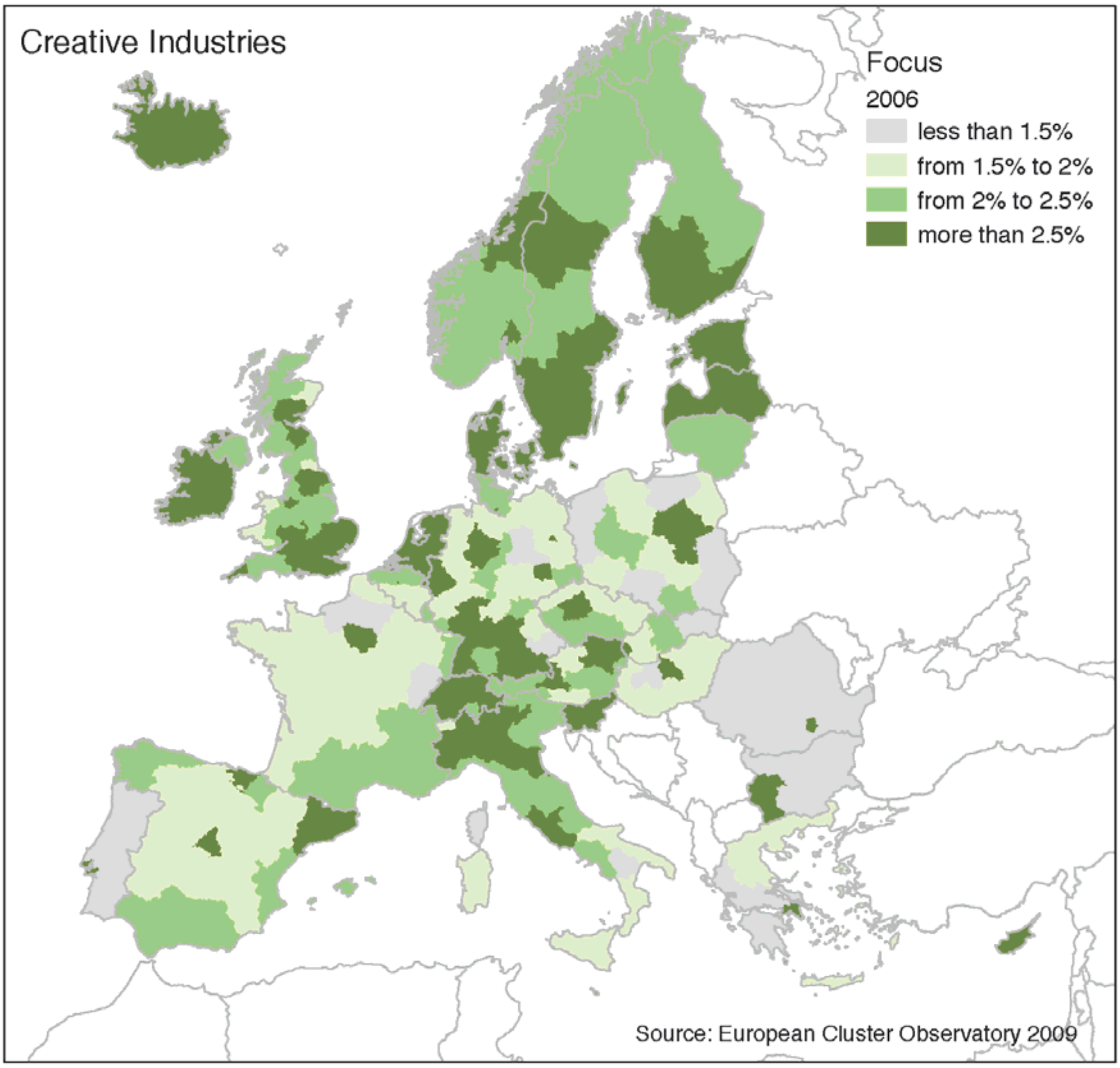
Of the regions with 25 largest populations the following have a far lower than expected representation of creative and cultural industries: Antwerp, Bari, Bologna, Düsseldorf, Katowice, Lyon, Marseille, Naples, Palermo, Seville, Valencia, Venice, Warszawa.

As with many industrial sectors, firms and labour are unequally distributed and this indicates the existence of regional industrial and innovation systems and clusters underpinned by favourable regional conditions. Employment and competitiveness in the creative and cultural industries is not directly related to labour market size or population and cannot be considered a simple by-product of human habitation. Creative and culture activities are knowledge driven industries that are drawn to specialised labour markets and to clusters. Clusters and large labour markets support organisational and project-base scale and scope.

3 Regional specialisation and focus

Regional creative and cultural industries specialisation is not limited to the largest urban areas but capital city regions and certain of the largest cities exhibit strong CCI Focuses. The table and map below show the share of a region's labour force employed by creative and cultural industries.

Figure 2. CCI Focus: Creative and cultural industries share of regional labour force 2006



Of the 15 regions with the highest CCI Focus most are capital city regions. In all but two countries capital city regions have the highest national CCI Focus: Germany where Hamburg is the city with the highest CCI Focus and Munich is the largest employment centre; and Switzerland where Basel the city with the highest CCI Focus and Zurich is the largest employment centre.

Of the Top 15 CCI Focus regions, three are in Central and Eastern Europe: Prague, Bratislava, and Budapest. The creative and cultural industries have almost the same share of the entire regional labour market in Prague as is the case in Inner London.

Table 3. Top 15 regions by CCI Focus.

	CCI Focus	Employment	CCI Rank
Inner London, UK	5.95%	235,327	2
Stockholm, SE	5.87%	86,239	10
Praha, CZ	5.81%	53,461	35
Bratislavsky kraj (Bratislava), SK	5.01%	21,776	87
Berks, Bucks and Oxon (Oxford), UK	4.94%	80,628	13
Hamburg, DE	4.75%	54,867	32
Kozep-Magyarorszag (Budapest), HU	4.69%	82,429	11
Oslo og Akershus, NO	4.61%	39,778	44
Oberbayern (München), DE	4.32%	97,050	9
Karlsruhe, DE	4.30%	55,794	30
Madrid, ES	4.30%	172,800	5
West-Nederland (Amsterdam), NL	4.23%	195,646	4
Berlin, DE	4.15%	60,736	25
Île de France (Paris), FR	4.15%	301,895	1
Lazio (Rome), IT	4.11%	118,047	8

Note: Focus indicates how large share of the region's total employment the CCI sector constitutes.

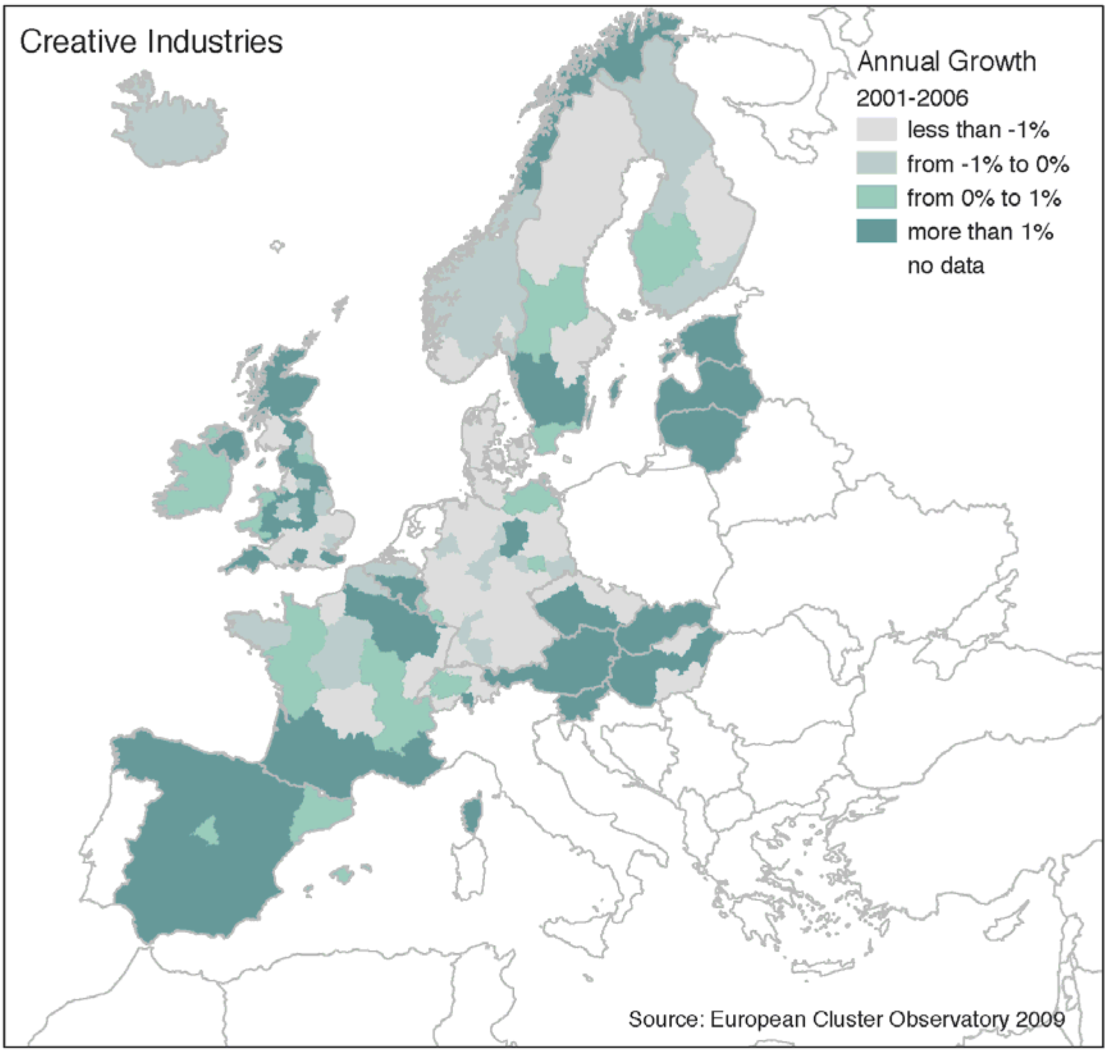
Creative and cultural industries command unusually high share of regional employment in Bratislava. This demonstrates that relatively small European regions can also score highly on specialisation and focus measures, even if the opposite is more common.

4 Growth

The creative and cultural industries are a sector of the European economy that exhibit strong growth[3]. However, as the map below shows that growth is not evenly spread over Europe. As can be seen higher levels of growth was broadly concentrated in areas of central Europe, areas of France, Spain, UK and the Baltic States. In Germany and Scandinavia there is a mixed picture with certain regions showing higher growth rates whilst others suffered CCI employment decline in the period.

[3] Time series data was not available for the following countries: Bulgaria, Cyprus, Greece, Italy, Netherlands, Poland, Portugal, Romania.

Figure 3. Creative and cultural industries average annual growth 2001-2006.



Note: Growth is measured using compound annual growth rates (CAGR).

In 24 of the top 25 CCI growth regions the creative and cultural industries grew at a faster rate than the rest of the labour market.

Table 4. Regions with the highest average annual growth in CCI employment 2001-2006.

	CCI Growth	Rest of the economy	CCI LQ	CCI Rank	CCI Employment
Niederösterreich (St. Pölten), AT	16.63%	7.60%	1.07	84	22,593
Salzburg, AT	10.00%	6.32%	1.08	161	10,434
Oberösterreich (Linz), AT	8.99%	6.97%	0.73	126	14,506
Asturias (Oviedo), ES	8.42%	3.05%	0.85	146	11,399
Zapadne Slovensko (Nitra), SK	8.35%	1.96%	0.68	106	17,728
Cumbria (Carlisle), UK	8.31%	2.47%	0.84	220	5,087
La Rioja (Logroño), ES	7.99%	5.64%	0.70	237	3,217
Andalucía (Sevilla), ES	7.78%	5.27%	0.74	16	71,843
Hants and Isle of Wight (Southampton), UK	7.22%	1.18%	1.27	45	38,851
Castilla-La Mancha (Toledo), ES	6.87%	4.79%	0.67	109	16,528
Jihovychod (Brno), CZ	6.65%	0.39%	0.86	89	21,606
País Vasco (Bilbao), ES	6.51%	2.52%	1.12	51	36,539
Murcia, ES	6.35%	5.25%	0.61	152	10,906
Valencia, ES	6.25%	4.48%	0.86	27	59,901
Kärnten (Klagenfurt), AT	6.13%	4.55%	0.73	222	4,950
Lietuva, LT	5.79%	3.63%	0.88	68	26,102
Galicia (A Coruña), ES	5.45%	2.71%	0.78	60	29,294
Picardie (Amiens), FR	5.41%	1.31%	0.55	181	8,934
Nyugat-Dunantul (Györ), HU	5.33%	-0.51%	0.65	180	9,002
Extremadura (Mérida), ES	5.32%	3.11%	0.66	188	8,022
Canarias (Tenerife), ES	4.97%	4.16%	0.79	88	21,765
Steiermark (Graz), AT	4.87%	5.63%	0.76	144	11,479
Corse (Ajaccio), FR	4.72%	4.08%	0.45	247	1,092
Heref, Worcs and Warws (Hereford), UK	4.67%	0.84%	1.12	91	21,115
E Riding and N Lincs, UK	4.55%	1.61%	0.75	177	9,104

Note: LQ is an indicator of CCI employment relative to the total employment of the region, where LQ>1 indicates an over-representation of CCI employment. Growth is measured using compound annual growth rates (CAGR).

It is striking that 15 of the top 25 growth regions between 2001 and 2006 were in either Austria or Spain. Austria accounts for 5 of the top CCI Growth regions and Spain 10 top CCI Growth regions.

Indeed growth and contraction are highly regionalised in Europe. This can be seen for instance in the United Kingdom where certain regions had high annual growth rates - Cumbria (Carlisle) 8.31%; Hampshire and Isle of Wight (Southampton) 7.22%; Hereford, Worcester and Warwickshire (Hereford) 4.67%; East Riding and North Lincolnshire 4.55 - whilst the 6 regions with the largest labour markets suffered decline – Inner London -1.29%, Outer London -3.42%; Berkshire, Buckinghamshire and Oxfordshire (Oxford) -1.6%; East and West Surrey (Brighton) -3.17%; Greater Manchester -1.4%; West Midlands (Birmingham) -1.64%.

Many of the fastest growing regions are relatively small and are growing from a lower than average baseline. Indeed 20 of the top 25 growth regions have CCI shares of regional employment below or well below the average European region. Higher than average growth in certain of these regions may reflect lower base lines as well as the quickening pace of catch-up.

Most of the regions in the top 25 highest cultural and creative growth regions are small and medium sized regions. However, the following regions with labour markets over 1 million people were in the top 25 for annual employment growth: Seville (7.78%), Southampton (7.22%), Valencia (6.25%), Bilbao (6.51%), Galicia (5.45%), Lithuania (5.79%).

For those European regions we have growth data for, almost as many regions suffered declines in CCI employment as there were regions that experienced growth: 92 regions grew versus 89 declined (66 regions with no growth data).

From the data at our disposal it is difficult to draw any conclusions about why there is such a mixed growth picture. One possible explanation, for which there is some evidence, is that CCI growth/decline is linked to cycles in the rest of the regional labour market and that CCI will grow where there is growth and decline where there is general decline. This would indicate that creative and cultural industries are embedded and interdependent with the surrounding economy; rather than independent of the region as entirely export oriented industries may be.

An alternative explanation is that the data only concentrates on employment trends and it may be that declines in employment are due to, or compensated for, by increases in sole-trading and other entrepreneurial activity that would not appear in our statistics. Certainly many sectors within the creative and cultural industries have come under pressure from digital transitions which have created new opportunities and threats as well as leading to productivity gains and changing organisational forms that may have led to employment decreases.

Regionalised patterns of growth and change seem to be a strong feature of the creative and cultural industries.

5 National perspectives on growth and size

In most cases, employment in the creative and cultural industries seems largely to reflect growth rates in the entire economy. For many countries creative and cultural industries employment growth was an amplified version of general growth: if employment was going up it went up faster in creative and cultural industries and vice versa.

As can be seen from Table 5, the general pattern is that overall employment increases in the country are equalled or bettered by creative and cultural industries, whilst negative overall growth is coupled by higher levels of decline in the creative and cultural industries. For example in Austria and Lithuania overall employment growth was strong in the period 2001-2006 and creative and cultural industries employment reflected and bettered this positive upturn. In Norway and Germany the opposite was the case: as employment in the overall economy turned negative, employment in the creative and cultural industries fell even faster. Spain, Ireland, and France are notable exceptions to this tendency: in these countries positive annual growth rates for the entire economy were significantly above CCI growth rates.

Table 5. Average annual employment growth 2001-2006 in creative and cultural industries and in all sectors of the economy.

Country	CCI Growth	All Growth
Austria	6.20%	5.42%
Lithuania	5.79%	3.63%
Estonia	4.02%	2.71%
Slovakia	3.88%	0.63%
Latvia	3.87%	3.89%
Slovenia	3.76%	0.78%
Spain	2.78%	3.86%
Hungary	1.45%	0.08%
Czech Republic	0.80%	0.30%
Luxembourg	0.72%	1.55%
Ireland	0.55%	3.75%
France	-0.14%	1.40%
Iceland	-0.22%	0.10%
Finland	-0.47%	-0.10%
United Kingdom	-0.55%	0.32%
Belgium	-0.82%	0.07%
Sweden	-0.97%	-0.32%
Switzerland	-1.47%	-0.13%
Denmark	-1.99%	-1.07%
Germany	-2.08%	-1.39%
Norway	-2.41%	-0.28%

Note: Growth is calculated here as a Compound Annual Growth Rate (CAGR) over the period.

Small countries tend to have a higher CCI Focus than large countries. As Table 6 shows, of the 12 countries with the highest CCI Focus only two have a population of over 10 million: the Netherlands and the UK. The lower share of total employment that CCI account for in larger countries may be due to the ability to exploit greater economies of scale in creative and cultural product provision. It may also be that smaller countries own language, cultural heritage and specificity mean that substitutes are harder to import, or demand more labour to tailor to local conditions and demands. All countries big or small need a foundation of cultural and media institutions and it can be assumed that all need an indigenous basic provision: something that cannot be imported from outside.

Table 6. National labour markets and CCI Focus.

Country	CCI Focus	CCI Rank	CCI Employment
Iceland	4.01%	28	8,633
Netherlands	3.94%	6	377,903
Sweden	3.76%	7	205,831
Denmark	3.48%	15	124,352
Switzerland	3.40%	8	167,479
Finland	3.25%	18	96,511
Ireland	3.20%	20	70,602
Estonia	3.14%	26	23,965
United Kingdom	3.12%	1	1,131,697
Norway	2.96%	19	81,874
Malta	2.94%	29	5,765
Slovenia	2.87%	24	29,151
Austria	2.83%	12	131,015
Germany	2.79%	2	956,668
Spain	2.74%	4	655,042
Hungary	2.73%	11	134,921
Italy	2.66%	3	767,521
Czech Republic	2.64%	10	156,272
Latvia	2.60%	23	31,720
Cyprus	2.52%	27	10,794
France	2.52%	5	634,251
Lithuania	2.38%	25	26,102
Slovakia	2.30%	22	61,777
Greece	2.28%	13	128,421
Belgium	2.26%	16	101,646
Portugal	2.13%	17	96,741
Luxembourg	2.08%	30	5,273
Poland	1.69%	9	162,408
Bulgaria	1.63%	21	65,587
Romania	1.18%	14	126,637
Europe	2.71%		6,576,558

Note: Focus indicates how large share of the nation's total employment the CCI sector constitutes.

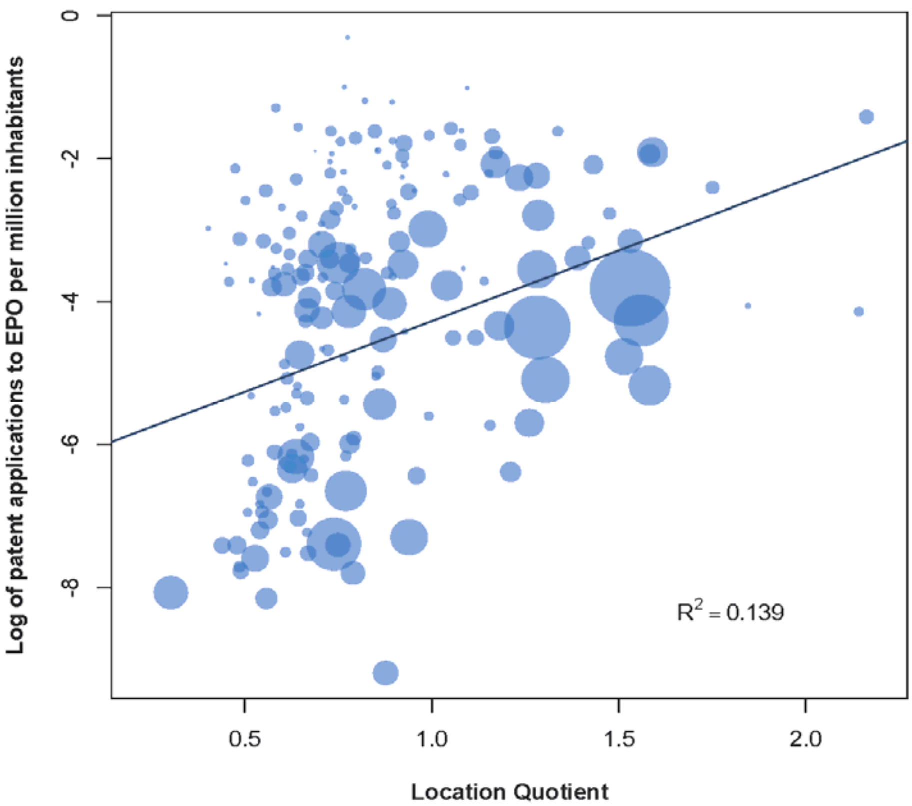
Table 6 clearly demonstrates the need to take a regional and cluster approach to these industries. For example whilst Romania has the lowest share of its total employment in creative and cultural industries, as a nation it ranks 14th in Europe and the capital region of Bucharest ranks 34th of all European regions whilst being home to 42.6% of the nation's creative and cultural industries employees.

6 Innovation

The Lisbon Treaty as well as a significant academic literature posits a relation between regional innovation and the presence of creative and cultural industries. Since creative and cultural industries operate in fast moving and often fashion oriented markets continual innovation and creativity is core to competitive advantage. Regional clusters must innovate in order to survive or grow and innovation is likely to be reflected in employment growth.

Equally one might expect to see knowledge and innovation spill-over from creative and cultural industries to other areas of the economy. There is a relationship between CCI employment and traditional innovation indicators such as patent applications but as can be seen in the Figure below it is not a definite or direct relationship. Thus the thesis that creative and cultural industries and workers are interlinked to other types of 'creative' and innovative industries is not definitely provable.

Figure 4. Creative and cultural industries concentration and patent applications.



Note: LQ is an indicator of CCI employment relative to the total employment of the region, where LQ>1 indicates an over-representation of CCI employment.

Similarly it is not possible to draw direct relationships between standard regional innovation performance measures and creative industries growth. With the exceptions of Gothenburg, Malmoe Prague and Vienna, those regions with the 20 highest Regional Innovation Scoreboard value (RIS) [4]

[4] Regional Innovation Scoreboard 2006 conducted by Maastricht Economic and social Research and training centre on Innovation and Technology (MERIT): 2006 European Regional Innovation Scoreboard, MERIT, 2006.

all suffered negative creative and cultural industries growth. RIS is therefore not an adequate predicator of growth in this area.

Table 7. Top 20 regions on the Regional Innovation Scoreboard (RIS) and average annual growth in creative and cultural industries.

Region	RIS 2006	Annual CCI Growth (CAGR)
Stockholm, SE	0.895	-2.07%
Västsverige (Gothenburg), SE	0.828	1.07%
Oberbayern (München), DE	0.791	-1.84%
Etelä-Suomi (Helsinki), FI	0.782	-0.38%
Karlsruhe, DE	0.775	-0.55%
Stuttgart, DE	0.768	-1.52%
Braunschweig, DE	0.759	-0.98%
Sydsverige (Malmö), SE	0.758	0.39%
Île de France (Paris), FR	0.746	-0.85%
Östra Mellansverige (Uppsala), SE	0.742	-1.93%
Berlin, DE	0.737	-1.74%
Tübingen, DE	0.718	-0.85%
Praha, CZ	0.698	1.37%
Darmstadt (Frankfurt am Main), DE	0.693	-3.11%
Dresden, DE	0.687	-0.49%
Köln, DE	0.686	-2.31%
Danmark, DK	0.681	-1.99%
Pohjois-Suomi (Oulu), FI	0.679	-0.33%
Mittelfranken (Nürnberg), DE	0.676	-3.12%
Wien, AT	0.675	2.36%

The mixed results above likely point to the difficulty of using standard innovation performance indicators – such as RIS and patent data – to measure innovation levels and conditions in creative and cultural industries. Many of the types of knowledge, goods, services and business models produced by the creative and cultural industries simply cannot be protected by patents. Other types of intellectual property appropriation and exploitation regimes are much more central to the creative and cultural industries. In particular copyright is a more prevalent form of intellectual property appropriation in creative and cultural industries than patent. Regional innovation measures tend to stress a region's science and high technology emphasis and it is not clear that all of the creative and cultural industries are reliant upon such types of 'innovation' system to maintain their own creativity and innovation.

Innovation performance indicators better attuned to the innovation dynamics (and likely spill over areas) of the creative and cultural industries are needed in order to make more definite conclusions about their impact on and role in regional innovation.

7 Intellectual property

The creative and cultural industries are significant generators of intellectual property in particular copyrights. Using the World Intellectual Property Organization (WIPO) definition for Copyright-Based Industries[5], it can be seen that the largest creative and cultural industries regions are generally also the largest employment centres for copyright-based industries.

Table 8. Top 10 regions by employees in CCI and Copyright-based Industries.

CCI			WIPO		
1	Île de France (Paris)	301,895	1	Île de France (Paris)	371,400
2	Inner London	235,327	2	Inner London	212,479
3	Lombardia (Milan)	195,848	3	Madrid	209,784
4	West-Nederland (Amsterdam)	195,646	4	West-Nederland (Amsterdam)	193,344
5	Madrid	172,800	5	Lombardia (Milan)	182,503
6	Cataluña (Barcelona)	153,202	6	Cataluña (Barcelona)	151,286
7	Danmark	124,352	7	Lazio (Rome)	123,822
8	Lazio (Rome)	118,047	8	Danmark	122,189
9	Oberbayern (München)	97,050	9	Oberbayern (München)	101,417
10	Stockholm	86,239	10	Zuid-Nederland (Maastricht)	86,830

Regions with a high creative and cultural industries focus – the share of a region's labour force employed by creative and cultural industries – also have a high focus on copyright-based industries.

Table 9. Top 10 regions by CCI Focus and Copyright-based Industries Focus.

Region	CCI Focus	Employment	WIPO Focus	Employment
Inner London, UK	5.95%	235,327	5.64%	212,479
Stockholm, SE	5.87%	86,239	5.48%	76,601
Praha, CZ	5.81%	53,461	6.48%	57,113
Bratislavsky kraj (Bratislava), SK	5.01%	21,776	5.10%	21,287
Berks, Bucks and Oxon (Oxford), UK	4.94%	80,628	4.36%	68,148
Hamburg, DE	4.75%	54,867	4.60%	51,170
Kozep-Magyarorszag (Budapest), HU	4.69%	82,429	4.34%	73,615
Oslo og Akershus, NO	4.61%	39,778	4.62%	38,250
Oberbayern (München), DE	4.32%	97,050	4.68%	101,417
Karlsruhe, DE	4.30%	55,794	3.71%	46,270

Note: Focus indicates how large share of the region's total employment the CCI sector constitutes.

[5] See Methodological Appendix for details and comparison of the WIPO definition to the Cluster Observatory definition.

8 Breaking down the creative and cultural industries

There has been considerable debate over the idea that the industries we suggest comprise the creative and cultural industries can in fact be aggregated. We agree that despite many similarities and interdependencies the activities gathered under the umbrella of creative and cultural industries need also to be understood as separate industries in their own rights. The knowledge requirements, working methods, business and organisational models and consumer interfaces that define competitiveness in computer games are, for instance, very different to those that shape competitiveness in performance arts.

It is necessary to understand the creative and cultural industries not as a unified category but as an aggregate category. It is necessary to understand that the industries that make up the European creative and cultural industries competitiveness share much but also exhibit unique and different cluster dynamics.

The creative and cultural industries are a term that includes a variety of different related industries. Our definition includes not just 'cultural' industries but also 'creative' industries such as certain types of software work (e.g. publishing of software, software consultancy and supply, new media and computer games). These are industries that are defined by their creative working and by the intellectual property they create. Together they employ **1,471,915** Europeans in 30 countries: 22.3% of creative and cultural industries employees work with software publishing, consultancy or supply.

Table 10. Top 15 employment centres for software.

Region	Software Employment
Île de France (Paris), FR	63,617
West-Nederland (Amsterdam), NL	47,843
Inner London, UK	44,081
Berks, Bucks and Oxon (Oxford), UK	41,955
Lombardia (Milan), IT	41,857
Madrid, ES	37,145
Lazio (Rome), IT	33,486
Stockholm, SE	33,239
Danmark, DK	31,525
Oberbayern (München), DE	31,074
Cataluña (Barcelona), ES	28,741
Karlsruhe, DE	28,332
Darmstadt (Frankfurt am Main), DE	26,785
Surrey, E and W Sussex (Brighton), UK	24,173
Outer London, UK	23,833

The following maps show employment concentrations for four activity areas within the creative and cultural industries: Artistic creation and literary interpretation; Advertising; Radio and television activities; Museum activities and preservation of historical sites and buildings.

The maps indicate that for these parts of the creative and cultural industries clustering is a prominent feature. In particular Inner London and its surrounding regions and the Paris region are the largest centres in each of the four industries. Amsterdam, Madrid and Milan are also important centres. However despite the existence of prominent clusters in each of the industries many other centres exist.

Figure 5. Artistic creation and literary interpretation

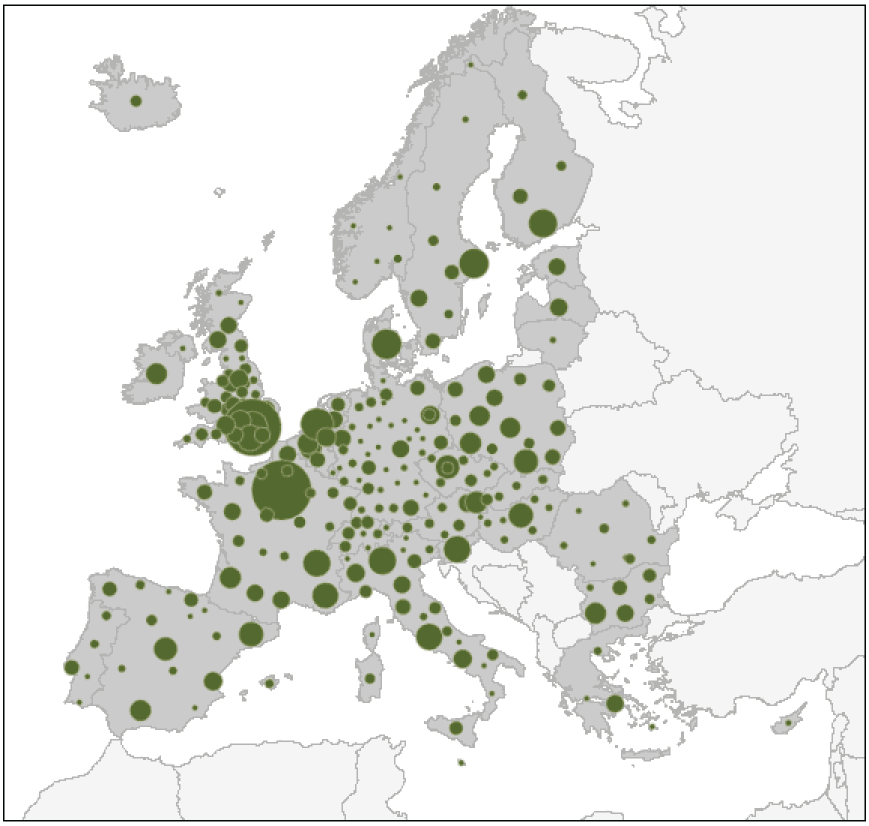


Figure 6. Advertising

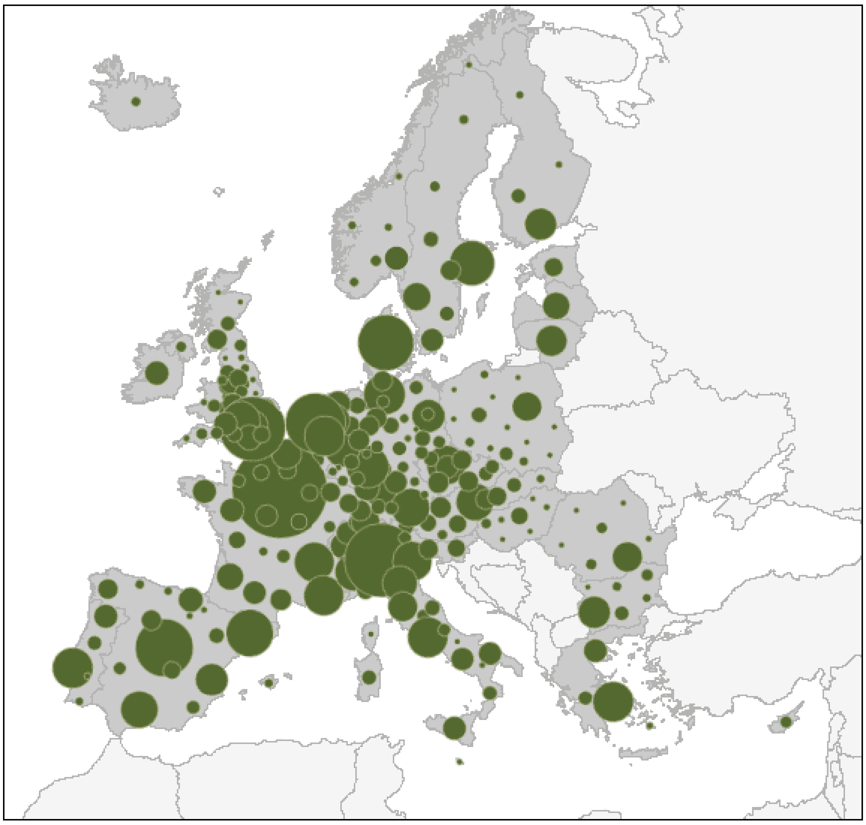


Figure 7. Radio and television activities

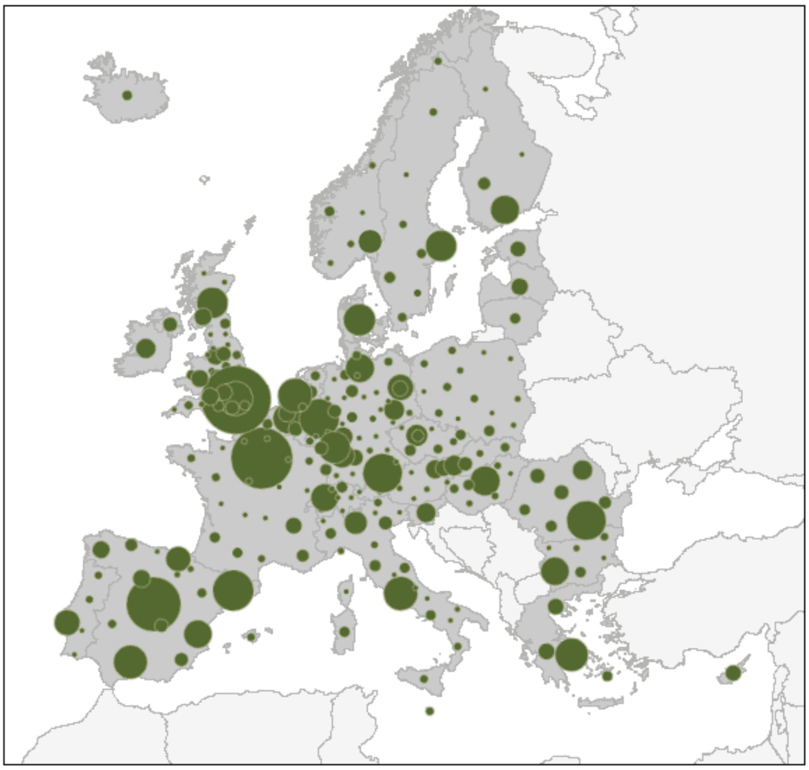
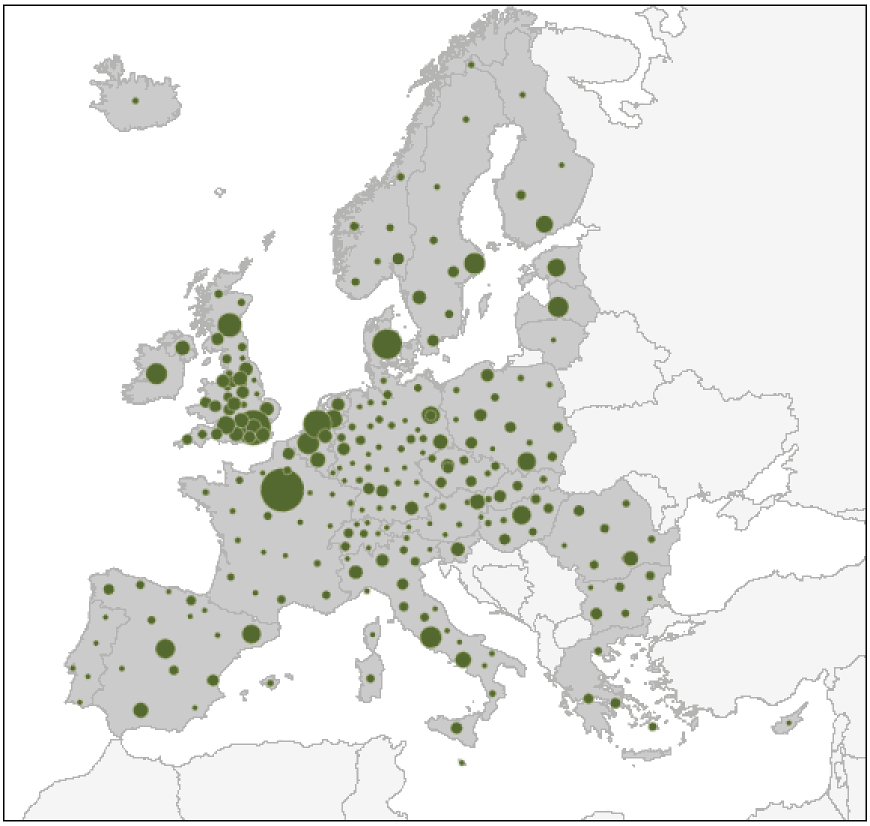


Figure 8. Museum activities and preservation of historical sites and buildings



The Table below lists the top 15 clusters (defined by employment and share of total European employment in that category) in the four fields illustrated above: Artistic creation and literary interpretation; Advertising; Radio and television activities; Museum activities and preservation of historical sites and buildings. These figures clearly show the role of Paris, London, Milan, Amsterdam and Madrid as Europe's most important employment centres for creative and cultural industries. Of these the super clusters London and Paris stand out.

Table 11: Top 15 regions by number of employees and share of European employment in four sectors of the creative and cultural industries.

		Employ-ment	European share		Employ-ment	European share
	Radio and television activities			**Advertising**		
1	Inner London	31,231	8.08%	Île de France (Paris)	52,202	7.56%
2	Île de France (Paris)	24,472	6.33%	Lombardia (Milan)	30,020	4.35%
3	Madrid	19,105	4.95%	Inner London	24,348	3.53%
4	Cataluña (Barcelona)	10,756	2.78%	West-Nederland (Amsterdam)	19,876	2.88%
5	Köln	10,317	2.67%	Madrid	18,738	2.71%
6	Bucuresti – Ilfov	10,122	2.62%	Danmark	17,343	2.51%
7	Oberbayern (München)	10,037	2.60%	Cataluña (Barcelona)	12,410	1.80%
8	West-Nederland (Amsterdam)	7,647	1.98%	Düsseldorf	11,653	1.69%
9	Lazio (Rome)	7,516	1.95%	Stockholm	11,230	1.63%
10	Outer London	7,515	1.95%	Darmstadt (Frankfurt am Main)	10,053	1.46%
11	Andalucía (Sevilla)	7,385	1.91%	Hamburg	9,664	1.40%
12	Attiki (Athens)	7,100	1.84%	Attiki (Athens)	9,266	1.34%
13	Danmark	6,648	1.72%	Lazio (Rome)	9,246	1.34%
14	Rheinhessen-Pfalz (Mainz)	6,644	1.72%	Lisboa	9,217	1.33%
15	E Scotland (Edinburgh)	6,351	1.64%	Zuid-Nederland (Maastricht)	8,970	1.30%
	Artistic and literary creation and interpretation			**Museum activities and preservation of historical sites and buildings**		
1	Île de France (Paris)	20,113	6.80%	Île de France (Paris)	10,675	6.24%
2	Inner London	18,434	6.23%	Inner London	6,993	4.09%
3	West-Nederland (Amsterdam)	5,774	1.95%	Danmark	5,162	3.02%
4	Outer London	5,357	1.81%	West-Nederland (Amsterdam)	4,525	2.64%
5	Danmark	5,156	1.74%	E Scotland (Edinburgh),	3,370	1.97%
6	Stockholm	4,983	1.68%	Vlaams Gewest (Antwerpen),	2,850	1.66%
7	Etelä-Suomi (Helsinki)	4,549	1.54%	Lazio (Rome)	2,720	1.59%
8	Lombardia (Milan)	4,448	1.50%	Stockholm	2,648	1.55%
9	Rhône-Alpes (Lyon)	4,165	1.41%	Ireland	2,631	1.54%
10	Slovenija	4,119	1.39%	Latvija	2,497	1.46%
11	Lazio (Rome)	4,000	1.35%	Madrid	2,240	1.31%
12	Provence-Alpes-Côte d'Azur (Marseille)	3,767	1.27%	Kozep-Magyarorszag (Budapest)	2,120	1.24%
13	Surrey, E and W Sussex (Brighton)	3,714	1.26%	Cataluña (Barcelona)	2,102	1.23%
14	Cataluña (Barcelona)	3,539	1.20%	Malopolskie (Kraków)	2,040	1.19%
15	Kozep-Magyarorszag (Budapest)	3,533	1.19%	Oost-Nederland (Nijmegen)	2,010	1.17%

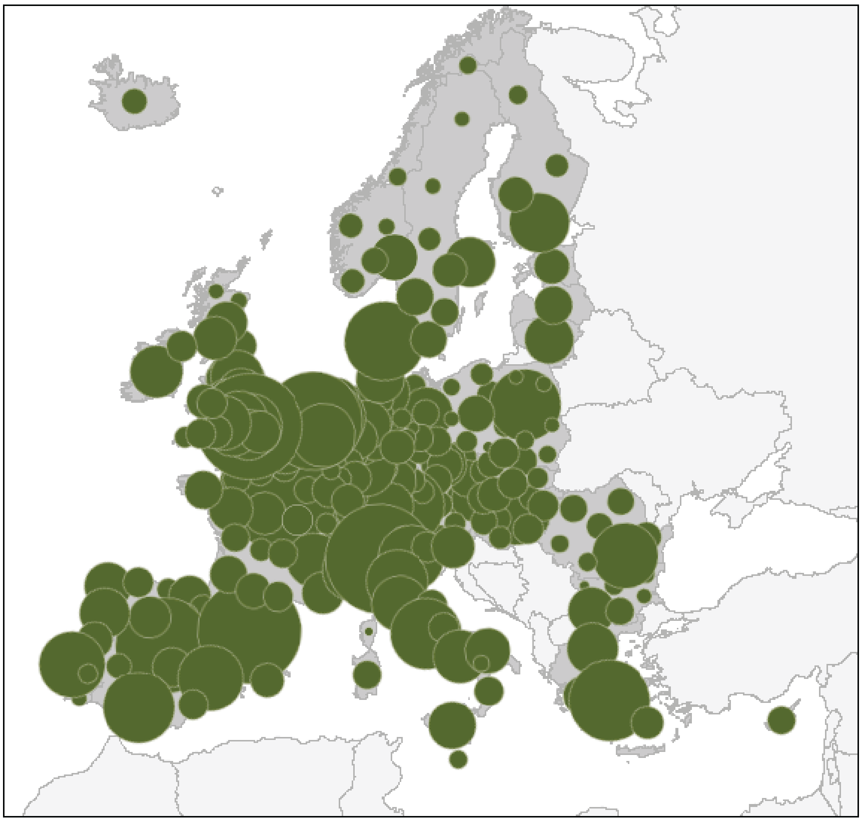
Not all parts of the creative and cultural industries, however, are so dominated by a couple of large cities. As the Table and Map below clearly show in Print Media there is a much more even spread of activities over Europe. This may be explained by the fact that print media employs large numbers of employees in production and distribution and it may not be necessary or desirable to locate these employees in the largest urban areas. The print media employs **2,285,744** people or 34.8% of all the creative and cultural industries and is thus central to the contribution of this sector to Europe competitiveness.

Table 12. Top 15 regions by number of employees and share of European employment in Print Media.

Rank		Employment	European share
1	Île de France (Paris)	81,696	3.57%
2	Lombardia (Milan)	68,582	3.00%
3	Inner London	64,323	2.81%
4	Cataluña (Barcelona)	62,015	2.71%
5	West-Nederland (Amsterdam)	55,884	2.44%
6	Madrid	53,244	2.33%
7	Attiki (Athens)	38,271	1.67%
8	Danmark	36,121	1.58%
9	Oberbayern (München)	30,313	1.33%
10	Andalucía (Sevilla)	28,753	1.26%
11	Mazowieckie (Warszawa)	28,720	1.26%
12	Lazio (Rome)	28,420	1.24%
13	Oost-Nederland (Nijmegen)	26,580	1.16%
14	Kozep-Magyarorszag (Budapest)	24,523	1.07%
15	Bucuresti – Ilfov	24,222	1.06%

Note: Print media is an aggregate of the following NACE codes: 22.11, 22.12, 22.13, 22.21, 22.22, 22.23, 22.24, 22.25, 52.47.

Figure 9. Print media employment.



8 Clustering and value chains

Whilst there are different cluster and location tendencies for different sectors of the creative and cultural industries it is interesting to note that different stages in the CCI value chain also exhibit different cluster tendencies. Manufacturing activities are the most regionally concentrated, and consumer oriented activities the least regionally concentrated.

Concentration measures clearly show that the most concentrated creative and cultural industries are those involved in specialised manufacture: recorded media and musical instruments. There is considerable evidence from other industries that specialised manufacturing benefits from, and is drawn to, industry clusters; it seems this is also the case in creative and cultural industries. A similar pattern can be found for production related activities such as publishing of software and music, news agencies, and film production.

The least concentrated activities are those in the value chain that are nearest the consumer: such as bookshops, cinemas, and exhibition spaces. Such activities do exhibit some cluster tendencies at a European level but locational concentration is likely more apparent within regions: e.g. at the level of shopping or theatre districts.

Employees in firms focused on advertising and in artistic and literary creation and interpretation are also less likely to be concentrated in dominant centres. This is likely due to the need to locally tailor advertising campaigns or artistic and literary products to local conditions: something that is most efficiently done in proximity to end users. Nonetheless as was shown earlier a degree of clustering on a European level can be found in both of these activities and several large urban areas are home to disproportionate concentrations of these activities.

Table 13. The most concentrated and clustered creative and cultural industries sub-sectors[6].

NACE Category	Gini		Krugman		Theil	
Reproduction of computer media	0.88	(1)	1.46	(1)	2.05	(1)
Reproduction of sound recording	0.85	(2)	1.40	(2)	1.71	(2)
Reproduction of video recording	0.80	(3)	1.25	(3)	1.39	(3)
Manufacture of prepared unrecorded media	0.76	(4)	1.24	(4)	1.17	(5)
Manufacture of musical instruments	0.73	(5)	1.11	(7)	1.30	(4)
Publishing of software	0.73	(6)	1.15	(5)	1.00	(7)
Publishing of sound recordings	0.72	(7)	1.14	(6)	1.01	(6)
Motion picture and video distribution	0.66	(8)	1.05	(8)	0.83	(8)
News agency activities	0.65	(9)	1.02	(9)	0.81	(9)
Motion picture and video production	0.61	(10)	0.92	(10)	0.74	(10)
Other publishing	0.60	(11)	0.86	(12)	0.73	(11)
Printing of newspapers	0.59	(12)	0.89	(11)	0.62	(12)
Radio and television activities	0.55	(13)	0.84	(13)	0.56	(13)
Publishing of books	0.53	(14)	0.80	(14)	0.48	(17)
Bookbinding	0.52	(15)	0.76	(16)	0.49	(14)
Publishing of journals and periodicals	0.51	(16)	0.76	(15)	0.48	(15)
Ancillary activities related to printing	0.51	(17)	0.72	(18)	0.48	(16)
Pre-press activities	0.48	(18)	0.69	(19)	0.43	(18)
Library and archives activities	0.48	(19)	0.74	(17)	0.40	(19)
Other entertainment activities n.e.c.	0.47	(20)	0.68	(20)	0.39	(20)
Operation of arts facilities	0.45	(21)	0.65	(21)	0.34	(21)
Other software consultancy and supply	0.44	(22)	0.63	(22)	0.32	(22)
Publishing of newspapers	0.40	(23)	0.57	(24)	0.27	(23)
Museums activities, etc.	0.39	(24)	0.58	(23)	0.25	(25)
Artistic and literary creation and interpretation	0.39	(25)	0.55	(25)	0.25	(24)
Advertising	0.37	(26)	0.53	(26)	0.23	(26)
Printing n.e.c.	0.30	(27)	0.42	(27)	0.15	(28)
Photographic activities	0.29	(28)	0.41	(29)	0.17	(27)
Motion picture projection	0.29	(29)	0.41	(28)	0.15	(29)
Retail sale of books, newspapers and stationery	0.25	(30)	0.36	(30)	0.12	(30)

[6] Based on data for 2006 for 16 countries where 4-digit NACE data was available at a regional level. The countries are: BE, BG, CH, DK, DE, FI, FR, IE, IS, LT LV, NL, NO, RO, SE and UK.

'Gini', 'Krugman' and 'Thiel' are statistical measures of regional inequality or coefficients of variation.

About the European Cluster Observatory

The European Cluster Observatory, launched in June 2007, is the most comprehensive database on clusters, cluster organisations, and cluster reports in Europe. It is managed by the Center for Strategy and Competitiveness (CSC) at the Stockholm School of Economics and funded by the European Commission's Directorate General for Enterprise and Industry.

The European Cluster Observatory website provides a wide variety of data on clusters in Europe, and is focused on the following issues:

- Cluster Mapping providing information on 38 cluster categories in 259 NUTS II regions
- Information, maps and lists of regional or local private-public partnerships focused on cluster improvements
- Providing reports on national and regional cluster policies and programmes
- Providing detailed knowledge thorough publishing Observatory reports, cluster case studies and other cluster-related documents

In 2009, the Observatory entered the second phase of development bringing new features and introducing a collaboration platform for cluster organisations and SMEs.

Please visit the European Cluster Observatory at www.clusterobservatory.eu.

Priority Sector Report: Creative and Cultural Industries – Methodological Appendix

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March 2010 – deliverable D9-1

Conceptual definition

This report is about both the 'creative industries' and the 'cultural industries' over which there has been considerable debate. This report will not try to summarize or repeat these debates. There is an extensive literature that gives more detailed accounts of the various terms and debates related to creative and cultural industries: (Caves 2000; Scott 2000; Hesmondhalgh 2002; Power 2002; Power and Scott 2004; Pratt 2005; Fleming 2007; Galloway and Dunlop 2007; Kolmodin, Pelli, Bager-Sjögren et al. 2008; Nielsen 2008; Jeffcutt and Pratt 2009; Mato 2009; Miller 2009; Power 2009). However, whilst each term has a separate heritage and legacy they share much. In industrial policy and analysis both these terms share a common concern with industries that have often been marginalized from economic and industrial analysis and policy. In particular both terms share a focus on industries such as film, art, design, music etc. that have largely been treated as issues for cultural policy and debate but are now recognized as important economic fields in their own right. The terms have been used in many ways but are usually thought to signify industries that deal with the following activity areas:

- Advertising
- Architecture
- Broadcast media
- Design - Fashion design, graphic design, interior design, product design
- Gaming software, new media
- Film
- The "finer" arts – literary, visual and performance arts
- Libraries, museums, heritage

- Music
- Photography
- Print media
- Object d'art - Glass, ceramics, cutlery, crafts, jewelry

Moreover these industries, rightly or wrongly, are suggested to share something that makes treating them as interlinked or similar meaningful and worthwhile. Both terms attempt to group together diverse sectors or industries that (a) have previously been seen as marginal to economic and industrial concerns or primarily cultural, and (b) that despite their obvious diversity seem to be similar, interlinked or interdependent.

The main difference between different concepts within this area is that they tend to either place importance on outputs or on inputs and process.

Concepts such as 'cultural industries', 'copyright industries' and 'content industries' tend to define industries for inclusion by reference to their principal outputs or core products. Definitions of this type emphasis the idea that industries for inclusion are those concerned in one way or another with the creation of products whose value rests primarily on their symbolic or aesthetic content and the ways in which the products stimulate the experiential reactions of consumers. In many cases the outputs of these industries are partly defined by the fact that they are intellectual property and in particular intellectual property subject to copyright. Copyright is one of the main branches of intellectual property and applies to "every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression" (Article 2, Berne Convention for the Protection of Literary and Artistic Works). Literary and artistic works are outputs based on original work of authorship and include books, music, plays, choreography, photography, films, paintings, sculptures, compute programs and databases (WIPO 2003).

Concepts such as 'creative industries' define industries for inclusion on the basis of the types of inputs and generative processes that characterize their core value creation. The idea of creative industries stresses the centrality of creativity - mental and social processes involving the discovery of new ideas, concepts or associations – to how firms and workers come up with and commercialize products. The types of products offered by creative industries can be both valued in their own right or valued as knowledge-based services. The range of industries, inputs and outputs of these activities makes viewing them as either a service sector or a producer sector impossible. Indeed firms in certain of these industries might be simultaneously engaged in both service provision and their own proprietary products. The stress on creative inputs and working processes means that the term can be interpreted as wider in scope than terms that stress cultural outputs: culture need not be particularly new to have profound value. However, as the Lisbon Treaty recognizes, culture as crucially related to and often an essential catalyst for creativity.

It is fair to say that there has been considerable conceptual confusion and debate over these terms. Equally it is also fair to say that despite differences there is considerable overlap when considering which industries are involved with creative and cultural outputs and those that are concerned with creative inputs and processes. In this sector priority report we have counted on a certain level of interchangeability between the two terms. This means that we use the terms interchangeably but also that we see them as conceptually linked and similar. Indeed given policy and academic debates in the area it is practical to talk of 'creative and cultural industries'.

For the purposes of this report we use the following definition of creative and cultural industries: those concerned with the creation and provision of marketable outputs (goods, services and activities) that depend on creative and cultural inputs for their value.

This definition shares much in common with the combination of creative and cultural industries certain European countries have adopted:

> "The Conference of German Ministers of Economic Affairs has defined culture and creative industries in the following way: Culture and creative industries comprise of all cultural and creative enterprises that are mainly market-oriented and deal with the creation, production, distribution and/or dissemination through the media of cultural/creative goods and services. The most important defining criterion is the market-orientation of the enterprises. This set of enterprises includes all market-oriented companies that are financed through the market, liable to pay turnover taxes or simply all those that want to earn money with art, culture and creativity." (Söndermann, Backes, Arndt et al. 2009, p. 20)

Lastly we take an industrial and innovation systems perspective to these industries. Inspired by the work of Michael Porter (Porter 1990) we include not just core creative or cultural talent but also broader supporting and related industries that are essential to the commercialization of creative and cultural products. For example in our definition the competitiveness of the book industry is not just defined by the creative talent of the author but also by the printers, accountants, publishers and specialist book shops involved in a book's value chain. Since this report is focused on clusters and competitiveness in the creative and cultural industries we use an industrial systems approach and do not only concentrate on the act of creation itself.

Statistical definition

For the purposes of this Cluster Observatory report we have developed a new statistical definition of creative and cultural industries. As discussed above this new reflects both the creative industries idea as well cultural industries ideas. Our original intention was not to develop a new definition or add to the long list of available alternative methodologies. Our original intention was to use one of the existing approaches and apply it to the data and regions the Cluster Observatory includes. However, it became apparent that none of the available methodologies was suitable for use with cross-national comparative data. Using an off-the-shelf definition originally designed for specific national contexts may give unreliable results when used for all European countries. Additionally there are transparency issues with certain definitions meaning that we could not fully verify and replicate their methodologies.

In developing a new statistical definition our ambition has not been to reinvent the wheel but rather to develop a statistically operational definition that builds on the work and ideas of existing definitions whilst erring on the side of caution and not attempting to include everything.

Considerable work has gone into finding a definition of the creative and cultural industries that is statistically operational at a pan-European level. Existing definitions are seldom appropriate to cross national or comparative levels of analysis since they tend to utilize more specific national statistical measures and contexts. Thus the primary definition used in the report is one developed by the authors for the purposes of cross-national comparison, with a specific view to analysis at NUTS2 regional levels using four digit level standard industrial classifications. The definition was informed by our conceptual understanding of the cultural and creative industries (see above). Moreover the definition attempts to incorporate common elements of other prominent definitions. This means that the definition builds upon comparison of the statistical categories used in a number of prominent international measures for creative, content and cultural industries.

The operational definition we developed was - largely due to data collection issues - based on standard industrial classifications: in particular the standard industrial Classification of Economic Activities in the European Community NACE Revision 1.1. It is essential note that we use NACE Revision 1.1 only in this report due to the time series of the data we aimed to treat. NACE coding has been revised since and the new revision includes new codes and classifications that allow for much more accurate definition of creative and cultural industries: codes that will be used in future analyses.

In the statistical definition used for this report we started out by only including those codes that several other definitions included: i.e. NACE Rev.1.1 and equivalent codes that several other definitions use. In other words we tried to find a minimal commonly held definition that reflected available definitions whilst remaining true to the concept of creative and cultural industries we hold. The other statistical definitions and code classifications we primarily used and compared in designing our own operational definition were:

- Department Culture Media and Sport [UK] (1998). *Creative industries mapping document*. London, DCMS.
- Department for Culture, Media and Sport and Department of Environment Transport and Regions, [UK] (2000). *Creative Industries: the regional dimension. The report of the Regional Issues Working Group*. London, DCMS.
- Department Culture Media and Sport [UK] (2009). Creative Industries Economic Estimates Statistical Bulletin January 2009. London, DCMS.
- European Commission Directorate-General for Education and Culture (2006). *The Economy of Culture in Europe.* Report prepared by KEA European Affairs, Media Group - Turku School of Economic and Business Administration, MKW Wirtschaftsforschung GMbH. Brussels.
- Frontier Economics (2007). *Creative industry performance. A statistical analysis for the DCMS*. London, Frontier Economics Ltd.

- Geppert, J. and P. Geppert (2008). La Valeur Economique de la Culture dans la Province du Limbourg et ses Régions Voisines - Rapport 2008. Maastricht, MKW Wirtschaftsforschung GmbH, Sarrebruck comissioned by Gouvernement de la Province du Limbourg (Pays-Bas).
- Heng, T., A. Choo, T. Ho (2003). *Economic Contributions of Singapore's Creative Industries. Economic Survey Of Singapore First Quarter 2003*. Singapore, Creative Industries Strategy Group Ministry of Information, Communications and the Arts, Economics Division Ministry of Trade and Industry.
- Myndigheten för tillväxtpolitiska utvärderingar och analyser [Swedish Agency for Growth Policy Evaluations and Analyses] (2009). *Kulturnäringar i svensk statistik Dnr 2009/054*. Östersund, Myndigheten för tillväxtpolitiska utvärderingar och analyser.
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- Söndermann, M., C. Backes, O. Arndt and D. Brünink (2009). Culture and Creative Industries in Germany - Research Report. Initiative Culture and Creative Industries of the German Federal Government. Cologne, Bremen, Berlin, Federal Ministry of Economics and Technology and Federal Government Commissioner for Culture and the Media.
- Söndermann, M., C. Backes, O. Arndt and D. Brünink (2009). *Final Report: Culture and Creative Industries in Germany Defining the Common Characteristics of the Heterogeneous Core Branches of the "Cultural Industries" from a Macro-economic Perspective*. Cologne, Bremen, Berlin, Bundesministerium für Wirtschaft und Technologie.
- UNESCO Institute for Statistics (2008). The 2009 UNESCO Framework For Cultural Statistics: Draft. Montreal, UNESCO Institute for Statistics.
- WIPO (2003). Guide on Surveying the Economic Contribution of the Copyright-Based Industries. Geneva, World Intellectual Property Organisation.

A pilot statistical definition was developed and all the measures and operations presented in this report were produced in preliminary form using the pilot definition. The preliminary results and methodology were presented at the expert workshop entitled "Towards a Pan-European initiative in support of innovative creative industries in Europe" organized by the European Commission's Enterprise and Industry Directorate General in cooperation with the City of Amsterdam, the European

Design Centre, the Association of Dutch Designers and IIP Create in Amsterdam, 4–5 February 2010. Detailed was obtained during the workshop from prominent European experts in the field. In addition to the workshop a small working group gave very detailed feedback on the statistical methodology, they included:

- Hasan Bakshi, National Endowment for Science, Technology and the Arts (NESTA), London
- Rahel Falk, WIFO – Austrian Institute for Economic Research, Vienna
- Maya Jolles, DG ENTR.B4 - Economic Analysis and Evaluation
- Mette Koefoed Quinn, DG ENTR.D2 - Support for Innovation
- Carsten Schierenbeck, DG ENTR.D2 - Support for Innovation
- Michael Söndermann, Office of Cultural Industries Research, Cologne

The valuable feedback and recommendations from this group and workshop resulted in direct changes to our methodology.

It is important to note that whilst in theory we would like to have developed a definition that included all stages of the value and commodity chains that characterize these industries we have opted to largely exclude retail and related manufacturing activities. Statistics based on NACE Rev.1.1 are not sufficiently disaggregated to distinguish, for instance, cultural industries retail outlets from other types of retail, or to separate the related manufacturing processes behind fashion clothing from the general clothing and textile industries.

In our selection of codes we have erred on the side of caution and minimalism. In particular we have not included a number of codes that other definitions include a proportion or part of. Whilst many of these codes include firms that are undoubtedly central to the creative and cultural industries it is difficult to use them accurately for cross-national comparison. For example we did not include code 74.20 (Architectural and engineering activities and related technical consultancy). We agree that architecture as a service industry is undoubtedly a core part of the creative and cultural industries but the code in this revision of NACE covers architecture as well as a wide variety of engineering and construction industry firms. Some studies that have used this code have only used a proportion of those firms involved – for instance, the UK DCMS studies included only 16.1% of firms registered under code 74.20. However, it is extremely problematic to suggest that the same percentage applies in all 30 countries in our study: in some countries it may be substantially more or less.

In order to avoid inaccuracies we have excluded a number of codes that are commonly included on a proportional basis even though many reports have suggested as being core to definitions:

- 17.7 Manufacture of knitted and crocheted articles
- 18.1 Manufacture of leather clothes
- 18.10 Manufacture of leather clothes
- 18.2 Manufacture of other wearing apparel and accessories
- 18.22 Manufacture of other outerwear

- 18.23 Manufacture of underwear
- 18.24 Manufacture of other wearing apparel and accessories n.e.c.
- 18.30 Dressing and dyeing of fur; manufacture of articles of fur
- 19.30 Manufacture of footwear
- 74.87 Other business activities n.e.c.
- 52.48 Other retail sale in specialized stores
- 52.50 Retail sale of second-hand goods in stores
- 71.40 Renting of personal and household goods n.e.c.
- 74.20 Architectural and engineering activities and related technical consultancy
- 92.72 Other recreational activities n.e.c.

The exclusion of the above codes means in particular that the fashion industry is significantly under-represented in our study; despite the fact that fashion industry's competitive advantage rests upon products defined by their creative and cultural content.

In order to ground our definition and to show how important the exact definition used can be we also prepared figures for two other definitions that have attracted considerable attention in the field. The first of these was developed for the European Commission (Directorate-General for Education and Culture) 2006 report 'The Cultural Economy of Europe' (CEOE); the authors of that report were KEA European Affairs, Media Group - Turku School of Economic and Business Administration, and MKW Wirtschaftsforschung GMbH. The NACE codes used for the 'Cultural Economy of Europe' (CEOE) definition are from pages 308-311 of that report.

The other definition we use is that developed by the World Intellectual Property Organization (WIPO 2003). In particular we used the coding and definition contained in "ANNEX III European Classification Codes, Corresponding to some of the Copyright-Based Industries" (p. 91). This sets out the NACE Rev.1.1 codes which WIPO suggests best approximates what they call 'core and interdependent copyright industries':

- Press and literature
- Music, theatrical productions, operas
- Motion picture and video
- Radio and television
- Photography
- Software and databases
- Visual and graphic arts
- Advertising services
- Copyright collective management societies

The following table shows the NACE Rev.1.1 codes used in each definition and used in our analysis. The codes we have used in this report are labeled 'CCI'.

Code	Description	CCI	CEOE	WIPO
17.1	Preparation and spinning of textile fibres		✓	
17.11	Preparation and spinning of cotton-type fibres		✓	
17.12	Preparation and spinning of woollen-type fibres		✓	
17.13	Preparation and spinning of worsted-type fibres		✓	
17.14	Preparation and spinning of flax-type fibres		✓	
17.15	Throwing and preparation of silk, including from noils, and throwing and texturing of synthetic or artificial filament yarns		✓	
17.16	Manufacture of sewing threads		✓	
17.17	Preparation and spinning of other textile fibres		✓	
17.2	Textile weaving		✓	
17.21	Cotton-type weaving		✓	
17.22	Woollen-type weaving		✓	
17.23	Worsted-type weaving		✓	
17.24	Silk-type weaving		✓	
17.25	Other textile weaving		✓	
17.3	Finishing of textiles		✓	
17.30	Finishing of textiles		✓	
17.4	Manufacture of made-up textile articles, except apparel		✓	
17.40	Manufacture of made-up textile articles, except apparel		✓	
17.5	Manufacture of other textiles		✓	
17.51	Manufacture of carpets and rugs		✓	
17.52	Manufacture of cordage, rope, twine and netting		✓	
17.53	Manufacture of non-wovens and articles made from non-wovens, except apparel		✓	
17.54	Manufacture of other textiles n.e.c.		✓	
17.6	Manufacture of knitted and crocheted fabrics		✓	
17.60	Manufacture of knitted and crocheted fabrics		✓	
17.7	Manufacture of knitted and crocheted articles		✓	
17.71	Manufacture of knitted and crocheted hosiery		✓	
17.72	Manufacture of knitted and crocheted pullovers, cardigans and similar articles		✓	
18.1	Manufacture of leather clothes		✓	
18.10	Manufacture of leather clothes		✓	
18.2	Manufacture of other wearing apparel and accessories		✓	
18.21	Manufacture of workwear		✓	
18.22	Manufacture of other outerwear		✓	
18.23	Manufacture of underwear		✓	
18.24	Manufacture of other wearing apparel and accessories n.e.c.		✓	
18.3	Dressing and dyeing of fur; manufacture of articles of fur		✓	
18.30	Dressing and dyeing of fur; manufacture of articles of fur		✓	
19.3	Manufacture of footwear		✓	
19.30	Manufacture of footwear		✓	
22.11	Publishing of books	✓	✓	✓
22.12	Publishing of newspapers	✓	✓	✓
22.13	Publishing of journals and periodicals	✓	✓	✓
22.14	Publishing of sound recordings	✓	✓	✓
22.15	Other publishing	✓		✓

22.21	Printing of newspapers	✓		✓
22.22	Printing n.e.c.	✓	✓	✓
22.23	Bookbinding	✓		✓
22.24	Pre-press activities	✓		✓
22.25	Ancillary activities related to printing	✓	✓	✓
22.31	Reproduction of sound recording	✓		✓
22.32	Reproduction of video recording	✓		✓
22.33	Reproduction of computer media	✓		✓
24.65	Manufacture of prepared unrecorded media	✓		✓
26.24	Manufacture of other technical ceramic products		✓	
30.02	Manufacture of computers and other information processing equipment			✓
32.30	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods			✓
33.20	Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment			✓
36.30	Manufacture of musical instruments	✓		✓
51.16	Agents involved in the sale of textiles, clothing, footwear and leather goods		✓	
51.41	Wholesale of textiles		✓	
51.42	Wholesale of clothing and footwear		✓	
51.47	Wholesale of other household goods		✓	
52.12	Other retail sale in non-specialized stores		✓	
52.47	Retail sale of books, newspapers and stationery	✓	✓	
52.48	Other retail sale in specialized stores		✓	
52.61	Retail sale via mail order houses		✓	
64.20	Telecommunications		✓	✓
70.20	Letting of own property		✓	
71.40	Renting of personal and household goods n.e.c.		✓	
72.21	Publishing of software	✓	✓	✓
72.22	Other software consultancy and supply	✓	✓	✓
72.3	Data processing			✓
72.40	Database activities			✓
74.20	Architectural and engineering activities and related technical consultancy		✓	
74.40	Advertising	✓	✓	✓
74.81	Photographic activities	✓	✓	
74.87	Other business activities n.e.c.		✓	
92.11	Motion picture and video production	✓	✓	✓
92.12	Motion picture and video distribution	✓	✓	✓
92.13	Motion picture projection	✓	✓	✓
92.20	Radio and television activities	✓	✓	✓
92.31	Artistic and literary creation and interpretation	✓	✓	✓
92.32	Operation of arts facilities	✓	✓	✓
92.33	Fair and amusement park activities			
92.34	Other entertainment activities n.e.c.	✓	✓	
92.40	News agency activities	✓	✓	✓
92.51	Library and archives activities	✓	✓	✓
92.52	Museums activities and preservation of historical sites and buildings	✓	✓	
93.05	Other service activities n.e.c.		✓	

The importance of definitions can be seen in the Table below which shows how employment figures and focus measures for Europe look for each definition.

	CCI		CEOE unfiltered		WIPO	
	Employment	Focus	Employment	Focus	Employment	Focus
Europe	6,576,558	2.71%	17,921,109	7.56%	6,805,181	2.87%

The figure of nearly 18 million employees the CEOE definition generates is in stark contrast to the figure of 5.8 million employees in 2003 the CEOE report presented. The figures presented in the CEOE report were based on NACE codes but data was heavily filtered using supplementary business register data. Thus it is important to understand that: different operationalizations of similar conceptual terms can generate very different figures; the methods by which data is treated and filtered have crucial implications. For these reasons we have chosen to err on the side of caution with the operational definition used in this report and avoid the inclusion of codes where significant levels of proportional and supplementary data filtering is needed.

Data

The data used for this report came from The European Cluster Observatory Cluster Mapping Database. The Cluster Mapping database is built in the intersection of regions and sectors in Europe. By combining the two dimensions of geography and industry it is possible to statistically trace regional agglomerations of employment, defined as statistical regional clusters, across Europe.

The geographical dimension is operationalised through 259 regions, predominantly NUTS 2 regions, which the EU has uses to subdivide member countries for statistical purposes. We use NUTS 1 regions for Belgium, Greece, Netherlands and Turkey so that the size of the regions both in terms of land area and employment are reasonably comparable. NUTS 1 is also used for Ireland due to data availability.

On the sectoral side employment data on the 4-digit industry level (and in a few cases 3-digit data) is used. Unfortunately, no comparable data exists for wages, value added, or productivity at the level of regions and detailed industries. Instead we have used Regional Innovation Statistics (not separated by cluster category) to differentiate between regional clusters in high innovation environments from clusters in low innovation environments. Added to this, we have used national export data classified by cluster category (not separated by region) to separate out regional clusters in high export national environments from clusters in low export national environments.

It is important to note that the employment data used in the report is exactly that: data on employees. The resulting numbers do not therefore include sole-traders or freelancers who are not also full-time employed. Given that there are extremely high rates of sole trader activity the numbers under-represent the true numbers of people actively working in creative and cultural industries. However, concentrating on employees (rather than all 'workers') is important since firms' taking on employees is central to the spread of economic growth and knowledge.

The data used was collected between December 2006 and June 2007. Each data point is coded by the "batch number" for traceability (e.g. to determine the name of the person who supplied the data, contact information and date of transfer) and "source code" for methodological purposes (data collection methodology, measurements explanations, reference period, etc). The following table lists the sources for the data used in this report:

Country	Institution	Method	NACE Level
Austria	Eurostat, Luxembourg	Labour Force Survey	3
Austria	Statistics Austria	Structural Business Survey	4
Belgium	National Office of Social Security, Belgium	Business survey	4
Bulgaria	National Statistical Institute, Bulgaria	Enterprise survey	4
Croatia	Eurostat, Luxembourg	Labour Force Survey	3
Cyprus	Statistical Service of Cyprus	Business Register Survey	3
Czech Republic	Eurostat, Luxembourg	Labour Force Survey	3
Denmark	Statistics Denmark	Register-based labour force statistics	4
Estonia	Eurostat, Luxembourg	Labour Force Survey	3
Estonia	Eurostat, Luxembourg	Structural Business Statistics	4
Finland	Statistic Finland	Labour Force Survey	4
France	INSEE, France	DADS	4
Germany	Statistik der Bundesagentur fur Arbeit, Germany	Employment statistics	4
Greece	National Statistical Service of Greece	Labour Force Survey	3
Hungary	Eurostat, Luxembourg	Labour Force Survey	3
Iceland	Statistics Iceland	Pay As You Earn register	4
Ireland	Central Statistics Office, Ireland	Quarterly National Household Survey	2
Ireland	Eurostat, Luxembourg	Structural Business Statistics	4
Italy	Eurostat, Luxembourg	Labour Force Survey	3
Latvia	Central Statistical Bureau of Latvia	Survey of enterprises and institutions	4
Lithuania	Statistics Lithuania	Structural Business Survey	4
Luxembourg	Eurostat, Luxembourg	Labour Force Survey	3
Malta	Eurostat, Luxembourg	Labour Force Survey	3
Netherlands	Eurostat, Luxembourg	Labour Force Survey	3
Norway	Statistics Norway	Structural Business Statistics	4
Poland	Central Statistical Office of Poland	Form Z6	4
Portugal	Statistics Portugal	Integrated business accounts system	4
Romania	Eurostat, Luxembourg	Labour Force Survey	3
Slovakia	Eurostat, Luxembourg	Labour Force Survey	3
Slovenia	Statistical Office of Slovenia	Enterprise survey	4
Spain	Eurostat, Luxembourg	Labour Force Survey	3

Sweden	Statistiska Centralbyran, Sweden	Register-based Labour Market Statistics	4
Switzlerland	Swiss Statistics	Census of Swiss enterprises	4
Turkey	Turkish Statistical Institute	General Census of Industry and Business Establishments	4
United Kingdom	Department of Enterprise, Trade and Innovation of Northern Ireland	Census of Employment	4
United Kingdom	Office for National Statistics of United Kingdom	Annual Business Inquiry	4

EU employment data is collected from two different sources: from the Labour Force Survey (LFS) and from the Structural Business Statistics (SBS), both administrated by Eurostat. LFS is a quarterly survey given to a sample of the population living in private households. The LFS includes data on at most 3-digit NACE level for most, but not all, NUTS 2 regions. SBS statistics is mainly sourced from business registers and includes structural data over the economy. On NUTS 2 regional level Eurostat only administers data on NACE 2 digit level. 4 digit level data are collected on national level, but not for all NACE categories. The 4 digit level is in turn available for NUTS 1 regions (countries) but not for NUTS 2 regions. In many cases more detailed data has been obtained from National Statistical Offices, but Eurostat still remains the main source for Italy, Spain, Czech Republic and Romania.

In the countries where more than one source was used (Austria, Estonia and Ireland), the different sources were used only for different sections of the NACE classification, i.e. a code from one classification could not have a parent from another. This was done to combine the data from Structural Business Statistics, which is available on NACE 4-digit level, with 3-digit data from Labour Force Survey for the sections not covered in SBS (e.g. agriculture, public sector, education). There also are two sources in the United Kingdom because Northern Ireland has a separate statistical office.

Due to heterogeneity of the data a number of steps were required to harmonize the data to the level where it can be matched with cluster definitions. The main portion of this process was bringing the whole dataset to NACE 4-digit level by splitting the data from higher levels of aggregation when not available.

It is important to note that despite every effort being made to ensure accuracy, time series data is not fully reliable for every region. This is mainly due to changes to collection methodologies during the time series but also to artifacts from the processing of data in countries where only 3-digit data was available.

Industry splitting algorithm

The data were processed on the same regional division level as they were reported, which corresponds to NUTS 2 regions for all countries except for Ireland, where the data were only available for Ireland as a whole (Ireland is composed of two NUTS 2 regions). Initial processing was also done only for the years for which the data were reported.

The algorithm used for data harmonization works in the following way:

1. The script checks for availability of employment data for each combination of year, region and NACE 4-digit industry (for years/regions where at least some data was available).

2. If the data is present, it moves to the next combination.

3. If the data cell is blank, it searches for all the parent industries of the one that is missing until it finds a value. If all the parent industries are missing, the cell is left blank.

4. When a value is found, the script goes on to determine all the children (and sub-children) of the parent industry that are at the cluster definition level (i.e. NACE 4-digit) and have no intermediate industries that are available. The script than calculates the sum of all the cells that are already available within the given parent, deducts this sum from the value of the parent cell and then splits the result equally between the children determined previously.

This method helped us not only to transform the data that we had only on NACE 3-digit level but also allowed us to use the data on multiple levels for the same country. This was particularly valuable with countries like United Kingdom that provides data on all NACE levels but the less aggregated the data is the more values are withheld due to confidentiality.

There are certainly drawbacks to this method. One drawback lies in the fact that the splits are done equally among all the target industries. However, in most of the cases the split is close to reality, especially in the countries with NACE 4-digit coverage where normally only very small values are withheld (e.g. when less than ten people are employed in the industry). Some clusters, especially small ones that are composed of NACE 4-digit industries from different sections, are more prone to errors than the others.

Regional Units and Aggregation

Geographic regional data is used in the report and is reliant on geographical units defined according to the NUTS system, a nomenclature of territorial units for statistics. As a hierarchical classification, the NUTS system subdivides each EU member country into NUTS 1 regions, each of which is in turn subdivided into NUTS 2 regions. The EU has been divided into a total of 254 NUTS 2 regions. The different criteria used for subdividing national territory into regions are normally split by normative and analytical criteria. Normative regions are the expression of a political will: their limits are fixed according to the tasks allocated to the territorial communities, according to the sizes of population necessary to carry out these tasks efficiently and economically, and according to historical, cultural and other factors. Analytical (or functional) regions are defined according to analytical requirements; they group together zones using geographical criteria (e.g., altitude or type of soil) or using socio-economic criteria (e.g., homogeneity, complementarity or polarity of regional economies).

NUTS2 regions have been used throughout the study. In certain cases it was necessary to make regional aggregations. This table depicts the way in which aggregations have been made in certain cases and the reasons for aggregation in each particular case.

Original Region	Original Region Name	Modified Region	Modified Region Name
Belgium - Aggregated to NUTS1 due to very small land area of NUTS2 regions			
NUTS-BE10	Brussels	NUTS-BE1	Brussels
NUTS-BE21	Prov. Antwerpen	NUTS-BE2	Vlaams Gewest
NUTS-BE22	Prov. Limburg (B)	NUTS-BE2	Vlaams Gewest
NUTS-BE23	Prov. Oost-Vlaanderen	NUTS-BE2	Vlaams Gewest
NUTS-BE24	Prov. Vlaams-Brabant	NUTS-BE2	Vlaams Gewest
NUTS-BE25	Prov. West-Vlaanderen	NUTS-BE2	Vlaams Gewest
NUTS-BE31	Prov. Brabant Wallon	NUTS-BE3	Région Wallonne
NUTS-BE32	Prov. Hainaut	NUTS-BE3	Région Wallonne
NUTS-BE33	Prov. Liège	NUTS-BE3	Région Wallonne
NUTS-BE34	Prov. Luxembourg (B)	NUTS-BE3	Région Wallonne
NUTS-BE35	Prov. Namur	NUTS-BE3	Région Wallonne
Germany - NUTS2 codes changes in 2004			
NUTS-DE40	Brandenburg	NUTS-DE4	Brandenburg
NUTS-DE41	Brandenburg - Nordost	NUTS-DE4	Brandenburg
NUTS-DE42	Brandenburg - Südwest	NUTS-DE4	Brandenburg
Spain - African territories merged with the mainland			
NUTS-ES63	Ciudad Autónoma de Ceuta	NUTS-ES61	Andalucía
NUTS-ES64	Ciudad Autónoma de Melilla	NUTS-ES61	Andalucía
Finland - Minor islands merged with the mainland			
NUTS-FI20	Åland	NUTS-FI18	Etelä-Suomi
France - Overseas possessions removed			
NUTS-FR91	Guadeloupe		
NUTS-FR92	Martinique		
NUTS-FR93	Guyane		
NUTS-FR94	Réunion		
Greece - Aggregated to NUTS1 due to very small population of NUTS2 regions			
NUTS-GR11	Anatoliki Makedonia, Thraki	NUTS-GR1	Voreia Ellada
NUTS-GR12	Kentriki Makedonia	NUTS-GR1	Voreia Ellada
NUTS-GR13	Dytiki Makedonia	NUTS-GR1	Voreia Ellada
NUTS-GR14	Thessalia	NUTS-GR1	Voreia Ellada
NUTS-GR21	Ipeiros	NUTS-GR2	Kentriki Ellada
NUTS-GR22	Ionia Nisia	NUTS-GR2	Kentriki Ellada
NUTS-GR23	Dytiki Ellada	NUTS-GR2	Kentriki Ellada
NUTS-GR24	Sterea Ellada	NUTS-GR2	Kentriki Ellada
NUTS-GR25	Peloponnisos	NUTS-GR2	Kentriki Ellada
NUTS-GR30	Attiki	NUTS-GR3	Attiki
NUTS-GR41	Voreio Aigaio	NUTS-GR4	Nisia Aigaiou, Kriti
NUTS-GR42	Notio Aigaio	NUTS-GR4	Nisia Aigaiou, Kriti
NUTS-GR43	Kriti	NUTS-GR4	Nisia Aigaiou, Kriti
Ireland - Aggregated to NUTS1 due to unavailability of data for NUTS2			
NUTS-IE01	Border, Midland and Western	NUTS-IE0	Ireland
NUTS-IE02	Southern and Eastern	NUTS-IE0	Ireland

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About the European Cluster Observatory

The European Cluster Observatory, launched in June 2007, is the most comprehensive database on clusters, cluster organisations, and cluster reports in Europe. It is managed by the Center for Strategy and Competitiveness (CSC) at the Stockholm School of Economics and funded by the European Commission's Directorate General for Enterprise and Industry.

The European Cluster Observatory website provides a wide variety of data on clusters in Europe, and is focused on the following issues:

- Cluster Mapping providing information on 38 cluster categories in 259 NUTS II regions
- Information, maps and lists of regional or local private-public partnerships focused on cluster improvements
- Providing reports on national and regional cluster policies and programmes;
- Providing detailed knowledge thorough publishing Observatory reports, cluster case studies and other cluster-related documents

In 2009, the Observatory entered the second phase of development bringing new features and introducing a collaboration platform for cluster organisations and SMEs.

Please visit the European Cluster Observatory at www.clusterobservatory.eu.

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