EUROPA INNOVA PAPER N° 16

The European Cluster Observatory

Priority Sector Report: Creative and Cultural Industries

European Commission
Enterprise and Industry

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The European Cluster Observatory
Priority Sector Report: Creative and Cultural Industries

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this report is an extension of and update to the earlier Priority Sector Report
(authored by Tobias Nielsén and Dominic Power)

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Contents

Executive summary

- In 2009, creative and cultural industries firms employed a total of 6.4 million persons in 30 European countries.
- 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, Madrid, Barcelona and Rome.
- The creative and cultural industries are significant generators of intellectual property, in particular copyrights. Regions strong in these industries also tend to have higher levels of patenting.
- 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: Amsterdam (Noord-Holland), Berlin, Frankfurt (Darmstadt), Brighton (Surrey, E and W Sussex), Budapest (Kozep-Magyarorszag), The Hague (Zuid-Holland), Lisbon, Inner London, Oxford (Berks, Bucks and Oxon), and Stockholm.
- As a share of the regional labour market, creative and cultural industries account for the largest shares in Stockholm, Prague, London and Rome.
- Most of the regions in the top 25 highest cultural and creative growth regions are small and medium sized regions.
- The highest annual employment growth rates in the period 2003/4-2008/9 are found in Cyprus 25.79%, Slovakia 25.60%, Estonia 11.48%, Latvia 9.78%
- 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 2009 employed a total of **6 442 410 persons** in the 30 European countries included in this report.

This report presents regionalised data and trends for these 6.4 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 2009 was presently 76 795 out of a total of 92 707 creative and cultural industries establishments: i.e. Sweden 82.3% of establishments are not covered by employment statistics compared to 73.7% in the overall Swedish economy.

It is hoped that the indicators presented in this report can help stimulate debate and policy supportive of a group of activities and industries that offer a "huge potential to contribute to the transformation of European society, responding to major social, demographical and environmental challenges and leading to a more sustainable and smarter economy within the EU 2020 strategy. Yet, the combined cultural and economic potential of these dynamic industries still remains largely underestimated and untapped."[2]

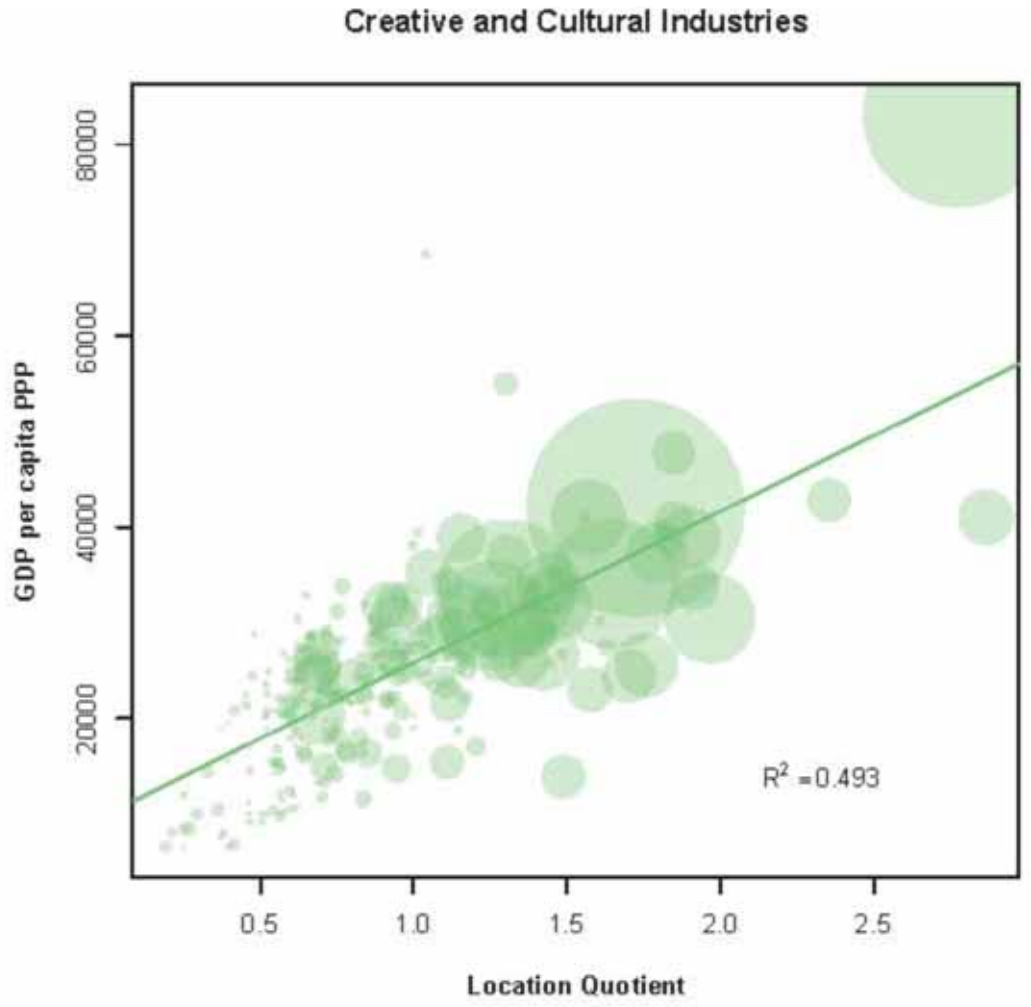
1 An extensive methodological appendix to this report goes into detail in how we have defined creative and cultural industries and the various measures and data we have used in this report. All figures in this report relate to 2009 unless otherwise stated.

2 EU Commission, DG Enterprise and Industry: *The Amsterdam Declaration,* addressed to regional, national and European policy-makers and adopted by the participants of the workshop "Towards a Pan-European initiative in support of creative industries in Europe" organised by the European Commission's Enterprise & Industry Directorate-General in cooperation with the City of Amsterdam, the European Design Centre, the Association of Dutch Designers and IIP Create, March 2010.

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[3] of Europe's creative and cultural industries employees are generally those where economic prosperity is highest.

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



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.

If we take into account no other factors, regional creative and cultural specialisation explains approximately 50% 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.

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

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 urbanized 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 name	CCI Rank	CCI Employment	CCI LQ
Île de France (Paris), FR	1	279361	1.72
Inner London, UK	2	239983	2.77
Lombardia (Milan), IT	3	175580	1.31
Madrid, ES	4	164269	1.65
Cataluña (Barcelona), ES	5	139278	1.26
Lazio (Rome), IT	6	113531	1.97
Danmark	7	98866	1.17
Oberbayern (München), DE	8	94178	1.57
Attiki (Athens) GR	9	88195	1.47
Outer London, UK	10	86884	1.43
Kozep-Magyarorszag (Budapest), HU	11	79281	1.76
Zuid-Holland, NL	12	78183	1.44
Berks, Bucks and Oxon (Oxford), UK	13	76097	1.90
Noord-Holland (Amsterdam), UK	14	74685	1.80
Andalucía (Sevilla), ES	15	70914	0.68
Köln, DE	16	68825	1.37
Stockholm, SE	17	68212	2.87
Lisboa, PT	18	67929	1.35
Berlin, DE	19	66051	1.70
Veneto, IT	20	61285	0.94
Niedersachsen, DE	21	59486	0.68
Darmstadt (Hanover), DE	22	58965	1.15
Piemonte, IT	23	58068	1.09
Emilia-Romagna, IT	24	58029	0.95
Surrey, E and W Sussex, UK	25	57837	1.40

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, four of the top 25 clusters have lower than average shares of CCI employment: Andalucía, Venito, Niedersachsen and Emilia-Romagna.

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

Region name	Principal City	Population rank	CCI Rank
Île de France, FR	Paris	1	1
Lombardia,IT	Milan	2	3
Andalucía, ES	Sevilla	3	15
Niedersachsen, DE	Hanover	4	21
Cataluña, ES	Barcelona	5	5
Madrid, ES	Madrid	6	4
Rhône-Alpes, FR	Lyon	7	40
Campania, IT	Naples	8	54
Lazio, iT	Rome	9	6
Danmark	–	10	7
Düsseldorf, DE	Düsseldorf	11	26
Mazowieckie, PL	Warszawa	12	39
Sicilia, IT	Palermo	13	72
Valencia, ES	Valencia	14	30
Provence-Alpes-Côte d'Azur, FR	Marseille	15	59
Veneto, IT	Venice	16	20
Slaskie, PL	Katowice	17	138
Outer London, UK	–	18	10
Ireland	–	19	33
Piemonte, IT	Turin	20	23
Köln, DE	Köln	21	16
Oberbayern, DE	München	22	8
Emilia-Romagna, IT	Bologna	23	24
Puglia, IT	Bari	24	78
Attiki, GR	Athens	25	9
Darmstadt, DE	Frankfurt am Main	29	22
Zuid-Holland, NL	The Hague	35	12
Berlin, DE	Berlin	36	19
Inner London, UK	London	43	2
Kozep-Magyarorszag, HU	Budapest	44	11
Lisboa, PT	Lisboa	49	18
Noord-Holland, NL	Amsterdam	54	14
Surrey, E and W Sussex, UK	Brighton	55	25
Berks, Bucks and Oxon, UK	Oxford	79	13
Stockholm, SE	Stockholm	92	17

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: Amsterdam (Noord-Holland), Berlin, Frankfurt (Darmstadt), Brighton (Surrey, E and W Sussex), Budapest (Kozep-Magyarorszag), The Hague (Zuid-Holland), Lisbon, Inner London, Oxford (Berks, Bucks and Oxon), and Stockholm.

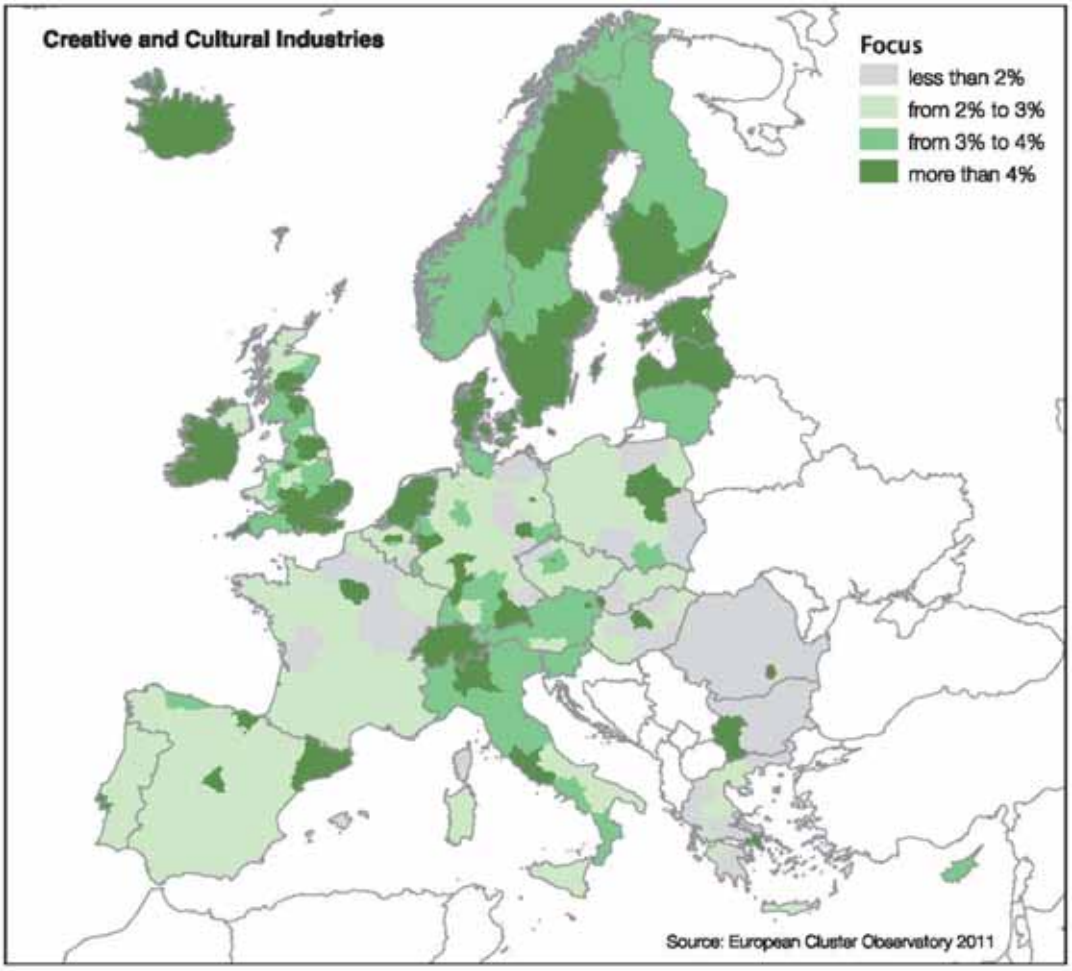
Of the regions with 25 largest populations the following have a far lower than expected representation of creative and cultural industries: Bari (Puglia), Düsseldorf, Ireland, Katowice (Slaskie), Lyon (Rhône-Alpes), Marseille (Provence-Alpes-Côte d'Azur), Naples (Campania), Palermo (Sicilia), Valencia, Warszawa (Mazowieckie).

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 are 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 2009



Of the 15 regions with the highest CCI Focus most are capital city regions. In all but four 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; Italy where Rome has the highest CCI Focus and Milan (Lombardia) is the largest employment centre; the Netherlands where Utrecht has the highest CCI Focus and CCI LQ; and Switzerland where Zurich is the largest employment centre and the highest CCI Focus and CCI LQ.

Table 3. Top 15 regions by CCI Focus.

Region name	CCI Focus	CCI Employment	CCI European Rank	CCI Rank in Nation
Stockholm, SE	10.43	68212	17	1
Inner London, UK	10.09	239983	2	1
Praha, CZ	8.57	52465	34	1
Lazio (Rome), IT	7.16	113531	6	2
Oslo og Akershus, NO	7.10	43104	43	1
Etelä-Suomi/Åland (Helsinki), FI	6.98	57029	27	1
Zürich, CH	6.96	46480	41	1
Berks, Bucks and Oxon (Oxford), UK	6.91	76097	13	3
Hamburg, DE	6.73	51891	35	8
Wien, AT	6.72	47333	38	1
Utrecht, NL	6.65	34125	53	5
Bratislavsky kraj (Bratislava), SK	6.59	19988	90	1
Noord-Holland (Amsterdam), NL	6.53	74685	14	2
Kozep-Magyarorszag (Budapest), HU	6.40	79281	11	1
Île de France (Paris), FR	6.27	279361	1	1

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

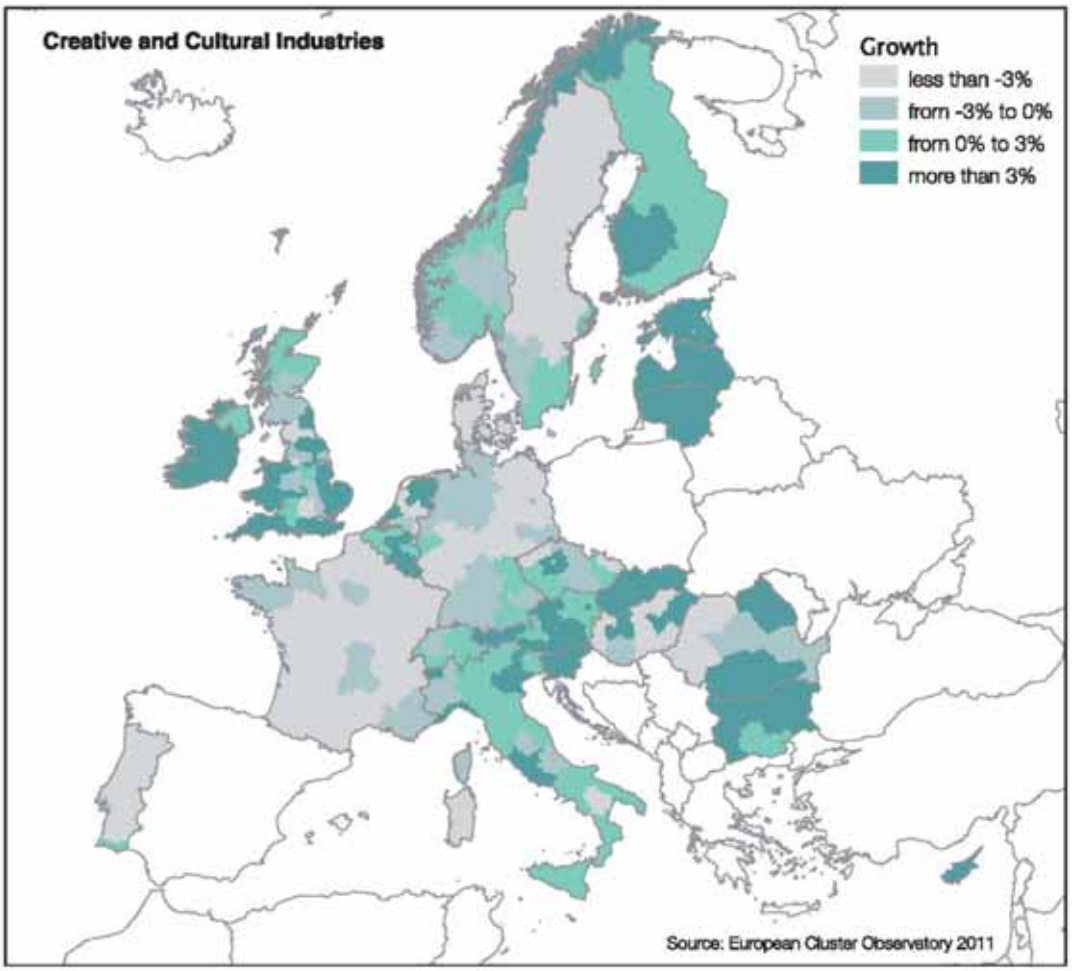
Of the Top 15 CCI Focus regions, three are in Central and Eastern Europe: Prague, Bratislava, and Budapest. The creative and cultural industries have almost the same share of the entire regional labour market (CCI Focus) and levels of overrepresentation (CCI LQ) in Prague as is the case in Inner London. Equally Nordic capital city regions show high levels of activity in the cultural and creative industries.

Even if large regions tend to dominate the cultural and creative industries, the example of Bratislava demonstrates that relatively small European regions can also score highly on industrial specialisation and focus measures. Despite being only the 223rd most populous region in our survey, Bratislava is a region where creative and cultural industries command an unusually high share of regional employment as well as being the 12th highest in Europe by CCI LQ and CCI Focus.

4 Growth

The creative and cultural industries are a sector of the European economy that has exhibited strong long-term growth. However, as the map below shows that growth is not evenly spread over Europe.

Figure 3. Creative and cultural industries average annual growth 2003/4-2008/9.



Note: Growth is measured using compound annual growth rates (CAGR); time series data was not available for all regions (see methodological appendix for details).

In all but 6 of the top 25 CCI growth regions the creative and cultural industries grew at a faster rate than the general growth rate of the regional labour market.

Table 4. Top 25 Regions with the highest average annual growth in CCI employment 2003/4-2008/9.

	CCI CAGR	Total Regional CAGR	LQ	CCI Rank	CCI Employment
Cyprus, CY	25.8%	14.9%	1.07	133	13746
Brabant Wallon, BE	11.6%	3.5%	0.98	247	3782
Eesti, EE	11.5%	7.3%	1.20	86	21275
Latvija, LV	9.8%	2.7%	1.49	32	53217
Wien, AT	7.9%	1.4%	1.85	38	47333
Luxembourg, LU	6.9%	1.9%	1.04	187	8505
Kärnten, AT	6.0%	3.5%	0.80	239	4429
Lietuva, LT	5.0%	4.6%	0.94	57	32971
Luxembourg, BE	4.9%	1.4%	0.39	266	897
Namur, BE	4.7%	1.7%	0.65	253	2729
Oberösterreich, AT	4.5%	3.0%	0.90	120	15332
Vorarlberg, AT	4.4%	2.2%	0.89	244	4018
Steiermark, AT	4.4%	4.6%	0.87	153	10982
Valle d'Aosta, IT	4.1%	1.2%	0.98	262	1575
Lazio, IT	4.0%	3.6%	1.97	6	113531
Tirol, AT	3.6%	5.0%	0.84	200	7396
Limburg, BE	3.6%	2.1%	0.60	225	5404
Liguria, IT	3.4%	2.6%	0.94	113	16451
Slovenija, SI	3.3%	3.2%	0.92	99	18753
Länsi-Suomi, FI	3.3%	4.4%	1.18	121	15301
Vlaams-Brabant, BE	3.1%	2.0%	1.23	123	15176
Ireland, IE	3.0%	6.6%	1.31	33	53195
Veneto, IT	3.0%	1.8%	0.94	20	61285
Itä-Suomi, FI	3.0%	4.1%	0.92	233	4610
Etelä-Suomi/Åland, FI	2.7%	2.9%	1.92	27	57029

Note: Growth is measured using compound annual growth rates (CAGR); time series data was not available for all regions (see methodological appendix for details). 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.

It is striking that 15 of the top 25 growth regions were in the Austria, Belgium or Italy. Austria accounts for 6, Belgium 5, and Italy 4 of the Top 25 CCI Growth regions. The Baltic states of Estonia, Latvia and Lithuania are all in the top 25. Cyprus demonstrated the most exceptionally high growth rate.

Most of the regions in the top 25 highest cultural and creative growth regions are small and medium sized regions. Only 3 regions had a labour market of well over 1 million employees in 2009 and 14 of the regions in the top 25 for annual employment growth had labour markets with under 400000 employees. Many of the fastest growing regions are relatively small and are growing from a lower than average baseline: 15 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.

For those European regions we have growth data for, slightly more regions suffered declines in CCI employment than there were regions that experienced growth: 59 regions grew versus 70 declined.

Indeed growth and contraction are highly regionalised in Europe. This can be seen for instance in the Germany where despite the general picture being one of decline the Berlin region enjoyed 1.9% annual growth in the period. In Italy, despite a general annual CCI growth rate of 1.8% and 4 regions in the Top 25, there were 4 regions that exhibited negative CCI growth rates: Abruzzo -1%, Basilicata -3.5%, Sardegna -3.5% Umbria -1%. Such figures underline the picture of differential regional fortunes and potentially indicate that cultural and creative industry employers and/or employees are highly regionally mobile.

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 the previous Priority Sector Report it was found that during the period 2001-2006 employment in the creative and cultural industries seemed 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. In the period covered by this report, 2003/4-2008/9, the picture was not so clear and a generalised conclusion cannot be made.

During the period, in 11 of the countries we had data for the creative and cultural industries grew at amplified rates to those observed in the rest of the economy. As can be seen from Table 5, in the 10 countries where CCI Growth was highest, overall employment increases in the country are significantly equalled or bettered by creative and cultural industries growth. In the case of Denmark negative overall growth in the whole economy was coupled with significantly higher levels of decline in the creative and cultural industries: as employment in the overall economy turned negative, employment in the creative and cultural industries fell even faster.

However, in 13 of the countries CCI growth either did not match or declined whilst the economy as a whole was experiencing employment growth. This is a reminder that creative and cultural industries cannot be seen simply as cyclically dependent service functions to the rest of the economy and indicates that they are not necessarily dependent upon domestic growth or decline. Employment growth or decline in the cultural and creative industries should not be treated as a simple reflection of national economic cycles and as likely subject to other pressures and stimulants such as industrial restructuring, rates of entrepreneurship and sole-trading, or the extent of freelance working.

Table 5. Average annual employment growth 2003/4-2008/9 in creative and cultural industries and in all sectors of the economy.

	CCI CAGR	Total National CAGR
Cyprus	25.79%	14.92%
Slovakia	25.60%	12.60%
Estonia	11.48%	7.31%
Latvia	9.78%	2.66%
Luxembourg	6.87%	1.94%
Romania	6.70%	0.13%
Austria	5.25%	2.90%
Lithuania	5.01%	4.63%
Bulgaria	4.82%	3.13%
Slovenia	3.34%	3.15%
Ireland	3.04%	6.55%
Finland	2.70%	3.48%
Italy	1.81%	2.25%
United Kingdom	1.40%	1.82%
Netherlands	1.17%	-1.10%
Belgium	1.01%	1.58%
Norway	0.89%	2.28%
Sweden	0.16%	3.01%
Switzerland	-0.27%	0.91%
Germany	-1.49%	0.63%
Czech Republic	-2.55%	1.61%
France	-2.63%	1.80%
Portugal	-3.13%	1.71%
Hungary	-3.57%	0.04%
Denmark	-7.62%	-3.77%
Spain	*	*
Poland	*	*
Greece	*	*
Iceland	*	*
Malta	*	*

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

* Insufficient time series was available for these countries

Smaller countries tend to have a higher CCI Focus than large countries. As Table 6 shows, of the 10 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 with their own language, cultural heritage and specificity find substitutes 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.

	CCI Focus	CCI Employment	CCI LQ
Sweden	7.30	151143	2.01
Finland	6.05	81818	1.66
Iceland	5.85	9215	1.61
Netherlands	5.45	376097	1.50
Latvia	5.41	53217	1.49
United Kingdom	5.39	1220690	1.48
Switzerland	5.23	171087	1.44
Norway	5.03	95875	1.38
Ireland	4.76	53195	1.31
Austria	4.71	115085	1.30
Hungary	4.64	131819	1.28
Czech Republic	4.61	156337	1.27
Slovakia	4.53	36493	1.25
Estonia	4.38	21275	1.20
Italy	4.30	690258	1.18
Denmark	4.26	98866	1.17
France	4.18	590153	1.15
Greece	4.08	149853	1.12
Germany	4.00	918189	1.10
Spain	3.99	625746	1.10
Cyprus	3.88	13746	1.07
Luxembourg	3.78	8505	1.04
Portugal	3.74	129769	1.03
Malta	3.63	4562	1.00
Lithuania	3.43	32971	0.94
Belgium	3.38	104541	0.93
Slovenia	3.33	18753	0.92
Romania	2.97	130823	0.82
Bulgaria	2.89	71442	0.80
Poland	2.72	180888	0.75

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

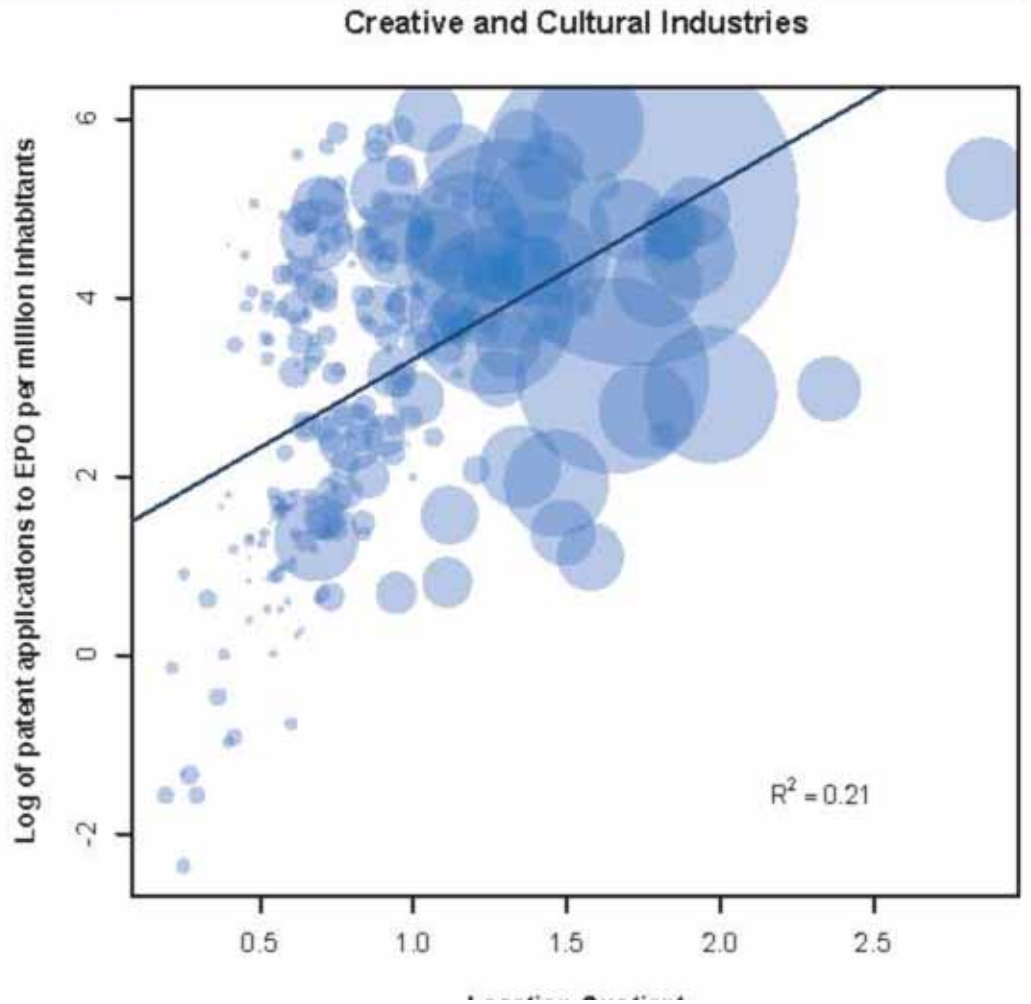
Table 6 clearly demonstrates the need to take a regional and cluster approach to these industries. For example whilst Romania has one of the lowest shares of its total employment in creative and cultural industries, as a nation it ranks 14th in Europe and the capital region of Bucharest ranks 31st of all European regions whilst being home to 42% 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. Figure 4 shows that there is a relationship between CCI employment and traditional innovation indicators such as patent applications but as can be seen in the Figure 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. This is doubtless partly explained by the observation that the creative and cultural industries are significant generators of intellectual property but that this tends to be copyrighted rather than patented.

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. As Table 7 shows, Nordic regions dominate the 10 highest Regional Innovation Scoreboard value (RIS)[4]. However, those regions with the highest RIS rankings were equally split between regions with positive and negative creative and cultural industries employment growth. RIS is therefore not an adequate predicator of employment growth in this area.

Table 7. Top 10 regions on the Regional Innovation Scoreboard (RIS) and average annual growth in creative and cultural industries.

	RIS	CCI LQ	CCI Annual Growth
Stockholm, SE	0.90	2.87	2.2%
Västsverige (Gothenburg), SE	0.83	1.32	-1.4%
Oberbayern (München), DE	0.79	1.57	0.8%
Etelä-Suomi/Åland (Helsinki), FI	0.78	1.92	2.7%
Karlsruhe, DE	0.77	1.35	-0.4%
Stuttgart, DE	0.77	1.05	-1.4%
Sydsverige (Malmö), SE	0.76	1.63	0.2%
Île de France (Paris), FR	0.75	1.72	-1.3%
Östra Mellansverige (Uppsala), SE	0.74	1.16	-3.0%
Berlin, DE	0.74	1.70	1.9%

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

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.

Nonetheless, all the regions in the top 10 of the Regional Innovation Scoreboard were home to an over-representation of creative and cultural industries. This may indicate that these industries are drawn to, or contribute to, highly innovative regions.

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.

4 Regional Innovation Scoreboard 2009 conducted by Maastricht Economic and social Research and training centre on Innovation and Technology (MERIT): 2009 European Regional Innovation Scoreboard, MERIT, 2009.

7 Breaking down the creative and cultural industries

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. new media and computer games). 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 following maps show employment concentrations for 5 activity areas within the creative and cultural industries: Artistic creation and literary interpretation; Advertising; Design; Computer games publishing; Radio and television activities.

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 figure prominently in most cases. However despite the existence of prominent clusters in each of the industries many other centres exist.

Figure 5: Artistic creation and literary interpretation

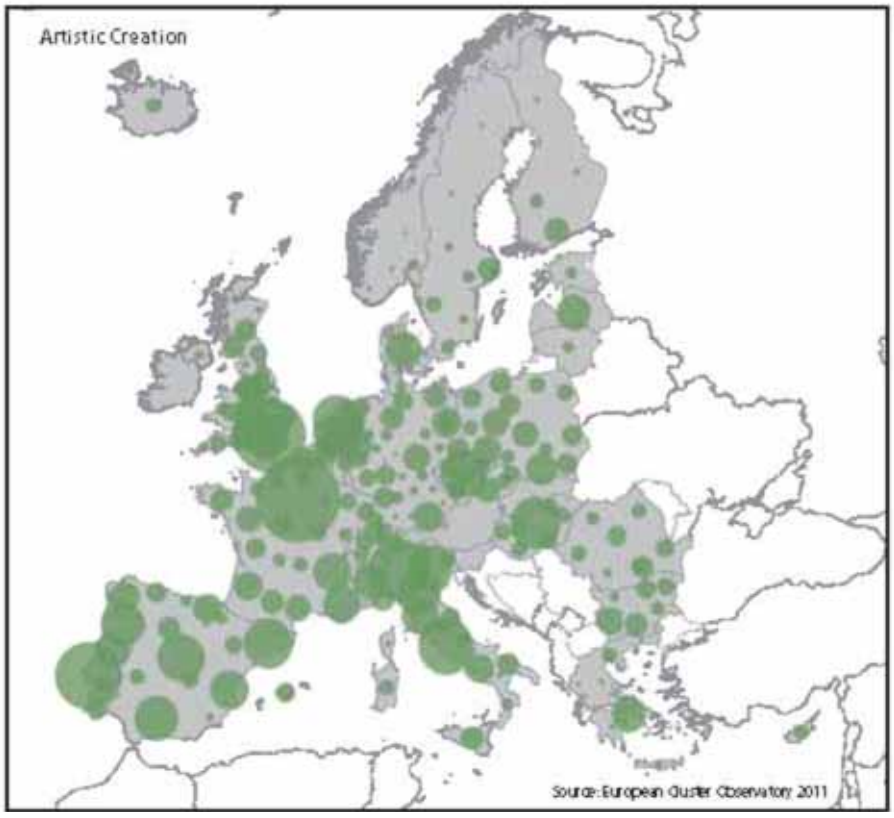


Figure 6: Advertising

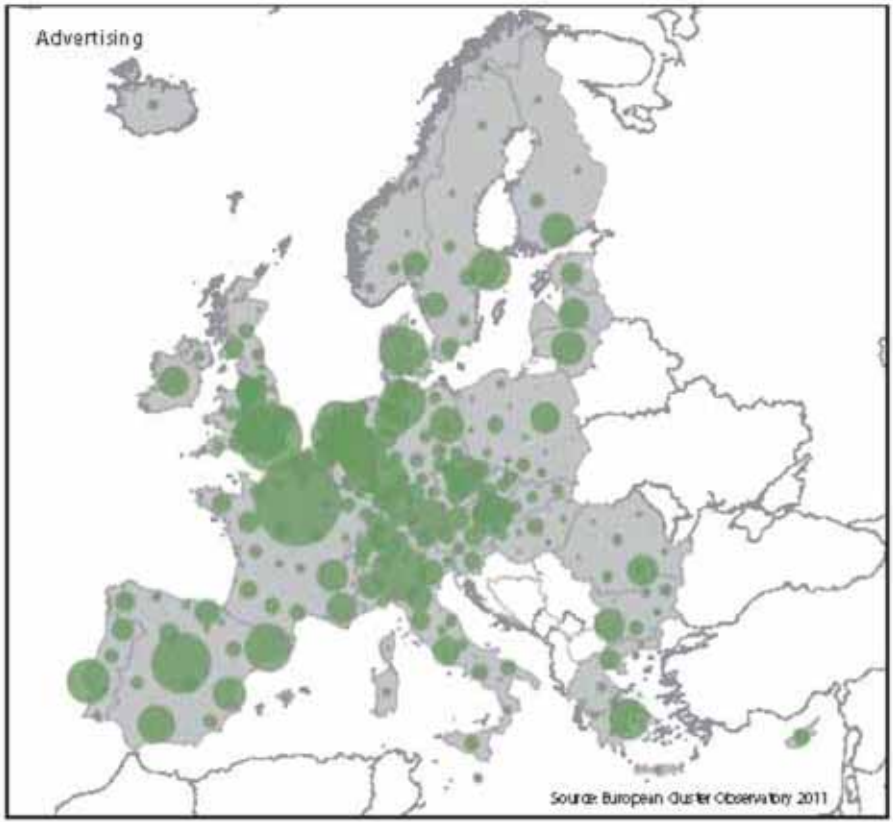


Figure 7: Design

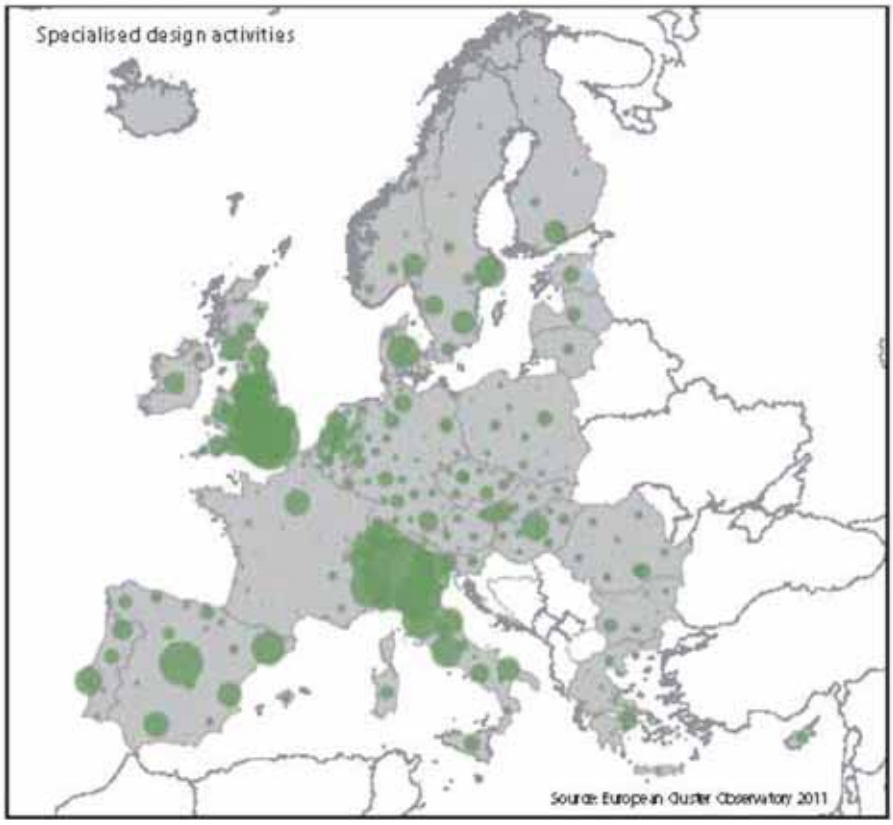


Figure 8: **Computer Games**

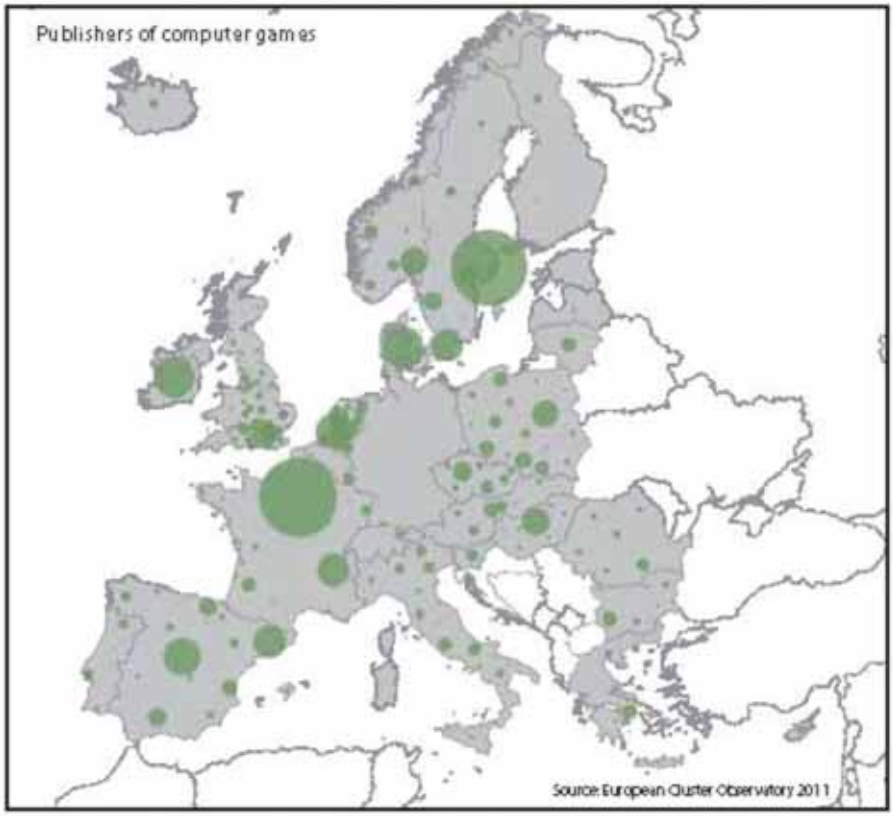
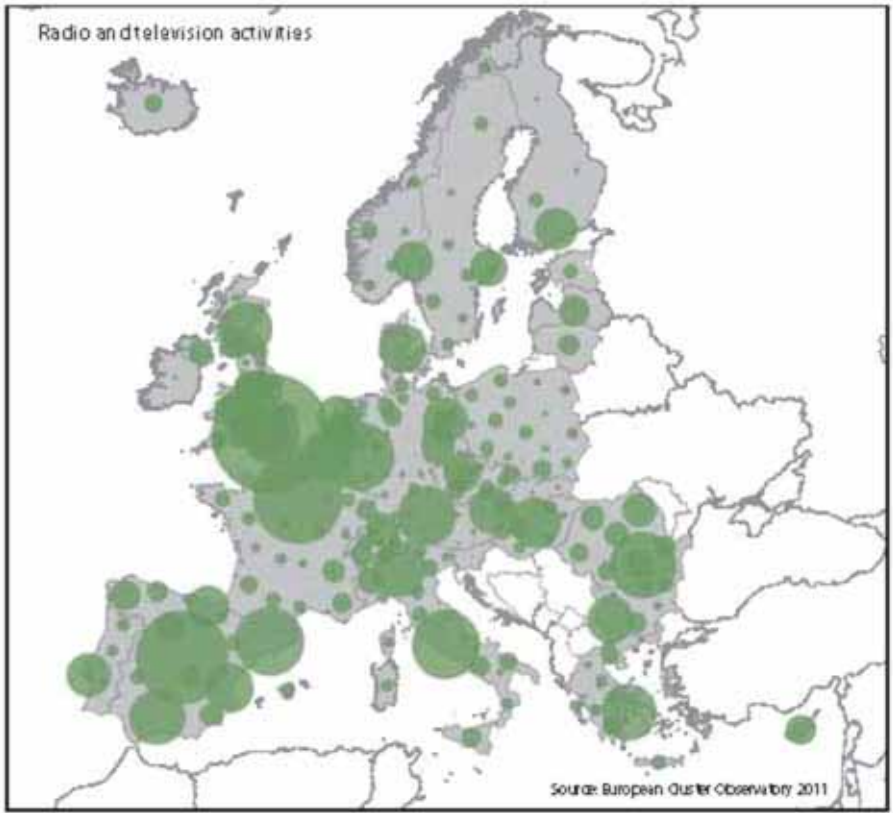


Figure 9: **Radio and television activities**



The Table below lists the top 10 clusters (defined by employment and share of total European employment in that category) in the 6 fields illustrated above: Artistic creation and literary creation; Advertising; Design activities; Game publishing; Software and web publishing; Radio and television broadcasting. These figures clearly show the role of Paris, London, Milan, Madrid, Barcelona, and Rome as Europe's most important employment centres for creative and cultural industries. Of these the super clusters London and Paris stand out.

Table 8: Top 10 regions by number of employees and share of European employment in 6 sectors of the creative and cultural industries.

	Employment	European Share		Employment	European Share
Artistic and Literary Creation			**Advertising**		
Île de France, FR	16529	5.9%	Île de France, FR	38252	6.7%
Inner London, UK	12289	4.4%	Inner London, UK	22942	4.0%
Lisboa, PT	9952	3.5%	Madrid,ES	17656	3.1%
Lombardia, IT	8451	3.0%	Lombardia, IT	14949	2.6%
Lazio, IT	7177	2.6%	Cataluña, ES	11694	2.1%
Cataluña, ES	5681	2.0%	Danmark, DK	11156	2.0%
Kozep-Magyarorszag, HU	5671	2.0%	Düsseldorf, DE	10978	1.9%
Praha, CZ	5276	1.9%	Hamburg, DE	10604	1.9%
Madrid, ES	5115	1.8%	Lisboa, PT	9771	1.7%
Noord-Holland, NL	5094	1.8%	Darmstadt, DE	9469	1.7%
Design			**Game publishing**		
Lombardia, IT	11839	7.3%	Île de France, FR	1267	16.6%
Inner London, UK	8703	5.4%	Stockholm, SE	1173	15.3%
Emilia-Romagna, IT	4881	3.0%	Danmark, DK	351	4.6%
Outer London, UK	4582	2.8%	Ireland, IE	337	4.4%
Madrid, ES	4284	2.6%	Madrid, ES	279	3.6%
Veneto, IT	4253	2.6%	Rhône-Alpes, FR	230	3.0%
Piemonte, IT	3839	2.4%	Zuid-Holland, NL	220	2.9%
Berks, Bucks and Oxon, UK	3714	2.3%	Cataluña, ES	214	2.8%
Surrey, E and W Sussex, UK	3469	2.1%	Sydsverige, SE	190	2.5%
Toscana, IT	2951	1.8%	Oslo og Akershus, NO	167	2.2%
Software			**Radio and TV**		
Île de France, FR	28489	16.6%	Inner London, UK	30838	9.1%
Zuid-Holland, NL	7043	4.1%	Madrid, ES	19041	5.6%
Stockholm, SE	6050	3.5%	Île de France, FR	18498	5.5%
Ireland, IE	5713	3.3%	Lazio, IT	10834	3.2%
Rhône-Alpes, FR	5462	3.2%	Cataluña, ES	10673	3.1%
Madrid, ES	5195	3.0%	Köln, DE	10637	3.1%
Danmark, DK	3999	2.3%	Bucuresti – Ilfov, RO	10004	3.0%
Cataluña, ES	3900	2.3%	Oberbayern, DE	7831	2.3%
Oslo og Akershus, NO	3143	1.8%	Outer London, UK	7445	2.2%
Noord-Brabant,NL	3099	1.8%	Attiki, GR	7056	2.1%

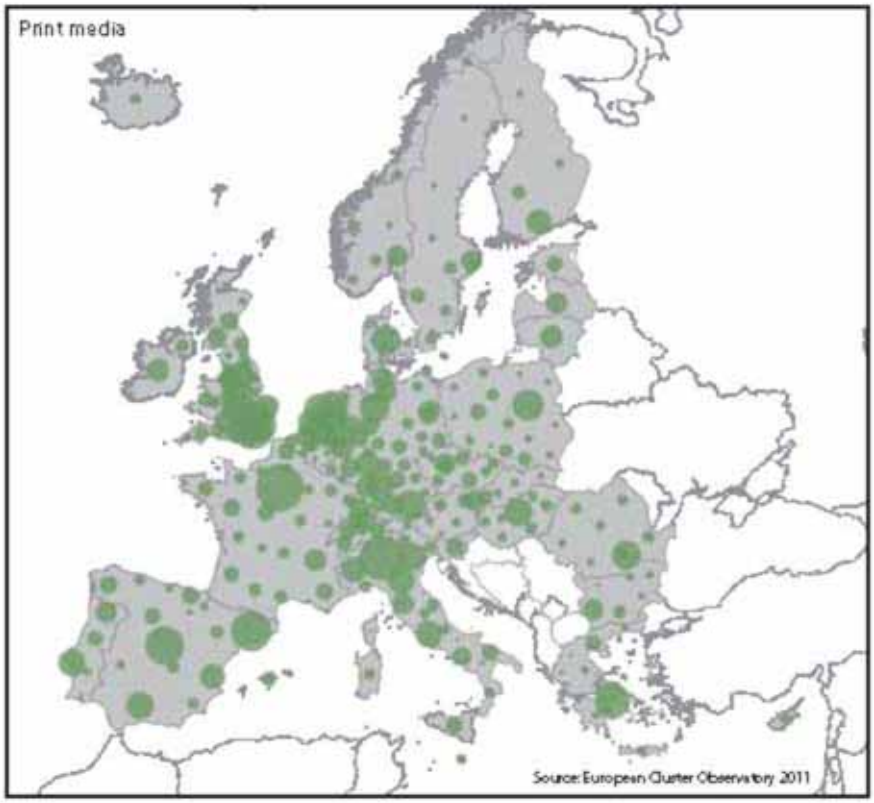
Not all parts of the creative and cultural industries, however, are so dominated by a couple of large cities. As the Table and Map below clearly show in Print Media there is a much more even spread of activities over Europe. This may be explained by the fact that print media employs large numbers of 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 **2 076 965** people or 32.2% of all the creative and cultural industries and is thus central to the contribution of this sector to Europe competitiveness.

Table 9. Top 20 regions by number of employees and share of European employment in Print Media.

	Employment	European Share
Inner London, UK	65871	3.2%
Île de France, FR	62913	3.0%
Lombardia, IT	57091	2.7%
Cataluña, ES	48788	2.3%
Madrid, ES	41771	2.0%
Attiki, GR	37029	1.8%
Mazowieckie, PL	27746	1.3%
Oberbayern, DE	27608	1.3%
Noord-Holland, NL	26113	1.3%
Niedersachsen, DE	25054	1.2%
Danmark, DK	24662	1.2%
Zuid-Holland, NL	24534	1.2%
Outer London, UK	23871	1.1%
Bucuresti – Ilfov, RO	23409	1.1%
Stuttgart, DE	23086	1.1%
Lazio, IT	22289	1.1%
Kozep-Magyarorszag, HU	22026	1.1%
Andalucía, ES	21761	1.0%
Veneto,IT	21586	1.0%
W Yorks, UK	21584	1.0%

Note: Print media is an aggregate of the following NACE Rev2 codes: 18.11; 18.12; 18.13; 18.14; 47.61; 47.62; 58.11; 58.13; 58.14; 58.19; 63.21

Figure 10: Print media employment.



Note: Print media is an aggregate of the following NACE Rev2 codes: 18.11; 18.12; 18.13; 18.14; 47.61; 47.62; 58.11; 58.13; 58.14; 58.19; 63.21

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. Production and manufacturing activities are the most regionally concentrated, and consumer/end-user oriented activities the least regionally concentrated.

Concentration measures clearly show that the most concentrated creative and cultural industries are those involved in specialised manufacture or publishing: games publishing, recorded media and film and television activities. There is considerable evidence from other industries that specialised production 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 manufacture of musical instruments. High levels of concentration are apparent in institutions and organizations involved in cultural heritage and education as well as in libraries and archives.

Table 10. The most concentrated and clustered creative and cultural industries sub-sectors.

NACE Category	Gini		Krugman		Theil	
Publishing of computer games	0.91	(1)	1.55	(1)	2.19	(1)
Manufacture of magnetic and optical media	0.83	(2)	1.42	(2)	1.49	(3)
Reproduction of recorded media	0.82	(3)	1.29	(3)	1.66	(2)
Motion picture, video and television programme distribution activities	0.78	(4)	1.25	(4)	1.29	(4)
Motion picture, video and television programme post-production activities	0.75	(5)	1.20	(5)	1.20	(5)
Operation of historical sites and buildings and similar visitor attractions	0.73	(6)	1.15	(7)	1.02	(6)
Web portals	0.71	(7)	1.10	(8)	0.95	(9)
News agency activities	0.70	(8)	1.09	(9)	0.97	(7)
Television programming and broadcasting activities	0.69	(9)	1.09	(10)	0.92	(10)
Cultural education	0.69	(10)	1.17	(6)	0.95	(8)
Library and archives activities	0.66	(11)	1.02	(11)	0.84	(14)
Sound recording and music publishing activities	0.66	(12)	1.00	(12)	0.88	(13)
Other software publishing	0.66	(13)	1.00	(13)	0.81	(15)
Manufacture of musical instruments	0.66	(14)	0.97	(14)	0.88	(12)
Radio broadcasting	0.64	(15)	0.93	(17)	0.89	(11)
Printing of newspapers	0.63	(16)	0.95	(15)	0.73	(16)
Museums activities	0.61	(17)	0.95	(16)	0.66	(19)
Operation of arts facilities	0.61	(18)	0.91	(19)	0.66	(18)
Motion picture, video and television programme production activities	0.61	(19)	0.92	(18)	0.71	(17)
Specialised design activities	0.57	(20)	0.86	(21)	0.56	(20)
Other publishing activities	0.55	(21)	0.86	(20)	0.52	(21)
Artistic creation	0.55	(22)	0.82	(23)	0.52	(22)
Media representation	0.54	(23)	0.83	(22)	0.50	(23)
Book publishing	0.53	(24)	0.79	(24)	0.48	(24)
Binding and related services	0.51	(25)	0.75	(26)	0.46	(26)
Publishing of journals and periodicals	0.51	(26)	0.78	(25)	0.46	(25)
Support activities to performing arts	0.49	(27)	0.70	(28)	0.43	(27)
Translation and interpretation activities	0.49	(28)	0.72	(27)	0.41	(28)
Retail sale of music and video recordings in specialised stores	0.47	(29)	0.69	(29)	0.39	(29)
Performing arts	0.47	(30)	0.67	(31)	0.38	(30)
Renting of video tapes and disks	0.45	(31)	0.69	(30)	0.34	(31)
Computer programming activities	0.43	(32)	0.61	(32)	0.31	(32)
Publishing of newspapers	0.40	(33)	0.57	(34)	0.26	(33)
Retail sale of newspapers and stationery in specialised stores	0.38	(34)	0.59	(33)	0.23	(34)
Architectural activities	0.37	(35)	0.56	(35)	0.23	(35)
Advertising agencies	0.36	(36)	0.55	(36)	0.22	(36)
Pre-press and pre-media services	0.36	(37)	0.51	(37)	0.22	(37)
Photographic activities	0.34	(38)	0.50	(38)	0.18	(38)
Retail sale of books in specialised stores	0.31	(39)	0.42	(39)	0.18	(39)
Motion picture projection activities	0.30	(40)	0.41	(40)	0.18	(40)
Other printing	0.23	(41)	0.33	(41)	0.08	(41)

Note: Due to data restrictions 129 regions in 17 countries are included: AT; BE; CH; CY; DE; DK; EE; FI; FR; IE; IT; LT; LU; LV; PT; SE; SI. 'Gini', 'Krugman' and 'Thiel' are statistical measures of regional inequality or coefficients of variation.

The least concentrated activities are those in the value chain that are nearest the consumer – such as bookshops, cinemas, and exhibition spaces – or are business services/inputs the creative and cultural industries may regularly need – such as printing, programming, photographic, or pre-press/pre-media services. 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 user cultural contexts. Nonetheless as was shown earlier a degree of clustering on a European level can be found in these activities and several large urban areas are home to disproportionate concentrations of these activities.

There is also evidence to suggest that subsectors of the creative and cultural industries have a tendency to co-locate or cluster closely together. In other words subsectors of these industries are not equally drawn to each other: some subsectors are more likely to co-locate together than others.

Table 11. Co-location tendencies in 5 CCI subsectors: partial correlation table between LQs in 5 CCI subsectors.

	Design	Advertising	Artistic	Games	Radio/TV
Design					
Advertising	0.15 0.01				
Artistic	0.05 *0.41*	0.06 *0.32*			
Games	0.12 *0.06*	0.34 *0.00*	-0.01 *0.90*		
Radio/TV	0.08 *0.19*	0.29 *0.00*	0.17 *0.00*	0.02 *0.79*	

Note: Figures in normal text are partial correlations; figures in italics are p-values. Green shading indicates a significant relationship. The table is based on data for 266 regions for 5 subsectors defined upon aggregates of NACE Rev. 2 coded data.

Table 11 shows partial correlations for some subsectors of the cultural and creative industries: this statistical measure gives us an indication of their tendency to co-locate in the same regions. It can be seen that the strongest tendency to co-location is between the advertising and games publishing industries. Advertising and radio and television activities are also likely to co-locate in the same regions. Design also shows a tendency to co-locate with advertising, and to a lesser extent with games publishing. Artistic and literary creation employees tend to be over-represented in regions where radio and television activities are also over-represented.

Such relationships may indicate that firms in certain sectors see positive synergies from locating their staff near one another. This may be because certain sectors work intensively together and that co-location adds to business competitiveness and employee productivity. Alternatively it may that individuals with certain knowledge and skills bases are drawn to particular regions and that those firms in need of such skills are drawn to these regions. Both scenarios underline the importance that we understand the spatial distribution of industry and employment, and the important role cluster dynamics and policy can have in underpinning regional economies.

Methodological Appendix

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 the first Cluster Observatory report we developed a new statistical definition of creative and cultural industries; in this second Priority Report we use an updated and amended version of that methodology. As discussed above this definition 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 but 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 perfectly 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 for the purposes of cross-national comparison, with the specific purpose of 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 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 and Revision 2. It is essential note that we use NACE Revision 2 mainly in this report due to the time series of the data we aimed to treat. The Revision 2 of NACE coding includes new codes and classifications that allow for much more accurate definition of creative and cultural industries than earlier versions.

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, NACE Rev. 2 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:

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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. Since that workshop subsequent meetings and correspondence with the group and others has helped further define and fine-tune the 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 recent NACE revisions 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 when dealing with data based upon NACE Rev. 1.1 we do 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. The new NACE revision has addressed some of these issues and there is now a specific code for architects' offices (71.11) which allows for more accurate analysis.

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. The exclusion of certain 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.

The following table shows the NACE Rev.1.1 codes used in the first Priority Sector report and in this report for portions of data still using Rev 1.1 coding.

Table 1: NACE Revision 1.1 codes used to describe the cultural and creative industries.

Code	Description
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
36.30	Manufacture of musical instruments
52.47	Retail sale of books, newspapers and stationery
72.21	Publishing of software
72.22	Other software consultancy and supply
74.40	Advertising
74.81	Photographic activities
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
92.34	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

Table 2: NACE Revision 2 codes used to describe the cultural and creative industries.

Code	Description
18.11	Printers of daily newspapers
18.12	Other printers
18.13	Pre-press and pre-media industry
18.14	Bookbinding industry
18.20	Industry for the reproduction of recorded media
26.80	Manufacture of magnetic and optical media
32.20	Industry for musical instruments
47.61	Bookshops
47.62	Specialised stores for newspapers and stationery
47.63	Retail sale of music and video recordings in specialised stores
58.11	Book publishers
58.13	Newspaper publishers
58.14	Publishers of journals and periodicals
58.19	Other publishers
58.21	Publishers of computer games
58.29	Other software publishers
59.11	Motion picture, video and television programme production companies
59.12	Motion picture, video and television programme post-production companies
59.13	Motion picture, video and television programme distribution companies
59.14	Motion picture projection companies
59.20	Sound recording studios and music publishers
60.10	Radio broadcasting companies
60.20	Television programming and broadcasting companies
63.12	Web portals
62.01	Computer programming companies
63.91	News agencies
71.11	Architect's offices
73.11	Advertising agencies etc.
73.12	Media representation services
74.10	Specialised design activities
74.20	Photographers and photographic laboratories
74.30	Translation and interpretation activities
77.22	Renting of video tapes and disks
85.52	Cultural education
90.01	Performing artists and producers of artistic and literary works
90.02	Support companies to performing arts
90.03	Artists, writers, journalists and others
90.04	Theatre and concert hall companies etc.
91.01	Libraries and archives
91.02	Museums
91.03	Institutions for the preservation of historical sites and buildings and similar visitor attractions

The NACE Rev. 2 definition outlined above is similar in many respects to other prominent statistical operationalizations of the cultural and creative industries concept. However there are differences. For example our definition in comparison to the German Federal Ministry of Economics and Technology definition (developed by Michael Soendermann[1]) includes certain categories they exclude: 18.11; 18.12; 18.13; 26.80. Moreover the German definition can, since it is specifically designed for analysis of one country, include codes and portions of codes that are difficult in the context of cross-National statistics: 16.29 (Manufacture of other products of wood); 23.13 (Manufacture of hollow glass); 23.19 (Manufacture and processing of other glass); 23.41 (Manufacture of ceramic household and ornamental articles); 32.12 (Manufacture of jewelry); 32.40 (Manufacture of games and toys); 47.78 (Other retail sale of new goods in specialized stores); 58.12 (Publishing of directories and mailing lists). Some of these codes contain important parts of the creative and cultural industries. For example 47.78 contains many actors involved in the art market, which is why the German methodology includes a percentage of the activities in this code. However as noted earlier we aimed towards a conservative methodology that could work with 30 countries and it is extremely problematic to suggest that the same percentage applies in all 30 countries in our study.

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 operationalized through 266 regions, predominantly NUTS 2 regions, which the EU uses to subdivide member countries for statistical purposes. We use NUTS 1 regions for Denmark, Ireland, Slovenia, as well as several regions in Germany and Italy, 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 March and October 2010. 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). Every effort was made to obtain the most complete data but there remain unfortunate gaps and inadequacies in the data sets. The following table lists the sources for the data used in this report:

1 Soendermann, M. (2010) Culture and Creative Industries in Germany 2009 Monitoring of Selected Economic Key Data on Culture and Creative Industries – Monitoring Report 2010 – Summary Version. Berlin, Federal Ministry of Economics and Technology (BMWi) Public Relations.

Country	Institution	Method	NACE Level
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
Cyprus	Statistical Service of Cyprus	Business Register Survey	4
Czech Republic	Eurostat, Luxembourg	Labor Force Survey	3
Denmark	Statistics Denmark	Register-based labour force statistics	4
Estonia	Statistical Office of Estonia	Structural Business Statistics	4*
Finland	Statistics Finland, Business statistics	Business Register	4
France	INSEE, France	Annual Statement declaration	4
Germany	Statistik der Bundesagentur fur Arbeit, Germany	Statistics from Social security contributions	4
Greece	National Statistical Service of Greece	Labor Force Survey	3
Hungary	Eurostat, Luxembourg	Labor Force Survey	3
Iceland	Statistics Iceland	Pay As You Earn register	4
Ireland	Eurostat, Luxembourg	Structural Business Statistics	4*
Italy	Istituto Nazionale di Statistica, Italia	Statstical Registry of Enterprises	4
Latvia	Central Statistical Bureau of Latvia	Yearly survey of enterprises and institutions	4
Lithuania	Statistics Lithuania	Structural Business Survey	4
Luxembourg	Eurostat, Luxembourg	Structural Business Statistics	4
Malta	Eurostat, Luxembourg	Structural Business Statistics	4
Netherlands	Eurostat, Luxembourg	Labor Force Survey	3
Norway	Statistics Norway	Structural Business Statistics	4
Poland	Central Statistical Office of Poland	Form Z6	4
Portugal	Instituto Nacional de Estatistica, Portugal	Integrated business accounts system	4
Romania	Eurostat, Luxembourg	Labor Force Survey	3
Slovakia	Statistical Office of the Slovak Republic	Labor Force Survey	3
Slovenia	Statistical Office of Slovenia	Structural Business Statistics	4*
Spain	Eurostat, Luxembourg	Labor Force Survey	3
Spain	Instituto Nacional de Estadistica	Structural Business Statistics	4
Sweden	Statistiska Centralbyran, Sweden	Structural Business Statistics	4
Switzlerland	Swiss Federal Office of Statistics Switzerland	Census of Swiss enterprises	4
United Kingdom	Department of Enterprise, Trade and Innovation of Northern Ireland	Census of Employment Survey	4
United Kingdom	Office for National Statistics of United Kingdom	Annual Business Inquiry	4

* Note: The coverage of data in these countries is substantially incomplete as employment in agriculture and certain public sectors is missing, which could result in inflation of measures relative to total employment, such as focus and LQ, by up to 30%.

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 0 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 Czech Republic, Hungary, the Netherlands, Romania and Slovakia as well as non-manufacturing sectors in Spain.

Due to the 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 conversion from NACE rev 1.1 to NACE rev 2.0 where the latter was not available and bringing the whole dataset to NACE rev 2.0 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 artefacts from the processing of data in countries where only 3-digit data was available. Figures presented in the

report that rely upon time series data (such as growth figures) only represent those regions where we could fully rely upon the accuracy and comparability of data: 129 regions in 17 countries: AT; BE; CH; CY; DE; DK; EE; FI; FR; IE; IT; LT; LU; LV; PT; SE; SI. The switch between different NACE methodologies further complicated time series based data.

Industry splitting algorithm

The data were processed on the same regional division level as they were reported, which corresponds to NUTS 2 regions for most countries except for Denmark, Ireland and Slovenia, where the data were only available for the country as a whole. Initial processing was also done only for the years for which the data were reported.

1. The algorithm used for data harmonization works in the following way:Convert all data to lowest industry aggregation levels where necessary regardless of the classification used to encode the industry (typically NACE rev 1.0, 1.1 or 2.0, but also compatible local classifications in France, Portugal, Sweden and United Kingdom). If the data cell is unavailable, it was inferred as the share of the remainder of employment in the parent industry derived from the shares available for the same region in other years, for the regions in the same country, or for all of Europe, in order of preference.

2. Convert the whole dataset to NACE 2.0 classification to allow for matching with the sectoral definitions. In the case of many-to-many relationships between classifications (common for conversion from NACE rev 1.0 or 1.1 to NACE rev 2.0), we used the approximate shares computed by Statistics Austria based on microdata.

There are certainly drawbacks to this method. The main issue is the conversions from older industry classifications to NACE rev 2.0, which has plenty of many-to-many relationships which cannot be inferred without access to microdata. If the data is only available on 3-digit level in an old classification, these issues have a particularly strong impact.

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. We have used country level data for Denmark, Ireland and Slovenia due to availability of regional data in these countries resulting partially from both Denmark and Slovenia representing a single NUTS 2 region until the latest revision of the classification. In Germany, the NUTS 2 regions in Brandenburg, Niedersachsen and Rheinland-Pfalz were grouped together in respective NUTS 1 regions to represent the recent changes in local statisitcal procedures and data availablity. In Italy, the regions of Trentino and Alto Adige were treated as a single region due to data availability. Finally, in Finland the Åland archipelago was merged with the closest mainland, Etelä-Suomi, due to the extremely small size of the former region.

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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.

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It is hoped that the indicators presented in this report can help stimulate debate and policy supportive of a group of activities and industries that offer a huge potential to contribute to the transformation of European society, responding to major social, demographical and environmental challenges and leading to a more sustainable and smarter economy within the EU 2020 Strategy.

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