September 2014

THE ECONOMIC CONTRIBUTION OF THE CREATIVE INDUSTRIES TO EU GDP AND EMPLOYMENT

EVOLUTION 2008-2011

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The economic contribution of the creative industries to EU GDP and employment

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EXECUTIVE SUMMARY

The economic contribution of the creative industries to EU GDP and employment

This is the second report published by TERA Consultant to:

- **Measure the economic contributions of the creative industries to the EU economy;**
- **Analyse the evolution of the creative industries' contribution to EU value added and employment between 2008 and 2011.**

The first report – "*Building a Digital Economy: The Importance of Saving Jobs in the EU's Creative Industries*" – was published in March 2010, based on 2008 data.
This study differs from earlier research by using a more accurate and comprehensive definition of Europe's creative industries, one that expands the EU definition of core creative industries and also encompasses the economic contributions of non-core creative industries. These non-core creative industries are suppliers to and customers of the core creative industries, and their economic strength is heavily dependent upon the core industries.
This approach allows to better measure the real extent of the creative industries in the economy.
To measure the economic contributions of the creative industries to the EU economy, measured by value added to Gross Domestic Product (GDP) and by number of employees, the study considered research and statistical data developed or sponsored by EU member nations, by the European Commission and by the World Intellectual Property Organisation (WIPO), which divides the copyright-intensive industries into four main categories: core; inter-dependent, partial and non-dedicated support.

Based upon this methodology and 2008 figures, the first study reported the following findings:

- The core creative industries in the 27 countries of the European Union were estimated to generate **€558 billion in value added to GDP in 2008,** approximately **4.5% of total European GDP.**
- The value added by the total creative industries (core creative industries plus non-core creative industries) was approximately **€862 billion in 2008,** representing **an estimated 6.9% share of GDP.**
- The creative industries also account for a significant number of jobs throughout Europe. Employment in the core creative industries in the 27 countries of the EU was approximately **8.5 million** in 2008, or **3.8% of total European workforce.**
- Employment in the total creative industries (core creative industries plus non-core creative industries) was approximately **14.4 million,** or **6.5% of the total EU workforce.**

The new report proposes an update of the economic contribution of creative industries to EU GDP and employment, covering the period from 2008 to 2011, year for which Eurostat statistics are available since the end of 2013.

During this period of time, EU countries have faced a major economic and financial crisis. In the meantime the use of digital media have continuously expanded which allows creative industries developing new business models for the digital environment, such as online music platforms and video on demand.

Dealing with these transformations, the regulatory environment has not significantly changed, particularly regarding the fight against piracy, either at EU level or in the largest countries, with the exception of France with the effective implementation of the notice sending system through the creation of the French high authority HADOPI. In the UK and Spain the adoption of new legislations – DEA for the UK and SINDE for Spain – did not translate so far into a real and effective implementation, although these legislations were adopted back in 2010 and 2011.

In the same time, the online music and video platforms have expanded throughout Europe offering to European citizens and consumers a wide range of legal access to an increasingly important repertoire at a competitive and accessible price.

Key findings are the followings:

- In 2011, the core creative industries in the 27 countries of the European Union generate **€558 billion in value added to GDP,** approximately **4.4% of total European GDP.**
- The value added by the total creative industries (core creative industries plus non-core creative industries) is approximately **€860 billion,** representing a **6.8% share of GDP.**
- The creative industries represent approximately **8.3 million** full time equivalent jobs, or **3.8% of total European workforce.**
- Employment in the total creative industries (core creative industries plus non-core creative industries) is approximately **14.0 million, or 6.5% of the total EU workforce.**

Table 1: Economic weight of the creative industries in EU27 (2011)

	VALUE ADDED			EMPLOYMENT		
Creative Industries	**VA (billion €)**	**% of evolution 2008-2011**	**% of EU VA**	**Jobs (million)**	**% of evolution 2008-2011**	**% of EU employment**
Core	558	-0.07%	4.40%	8.3	-2.33%	3.82%
Interdependent	211	-1.18%	1.67%	4.0	-3.88%	1.86%
Non dedicated support	91	0.58%	0.72%	1.7	-1.19%	0.78%
TOTAL creative industries	**860**	**-0.28%**	**6.79%**	**14.0**	**-2.65%**	**6.47%**

Source – *2013 TERA Consultants analysis*

Note: due to rounding, numbers presented throughout this document may not add up precisely to the totals provided.

Table 2: Evolution of value added and employment 2008/2011

	VALUE ADDED - 2008/2011 EVOLUTION		EMPLOYMENT - 2008/2011 EVOLUTION	
Creative Industries	**Billion €**	**% of growth**	**Million of jobs**	**% of growth**
Core	0,0	0.0%	-0.2	-2.4%
Interdependent	-2.0	-0.9%	-0.2	-4.8%
Non dedicated support	1.0	1.1%	0	0.0%
TOTAL creative industries	**-2.0**	**-0.2%**	**-0.4**	**-2.8%**

Source – *2013 TERA Consultants analysis*

In terms of value added, the economic contribution of the creative industries has been rather stable in Europe between 2008 and 2011. However, this overall stability hides a strong heterogeneity within the different sub-groups, which can be explained by the variety of the underlying drivers of growth.

- Within the core creative industries, there is a decrease in all activities except for TV broadcasting and movie production. On the contrary, ICT-related activities included in the core post a significant growth, mostly driven by web development, data hosting and processing and computer software programming.
- The Interdependent sub-group, which mostly includes retail related activities, experienced a limited decline that can be explained by the broader decline of the retail sector at least in the Western part of Europe.
- Lastly, the non-dedicated sub-group has experienced a modest growth throughout the 2008-2011 period, following the overall stability of the Telecom sector in Europe.

For all sectors, the economic contribution of the creative industries in terms of job creation has been weaker than the contribution in terms of GDP.

- The overall tendency has been the destruction of jobs within most sub-groups, particularly for the traditional core activities, for which job destruction has been particularly significant.
- The diverging tendencies between GDP and employment growth are illustrating a change in the productive system of the creative industries, which rely more on capital (particularly ICT-type of capital investment) than on labour.

In addition to the Pan-European picture, this report includes an estimate of the economic contribution of the creative industries for the five largest European countries (UK, France, Germany, Italy and Spain).
Table 3 shows the weight of the creative industry (contribution of the creative industries divided by the contribution of all industries), in terms of value added and of employment, in the economy of each of the five countries.

Table 3: Economic weight of the creative industries in the main European markets (2011)

	5 COUNTRIES		UK		FRANCE		GERMANY		ITALY		SPAIN	
Creative Industries	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**
Core	4.5%	4.1%	5.8%	5.4%	5.1%	3.7%	3.9%	4.1%	3.9%	3.7%	3.4%	3.4%
Interdependent & support	2.4%	2.8%	3.2%	3.6%	2.7%	2.6%	2.1%	2.9%	2.2%	2.5%	1.7%	2.2%
TOTAL creative industries	**6.9%**	**7.0%**	**9.0%**	**9.0%**	**7.9%**	**6.3%**	**6.1%**	**7.0%**	**6.1%**	**6.2%**	**5.0%**	**5.6%**
Creative GDP (billion €)	618		159		152		159		95		53	
Creative employment (million)		9.5		2.6		1.6		2.8		1.4		1.0

Source – *TERA Consultants analysis*

Table 4 shows the evolution, between 2008 and 2011, of the weight of the creative industry in these five countries in terms of value added and of employment.

Table 4: Evolution of the economic contribution of the creative industries in the main European markets (2008-2011)

	5 COUNTRIES		UK		FRANCE		GERMANY		ITALY		SPAIN	
Creative Industries	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**
Creative industries	-3.1%	-2.0%	-8.8%	-3.8%	4.0%	0.4%	-1.7%	4.1%	1.6%	-1.1%	-14.5%	-15.7%
Overall economy	**1.2%**	**-1.3%**	**-3.6%**	**-1.0%**	**3.5%**	**-0.4%**	**5.5%**	**3.1%**	**0.3%**	**-1.9%**	**-3.8%**	**-10.6%**

Source – *TERA Consultants analysis*

- Overall, creative industries in the top 5 European countries have posted a stronger decrease than the overall economy;
- The decrease of the creative industries has proved much stronger in the "centre" (the five biggest economies of the Euro zone) than in the "periphery" (the other 22 countries), both at the value added and at the employment level;
- It has generally been stronger in terms of added value than in terms of jobs, which could be explained by an increase in payroll per euro sold and / or deterioration in corporate earnings.
- The overall declining trend in Europe top 5 hides a strong heterogeneity between countries:
  - The economic weight of the creative industries has decreased in the UK, in Spain, and in Germany (in terms of value added);
  - On the contrary, the creative industries have grown in France and Italy.
- Again, the explanation for this heterogeneity of trends must be multifactorial. It is however possible to underline the correlation between the growth of the creative industries and the IP protection legislation. Thus, France has established some form of response to Internet piracy before 2011 with the notice sending system implemented by HADOPI. The cultural industries in France have posted a much better dynamic during the period studied than in countries where such measures do not exist.

In its first report released in 2010 TERA Consultant had forecasted the impact of digital piracy in Europe, in terms of employment, if no legislative action was taken.
The initial study concluded that based on current projections and assuming no significant policy changes, the European Union's creative industries could expect to see, depending on scenarios, cumulative retail revenue losses between €166 billion and €240 billion by 2015, resulting in jobs lost between 600,000 and 1.2 million by 2015. Using the actual 2011 figures, we can now have a first look at the real trends at work based on real figures in the top 5 European countries that have posted a stronger decrease than the overall economy, and see how it compares to initial forecast.

France, Germany, Italy, Spain and the UK represent **72%** of the total EU creative industries' value added and **68%** of the employment.

In the top five European countries:

- **Real value added destruction amounts to €20 billion;**
- **Real job losses in the creative industries between 2008 and 2011 amount to 189,633.**

However, in order to measure the impact piracy has had on value added and job destruction, it is necessary to estimate how economic contribution and employment would have evolved in the creative industries, absent all piracy ("counterfactual" scenario).
In a first stage of analysis, one can consider that, absent piracy, the value added and employment in the creative industries would have evolved as in the overall economy or as in the service industries[1].
Between 2008 and 2011, total economic contribution has increased by **1.2%** and total employment has decreased by **1.3%.** While economic contribution of services industries has increased by **3.1%** and employment in service activities has increased by **7.9%.**

Using this as an estimate of the counterfactual scenario, it means that:

- The real value added destruction between 2008 and 2011 in the top five European countries, **would be in the range of €27.1 and €39.7 billion;**
- The job destruction between 2008 and 2011 in the top five European countries **would be comprised between 64,089 and 955,125.**

Table 5: The impact of piracy on value added destruction (in € billion) in the five main European countries between 2008 and 2011 (new estimate)

	2008	2011	2008/2011	2008/2011
Creative industries – factual	637.6	617.9	-19.8	-3.1%
Overall economy	8 906.1	9 008.9	102.9	+1.2%
Creative industries – counterfactual 1	637.6	645.0	7.4	+1.2%
Impact of piracy – counterfactual 1			-27.1	
Service industries	2 529.3	2 608.5	79.2	+3.1%
Creative industries – counterfactual 2	637.6	657.6	20.0	+3.1%
Impact of piracy – counterfactual 2			-39.7	

Source – *TERA analysis*

[1] *In its Green Paper "Unlocking the potential of cultural and creative industries", the Commission states that the growth of cultural and creative industries could be comparable to the service economic sector: Cultural and creative industries are recognized as growth sectors in the above mentioned Commission Consultation Paper as well as in the Commission Staff Working Document «Challenges for EU support to innovation services – Fostering new markets and jobs through innovation» – SEC (2009) 1195.*

Table 6: The impact of piracy on job losses in the five main European countries between 2008 and 2011 (new estimate)

	2008	2011	2008/2011	2008/2011
Creative industries – factual	9 649 048	9 459 415	-189 633	-2.0%
Overall economy	137 452 800	135 664 400	-1 788 400	-1.3%
Creative industries – counterfactual 1	9 649 048	9 523 504	-125 544	-1.3%
Impact of piracy – counterfactual 1			- 64 089	
Service industries	45 427 833	49 031 776	3 603 943	+7.9%
Creative industries – counterfactual 2	9 649 048	10 414 540	765 491	+7.9%
Impact of piracy – counterfactual 2			-955 125	

Source – *TERA analysis*

The comparison of these real figures with our initial forecast in 2010 yields the conclusion that, for the five central European countries, the forecast of the initial study have proved accurate:

- The actual job losses encompasses the initial study's estimates;
- The assumptions of scenario 2 are globally consistent with the way Internet piracy evolved between 2008 and 2011.

These numbers are very close from the scenarios we had elaborated in our previous report published in March 2010 calculating the piracy impact up to 2011 and lead to new estimates as follows:

- **A value destruction in the range of €27.1 and €39.7 billion between 2008 and 2011, which added to €7.4 billion as a base for 2008 leads to a cumulative value destruction in the range of €34.5 and €47.1 billion;**
- **A cumulative job loss in the range of 204,089 and 1,095,125 at the end of 2011, as a result of the addition of the job losses in 2008 (140,000) and the job losses between 2008 and 2011 (between 64,089 and 955,125).**

In conclusion, creative industries in Europe represent in 2011 a significant share of GDP (6.8%) and employment (6.5%) but report significant value destruction (unlike the overall trend of the economy) and noticeable decrease in employment in the main five markets between 2008 and 2011.

The comparison of these real figures with our initial forecast highlights **the obvious negative effect of piracy on value and employment in the creative sector, which has a real potential for growth at the digital era, and for sustainable international specialization of Europe in a globalized economy, in addition to its importance for reflecting the richness of the European culture and diversity.**

Study

THE ECONOMIC CONTRIBUTION OF THE CREATIVE INDUSTRIES TO EU GDP AND EMPLOYMENT

EVOLUTION 2008-2011

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Objectives of the study

TERA Consultants proposes an updated version of the first study published in 2010 to measure the evolution of the economic contribution of creative industries to EU GDP and employment between 2008 and 2011, year for which Eurostat statistics are available since November 2013.

This update will allow:

- First, to capture the major evolutions, which occurred at EU level (in the 27 Member States) and particularly in the five largest markets (France, Germany, Italy, Spain, UK), which collectively represent over 70% of European GDP;
- Explore and provide explanations on the relevant evolutions;
- Complement the report that the Office for Harmonization in the Internal Market (OHIM), acting through the European Observatory on Infringements of Intellectual Property Rights, and the European Patent Office (EPO) have carried out in co-operation with the EU Commission, in particular DG Internal Market and Services and Eurostat. This report quantify the overall contribution made by IP-intensive industries to the EU economy, in terms of output, employment, wages and trade, taking into account the major IP rights (patents, trademarks, designs, copyrights, geographical indications).

From a methodology standpoint, it is worth to mention that TERA Consultant's methodology used for the previous study has been confirmed by the OHIM and EPO report, which follows the same methodology to assess the footprint of the IPR intensive industries in Europe and set the stage for a common language to evaluate the importance of these industries in terms of revenues, jobs and contribution to EU GDP.

Findings of the study

- In 2011, the core creative industries in the 27 countries of the European Union generate **€558 billion in value added to GDP,** approximately **4.4% of total European GDP.**
- The value added by the total creative industries (core creative industries plus non-core creative industries) is approximately **€860 billion,** representing a **6.8% share of GDP.**
- The creative industries represent approximately **8.3 million** full time equivalent jobs, or **3.8% of total European workforce.**
- Employment in the total creative industries (core creative industries plus non-core creative industries) is approximately **14,0 million, or 6.5% of the total EU workforce.**

This apparently rather stable picture of the economic contribution of the creative industries in Europe between 2008 and 2011 hides a strong heterogeneity:

- Within the core creative industries, we see a decrease in all activities except for TV broadcasting and movie production. On the contrary, ICT-related activities included in the core post a significant growth, mostly driven by web development, data hosting and processing and computer software programming.
- The Interdependent sub-group, which mostly includes retail related activities, experienced a limited decline that can be explained by the broader decline of the retail sector at least in Western Europe.
- Lastly, the non-dedicated sub-group has experienced a modest growth throughout the 2008-2011 period, following the overall stability of the Telecom sector in Europe.

Organization of the report

The current report is organized as follows:

- Chapter 1 deals with the 2011 update of the figures at the European level.
- Chapter 2 deals with the 2011 update of the figures at the national level for 5 countries.

CHAPTER 1

Economic Contribution of the Creative Industries at EU level in 2011

1.1 INTRODUCTION

TERA had defined in its initial study published in March 2010 a segmentation of the creative industries in two groups:

- Core creative industries;
- Non-core industries including "Interdependent industries" and "Non-dedicated support industries".

The **core creative industries** produce and distribute creative products aimed at mass reproduction, mass dissemination and exports. These "core industries" include film and video, videogames, broadcasting, music, books and press publishing. In addition to those industries, TERA also added other relevant sectors that were considered as major contributors to the creative economy (software, databases, printing activities and online distribution of content).

The **non-core creative industries** are related to a lesser extent on copyright-protected materials but include:

- Interdependent industries engaged in the production, manufacture and sale of equipment whose function is to facilitate the creation, production or consumption of cultural products. They include for instance the manufacturing, wholesale and retail sale of television sets, radios, CD players, DVD players, electronic games equipment, computers, musical instruments, blank recording material, paper, photocopiers, and photographic and cinematographic instruments;
- The non-dedicated support industries engaged in the broadcast, communication, distribution or sales of the cultural products. They include a fraction of general wholesale and retailing, general transportation, telephony and the Internet.

The aim of this report is to update the economic weight of each of those two groups in terms of GDP and job. For that purpose, we will follow a bottom-up approach that can be divided in three steps:

- Identification of all industry segments (in NACE Rev. 2 classification) composing each sub-group;
- Collection of the value added and jobs figures for each relevant industry segment;
- Computation of the economic weight of the creative industries at EU level in 2011.

In terms of data, our estimate will exclusively rely on Eurostat **Structural Business Statistics** (hereafter "SBS"[2]) for 2011 - last available year at the time of the completion of this report.

[2] *To the European Commission, "Structural business statistics (SBS) cover industry, construction, trade and services. Presented according to the NACE activity classification, they describe the structure, conduct and performance of businesses across the European Union (EU) – data are available for the EU-27 and for the Member States. The statistics can be broken down to a very detailed sectoral level (several hundred economic activities)."*

1.1.1 Identification of all industry segments composing each sub-group

1.1.1.1 The transition between NACE Rev. 1.1 to NACE Rev. 2

The economic contribution of the creative industries is based upon two main indicators:

- The **value added at factor cost,** that is: "The gross income from operating activities after adjusting for operating subsidies and indirect taxes[3]".
- The **number of employees,** where an "employee is a person who works for an employer on the basis of a contract of employment and receives compensation in the form of wages, salaries, fees, gratuities, piecework pay or remuneration in kind. The contract is an agreement between an enterprise (the employer) and a person (the employee), which may be formal or informal, normally entered into voluntarily by both parties, whereby the person works for the enterprise in return for compensation in cash or in kind. A worker is considered to be an employee of a particular unit if he or she receives a wage or salary from the unit regardless of where the work is performed (even from remote locations). A worker from a temporary employment agency is considered to be the agency's employee and not that of the business unit to which he or she is assigned[4]".

These indicators are available in the **Structural Business Statistics** (SBS) published by Eurostat. They cover industry, construction, trade and services and are presented according to the NACE (statistical classification of economic activities in the European Community) activity classification.

The NACE classification system provides the framework for collecting and presenting a large range of statistical data related to economic activity (e.g. production, employment and national accounts).

Since the completion of the initial study published in March 2010, the NACE classification has changed from NACE Rev. 1.1 to NACE Rev. 2. Certain NACE 1.1 codes have been merged into a bigger NACE 2 codes, on the contrary, other NACE 1.1 codes have been split into several smaller NACE 2 codes. In that later case, SBS unfortunately does not precise the allocation key that has been used to split a NACE 1.1 sector into several NACE 2 sectors.

In order to keep the same exact perimeter for the creative industries, we therefore had to identify as closely as possible the list of NACE 2 codes that matches the NACE 1.1 codes that composed our 4 sub-groups.

[3] *http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:Value_added_at_factor_cost*
[4] *http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:Employee_-_SBS*

Using the Eurostat correspondence table between NACE Rev 1.1 and NACE Rev. 2[5] , it is possible to sort NACE 2 sectors into three categories:

- Some NACE 2 codes come from one or several NACE 1 codes that were all outside of the "Creative Industries" perimeter as defined in our initial study. These codes are therefore excluded from the updated study.
- Some NACE 2 codes come from one or several NACE 1 codes that were all included in the "Creative Industries" perimeter. These **"complete"** sectors should therefore be included in the updated study.
- The situation is more complex for all NACE 2 sectors that have antecedents both inside and outside the perimeter of the initial study. These **"incomplete"** sectors should be dealt with more attention.

The way each type of NACE 2 codes will be taken into account is described below, depending on the sub-group it belongs to.

1.1.1.2 Sectors included in the core industries

In order to determine the proportion of each "complete" and "incomplete" NACE 2 codes that should be included in the 2011 perimeter, we used the "Intellectual property rights intensive industries: contribution to economic performance and employment in the European Union"[6] report from the European patent office and the office for harmonization in the internal market (hereafter OHIM-EPO).

The OHIM-EPO study lists a wide number of NACE 2 Codes and assigns a "creative factor" to each of them, so as to measure the proportion of its activity that is IP related[7].

Based upon these creative factors, we have weighted the various relevant NACE 2 codes as follows:
For **complete** sectors:

- Sectors with a small creative factor less than 33% are considered essentially non-creative. They are therefore only partially included in the updated study, using the same weighting factor as for the non-dedicated support industries (7%). See 1.1.1.3.2 for more details;
- Other sectors are considered creative, and are totally (100%) included in the updated study.

[5] *In order to have the best accuracy we worked with the most detailed level of the NACE classification (4-digit NACE code).*
[6] *Available at: Intellectual property rights intensive industries: contribution to economic performance and employment in the European Union.*
[7] *The computation of the creative factors is based on the methodology of a previous study by the World Intellectual Property Organisation (hereafter WIPO) available at the following address: Guide on surveying the economic contribution of the copyright-based industries*

Incomplete sectors have been totally excluded from the updated study.
Concerning the creative sectors added by TERA in the original study, the following course of action was taken:

- **Complete** sectors are totally included in the updated study;
- Each **incomplete** sector is totally included in the updated study if a great number of its antecedents are included in the initial study (see Appendix 2), and if it belongs to the core copyright industry in the OHIM-EPO study. In all other situations, the industry code is totally excluded.

1.1.1.3 Sectors included in the non-core industries

1.1.1.3.1 Interdependent industries

Complete sectors are totally included in the updated study.

For **incomplete** sectors, the sector is totally included in the updated study if a great number of its antecedents are included in the initial study (see Appendix 2 for details); if it belongs to the non-core copyright industry in the OHIM-EPO study; if it is not already in the core industries or in the non-dedicated support industries (in order to avoid double counting); if one of the antecedents of the sector is the sector 51.5 in NACE Rev. 1.1 we used the same methodology as in the previous study and applied a weighting factor of 9%.
In all other situations, the industry code is totally excluded.

1.1.1.3.2 Non-dedicated support industries

Non-dedicated support industries are taken into account using a two steps process:

- A list of complete and incomplete sectors are first identified and weighted using the same approach as for the "interdependent industries";
- Following the methodology used in the initial study, an additional weighting factor, called "copyright factor" is then applied to all relevant NACE 2 codes. As expressed in the initial study: "This copyright factor is calculated on the sum of the value added for all other copyright-based industries (core and interdependent) to GDP minus the transportation trade and telecommunication sectors (i.e. the non-dedicated industries). This weighting is built on the assumption that the proportionate contribution of the copyright-based industries to the total distribution industry value added (transportation and trade sectors) is the same as the percentage contribution of the copyright industries to the total non-distribution industries". We used the same copyright factor as in the initial study: 7.1% for the value added and 6.7% for the employment.

1.1.1.4 Results: new scope in NACE Rev. 2

Figures 1 and 2 below summarize the number of codes that we have included in each sub-group, and the weighting factor used both for the value added and for the jobs.

Table 7: Number of sectors in NACE Rev. 2 included in the updated study – Value Added

Number of sectors	Complete (included)	Incomplete (included)	Weighting factor
Core	85 (85)	42 (10)	If the sector concerns the production of cultural product: 100%. Else 7%.
Interdependent	28 (28)	18 (7)	If coming from 51.5 in the NACE. Rev. 1.1: 9%. Else: 100%.
Non-dedicated support	71 (71)	11 (6)	7.1%

Source – *TERA Consultants analysis*

Table 8: Number of sectors in NACE Rev. 2 included in the updated study – Employment

Number of sectors	Complete (included)	Incomplete (included)	Creative factor for included sectors
Core	41 (41)	61 (10)	If the sector concerns the production of cultural product: 100%. Else 7%
Interdependent	28 (28)	18 (7)	If coming from 51.5 in the NACE Rev 1.1: 9%. Else: 100%.
Non-dedicated support	71 (71)	11 (6)	6.7%

Source – *TERA Consultants analysis*

The complete list of sectors in NACE Rev. 2 included in the updated study is presented in the *Appendix 4:* Sectors related to Creative industries (3-digit NACE Rev. 2 code) and assigned factors.

1.1.2 Collection of the value added and jobs figures for each relevant industry segment in 2008 and 2011

Eurostat's SBS database is incomplete and does not always provide the value added at factor cost and the number of employees at the European level for all relevant NACE sectors. The missing data have been estimated using the methodology described below *(and detailed in Appendix 3: Data completion methodology):*

- Whenever possible, we have used accounting equalities to calculate missing data. For instance if sector X includes two sub-sectors X1 and X2, and if the data for X and X1 are provided whereas X2 is missing, we can easily deduce the value by calculating X2=X-X1. 12% of data have been inferred that way in the new study;
- In other cases, the data have been estimated using historical data. 10% of the data have been inferred this way in the new study.

From a geographical standpoint, our scope encompasses all EU 27[8]. However, in 2011 the pan European data provided by the SBS database included 28 countries (EU 27 plus Croatia, which joined the EU on July 2013). For our calculations, we therefore used the EU28 aggregated data and subtracted the Croatian data.

As a result of the collection phase, we managed to establish the economic contribution of each sub-group, defined in NACE 2 terms, for 2008 and 2011.

1.1.3 Calculation of the economic contributions of each subgroup

As a result of the change in the NACE codes standard perimeter of the creative industries in 2008 is not exactly the same when using NACE 1.1 and NACE 2 codes. For that reason, it would be incorrect to simply compare the creative industry's contribution in 2008, as calculated in our previous study using NACE 1.1 data, with its contribution in 2011 calculated using NACE 2 data.

[8] *Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, United Kingdom, Austria, Finland, Sweden, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Bulgaria, Romania.*

In order to stick as much as possible with our original perimeter, the methodology used to calculate the 2011 contribution of each sub-group is the following:

- Use the NACE 2 data for 2008 and 2011 to compute an annual growth rate for each sub-group, and for each indicator (jobs and value added at factor cost) between 2008 and 2011;
- Apply this growth rate to the 2008 value calculated in the initial study so as to evaluate the 2011 economic contribution.

Even if there are some differences in absolute terms between the NACE 1.1 and NACE 2 perimeters, the assumption that the growth rate of each sub-group between 2008 and 2011 barely varies is very conservative. The methodology described above is therefore the most robust we could use considering the difficulties related to the change in the statistical standards between 2008 and 2011.

1.2 CONCLUSIONS REGARDING THE EVOLUTION OF THE CONTRIBUTION OF CREATIVE INDUSTRIES AT EU 27 LEVEL

The results of our analyses are summarized in the following tables:

- Table 9 displays the main results of the previous TERA study at EU 27 level.
- Table 10 shows our new estimate for the contribution of the creative industries in terms of value added and number of employee in 2011.
- Table 11 shows the evolution at the EU 27 level in absolute and relative terms between 2008 and 2011.

Table 9: Economic weight of the creative industries in EU 27 (2008)

	VALUE ADDED		EMPLOYMENT	
Creative Industries	**VA (billion €)**	**% of EU VA**	**Jobs (million)**	**% of EU employment**
Core	558	4.46%	8.5	3.82%
Interdependent	213	1.71%	4.2	1.89%
Non dedicated support	90	0.72%	1.7	0.77%
TOTAL creative industries	**862**	**6.89%**	**14.4**	**6.48%**

Source – *2010 TERA Consultants study*

Table 10: Economic weight of the creative industries in EU 27 (2011)

	VALUE ADDED			EMPLOYMENT		
Creative Industries	**VA (billion€)**	**% of evolution 2008-2011**	**% of EU VA**	**Jobs (million)**	**% of evolution 2008-2011**	**% of EU employment**
Core	558	-0.07%	4.40%	8.3	-2.33%	3.82%
Interdependent	211	-1.18%	1.67%	4.0	-3.88%	1.86%
Non dedicated support	91	0.58%	0.72%	1.7	-1.19%	0.78%
TOTAL creative industries	**860**	**-0.28%**	**6.79%**	**14.0**	**-2.65%**	**6.47%**

Source – *2013 TERA Consultants analysis*

Table 11: Evolution of value added and employment 2008/2011

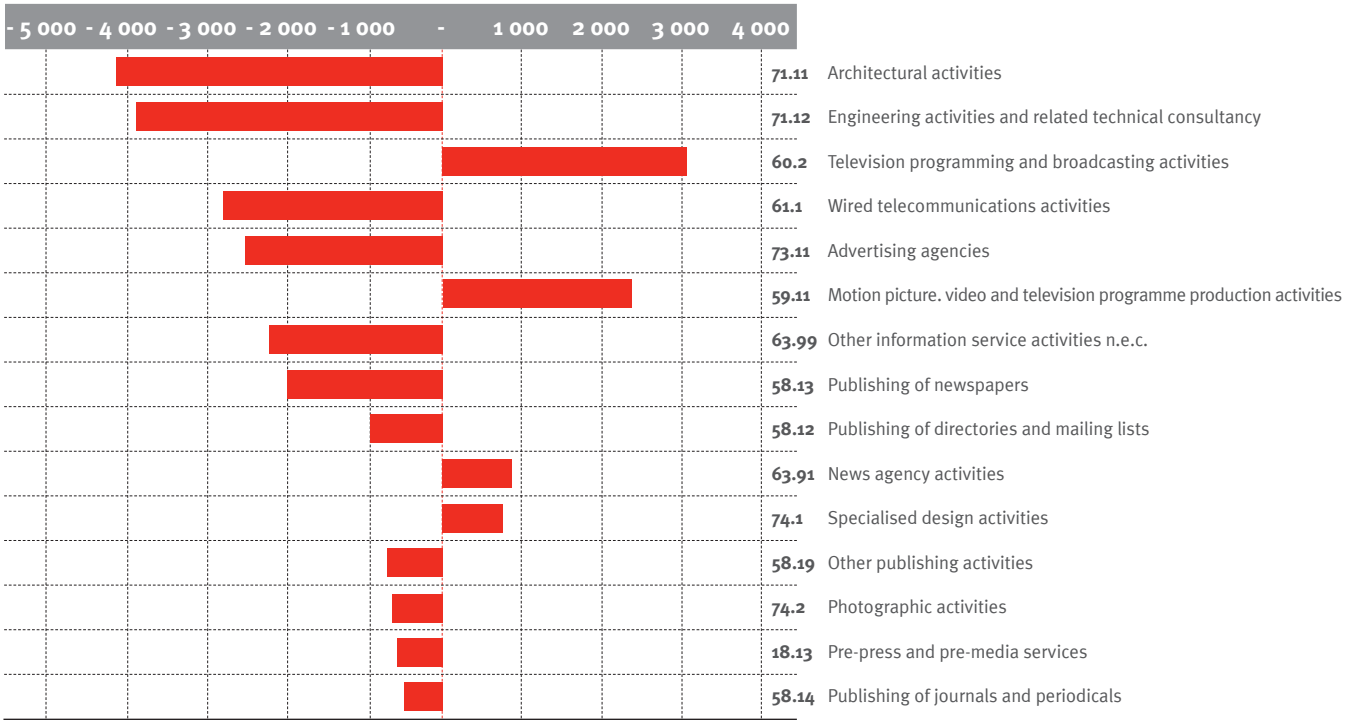
	VALUE ADDED - 2008/2011 EVOLUTION		EMPLOYMENT - 2008/2011 EVOLUTION	
Creative Industries	**Billion€**	**% of growth**	**Million of jobs**	**% of growth**
Core	0,0	0,0%	-0,2	-2,4%
Interdependent	-2,0	-0,9%	-0,2	-4,8%
Non dedicated support	1,0	1,1%	0	0,0%
TOTAL creative industries	**-2,0**	**-0,2%**	**-0,4**	**-2,8%**

Source – *2013 TERA Consultants analysis*

The analysis of the data presented above calls for a few comments:

- In terms of Value Added, the economic contribution of the creative industries has been rather stable in Europe between 2008 and 2011. However, this overall stability hides a strong heterogeneity within the different sub-groups, which can be explained by the variety of the underlying drivers of growth.
  Within the core creative industries, we see a decrease in all activities except for TV broadcasting and movie production (see Figure 1 below).

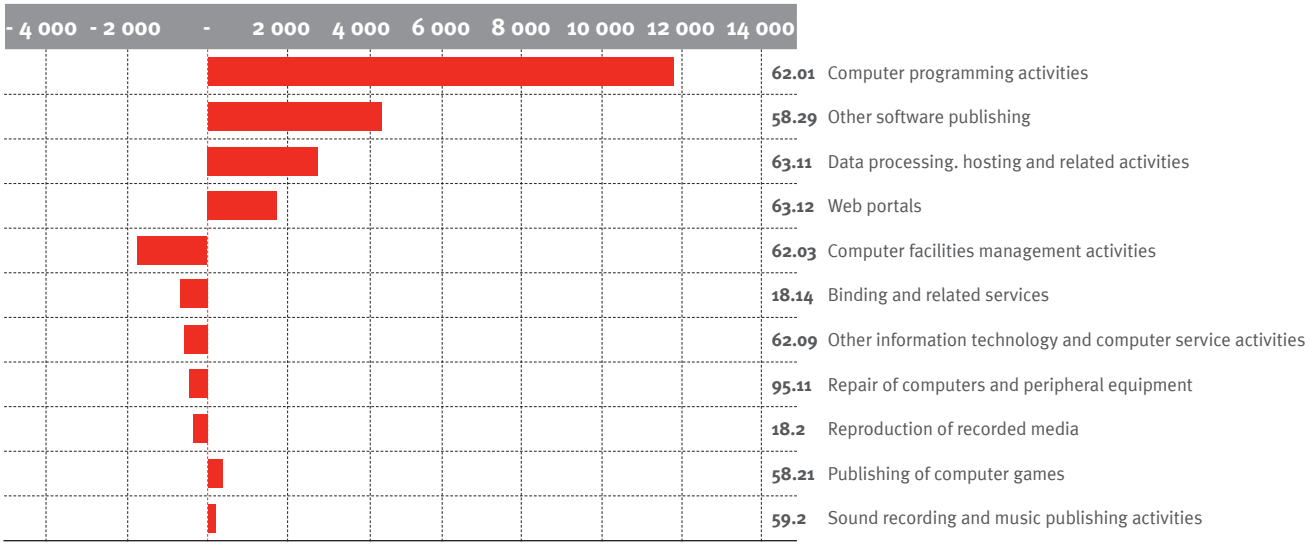
Figure 1: Evolution of the value added for the core creative activities 2008 – 2011 (in billion €)



Source – *2013 TERA Consultants analysis*

On the contrary, ICT-related activities included in the core post a significant growth, mostly driven by web development, data hosting and processing and computer software programming.

Figure 2: Evolution of the value added of the main "IT related" 2008 – 2011 (in billion €)



Source – *2013 TERA Consultants analysis*

The Interdependent sub-group, which mostly includes retail related activities, experienced a limited decline that can be explained by the broader decline of the retail sector at least in Western Europe.

Lastly, the non-dedicated sub-group has experienced a modest growth throughout the 2008-2011 period, following the overall stability of the Telecom sector in Europe.

For all sectors, the economic contribution of the creative industries in terms of job creation has been weaker than the contribution in terms of GDP. The overall tendency has been the destruction of jobs within most sub-groups, particularly for the traditional core activities, for which job destruction has been particularly significant.
The diverging tendencies between GDP and employment growth are illustrating a change in the productive system of the creative industries, which rely more on capital (particularly ICT-type of capital investment) than on labour.

CHAPTER 2

Economic contribution of the Creative Industries at a national level in 2011

2.1 APPROACH

In addition to the Pan-European picture, the previous study included an estimate of the economic contribution of the creative industries for the five largest European countries (UK, France, Germany, Italy and Spain). This report aims at updating these figures for the same five countries.

The approach followed for that purpose is perfectly comparable to the approach used at the European level:

- Identification of all sectors included in the four sub-groups of the creative industries (in NACE Rev. 2 classification);
- Calculation of the 2008-2011 growth rate for value-added and employment at the European level using NACE 2 codes;
- Calculation of the economic contribution of the creative industries for each individual country in 2011.

The main issue we have been facing to perform these calculations was related to the availability – or lack thereof - of the relevant data. The Eurostat SBS database is indeed far from complete and reliable for individual countries at the level of precision we are operating (NACE codes are organized in a hierarchical fashion from 2 digit aggregated industry codes, to very refined 4 digit industrial segment codes).
To cope with this difficulty, when the relevant data was lacking, we have tried to use either data coming from the national statistics offices (e.g. INSEE for France), or more aggregated data (e.g. 3 digit NACE codes)[9].

More precisely, the solution we chose has been different for each country:

- For the United Kingdom, data published by the national statistics office[10] are a lot less detailed than the Eurostat one. We then had to use the Eurostat data at the 3-digit codes level;
- For France Eurostat and INSEE[11] data being quite different, we relied on the INSEE data for our calculation[12];
- For Italy, Eurostat and ISTAT[13] data were consistent and accurate enough to apply the calculation methodology used at the European level;
- For Spain, data published by the national office (INE[14]) were not detailed enough. We then used the Eurostat data at the 3-digit codes level;
- For Germany, it was unfortunately impossible to use either Eurostat or the German national statistics office. Eurostat data were indeed showing significant inconsistencies, due to a change in the data collection process in 2008 (see Appendix 6 for a detailed explanation) and could therefore not be used. On the other hand, the data made available by StBA[15] were much too lacunar for our purpose. For these reasons, employment and value added growth rate for Germany have been estimated using two third party studies on culture and creative industries in Germany published by the German Federal Ministry of Economics and Technology[16].

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[9] *See Appendix 4 for more details on these points*
[10] *British National Statistics Office.*
[11] *Institut national de la statistique et des études économiques, French National Statistics Office.*
[12] *We have identified that the source of the difference were the year 2008. We have contacted INSEE on this difference. They answered that they were a change in the system in charge to product Structural Business Statistics in 2008. From 2009, improvement had been done on this new system and 2008 data had been corrected. Because of that, the last update on insee.fr came late and Eurostat data haven't been corrected since.*
[13] *Istituto Nazionale di Statistica, Italian National Statistics Office.*
[14] *Instituto Nacional de Estadística, Spanish National Statistics Office.*
[15] *Statistisches Bundesamt, German National Statistics Office.*
[16] *Federal Ministry of Economics and Technology, Culture and Creative Industries in Germany 2009 Monitoring of Selected Economic Key Data on Culture and Creative Industries - Monitoring Report 2010, July 2010.*
Federal Ministry of Economics and Technology, Monitoring of Selected Economic Key Data on Culture and Creative Industries 2011, December 2012.

2.2 CONCLUSIONS REGARDING THE EVOLUTION OF THE CONTRIBUTION OF CREATIVE INDUSTRIES AT NATIONAL LEVELS

Table 12 shows the weight of the creative industry (contribution of the creative industries divided by the contribution of all industries), in terms of value added and of employment, in the economy of each of the five countries studied for 2008, as calculated in our previous study.

Table 12: Economic weight of the creative industries in the main European markets (2008)

	5 COUNTRIES		UK		FRANCE		GERMANY		ITALY		SPAIN	
Creative Industries	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**
Core	4.8%	4.2%	6.2%	5.4%	4.9%	3.7%	4.2%	4.1%	3.8%	3.6%	3.6%	3.5%
Interdependent & support	2.6%	3.0%	3.4%	3.8%	2.6%	2.6%	2.3%	2.8%	2.1%	2.5%	2.0%	2.4%
TOTAL creative industries	**7.5%**	**7.2%**	**9.6%**	**9.2%**	**7.5%**	**6.2%**	**6.5%**	**6.9%**	**5.9%**	**6.1%**	**5.6%**	**5.9%**
Creative GDP (billion €)	638		175		146		162		93		62	
Creative employment (million)		9.6		2.7		1.6		2.7		1.4		1.2

Source – *TERA Consultants analysis*

Table 13 below shows an update of these figures for 2011. Table 14 shows the evolution of the economic contribution of the creative industries in absolute terms, compared with an evolution of the overall economy.

Table 13: Economic weight of the creative industries in the main European markets (2011)

	5 COUNTRIES		UK		FRANCE		GERMANY		ITALY		SPAIN	
Creative Industries	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**
Core	4.5%	4.1%	5.8%	5.4%	5.1%	3.7%	3.9%	4.1%	3.9%	3.7%	3.4%	3.4%
Interdependent & support	2.4%	2.8%	3.2%	3.6%	2.7%	2.6%	2.1%	2.9%	2.2%	2.5%	1.7%	2.2%
TOTAL creative industries	**6.9%**	**7.0%**	**9.0%**	**9.0%**	**7.9%**	**6.3%**	**6.1%**	**7.0%**	**6.1%**	**6.2%**	**5.0%**	**5.6%**
Creative GDP (billion €)	618		159		152		159		95		53	
Creative employment (million)		9.5		2.6		1.6		2.8		1.4		1.0

Source – *TERA Consultants analysis*

Table 14: Evolution of the economic contribution of the creative industries in the main European markets (2008-2011)

	5 COUNTRIES		UK		FRANCE		GERMANY		ITALY		SPAIN	
Creative Industries	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**	**VA**	**Jobs**
Creative industries	-3.1%	-2.0%	-8.8%	-3.8%	4.0%	0.4%	-1.7%	4.1%	1.6%	-1.1%	-14.5%	-15.7%
Overall economy	1.2%	-1.3%	-3.6%	-1.0%	3.5%	-0.4%	5.5%	3.1%	0.3%	-1.9%	-3.8%	-10.6%

Source – *TERA Consultants analysis*

A few comments can be made at this stage:

- Overall, creative industries in the top 5 European countries have posted a stronger decline than the overall economy.

- The decrease of the creative industries has proved much stronger in the "centre" (the five biggest economies of the Euro zone) than in the "periphery" (the other 22 countries), both at the value added and at the employment level. Even if a full explanation of this phenomenon falls out of the scope of this report, it must involve a difference of maturity of the creative industry between the centre and the periphery, as well as differences of consumption pattern and the effect of the outsourcing.

- The decrease has generally been stronger in terms of added value than in terms of jobs, which could be explained by the relative rigidity of employment. Indeed, at the firm's level, there is generally a lag between a decrease in profit and the decision of implementing a lay-off plan. The argument goes also the other way around: in times of uncertainty about demand, companies are reluctant to hire, which might explain the French situation with an almost jobless increase in added value. The German situation (a significant job increase with a declining added value) is very peculiar, which has been underlined in the 2011 report we used to compute these numbers: "Considering the economic situation, the labour market shows a surprisingly positive trend." No clear explanation for that unintuitive employment trend was however provided in the report.

- The overall declining trend in Europe top 5 hides a strong heterogeneity between countries:
  - The economic weight of the creative industries has decreased in the UK[17] , in Spain, and in Germany[18] (in terms of value added);
  - On the contrary, the creative industries have grown in France[19] and Italy.

- Again, the explanation for this heterogeneity of trends must be multifactorial. It is however possible to underline the correlation between the growth of the creative industries and the IP protection legislation[20]. Thus, France has established some form of response to Internet piracy before 2011 with the notice sending system implemented by HADOPI. The cultural industries in France have posted a much better dynamic during the period studied than in countries where such measures do not exist.

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[17] *In the UK, the Department for Culture Media & Sport has determined that creative industries (based on a definition that is more restrictive than our "core" segment) accounted for 1.55 million jobs in 2011. This figure is higher than ours, which can be explained by differences of definition of "employment". The British studies used a broad definition, encompassing both employees (salary workers) and self-employed entrepreneurs, whereas our study focused on salaried employment. Taking this difference into account, both figures seem consistent with one another. Source: Department for Culture Media & Sport, Creative Industries Economic Estimates, January 2014.*

[18] *In Germany, the Federal Ministry of Economics and Technology has published two studies (in 2010 and 2012) related to the culture and creative industries. The first one compares the economic Importance of these industries between 2007 and 2009, and the second one between 2009 and 2011. These two studies show that between 2008 and 2011, total employment has increased by 4.1% while value added has decreased by 1.7%.*

[19] *In France, a study carried out by Ernst & Young estimates that cultural and artistic industries generate around 1.2 million jobs all over France. According to E&Y, "cultural and artistic industries" include nine sectors (graphic and plastic arts, music, live spectacle, film, television, radio, video games, press/newspapers and magazines) that approximately match our "core" segment, which makes their estimate consistent with ours. Source: EY, 1er panorama des industries culturelles et créatives, November 2013.*

[20] *See for instance the study of Ender Analysis Digital Europe: Diversity and Opportunity p.24.*

APPENDICES

Appendix 1: Sectors related to Creative industries (4-digit NACE Rev. 2 code)

1 CORE INDUSTRIES

The following table shows the list of sectors used to evaluate the value added of core industries and the creative factor assigned to each sector.

Table 15: Core industries (4-digit NACE Rev. 2 code) – Value Added

NACE Code	NACE description	Complete / Incomplete	Creative factor
13.1	Preparation and spinning of textile fibres	Complete	7%
13.2	Weaving of textiles	Complete	7%
13.3	Finishing of textiles	Incomplete	0%
13.91	Manufacture of knitted and crocheted fabrics	Complete	7%
13.92	Manufacture of made-up textile articles, except apparel	Complete	7%
13.93	Manufacture of carpets and rugs	Complete	7%
13.94	Manufacture of cordage, rope, twine and netting	Complete	7%
13.95	Manufacture of non-wovens and articles made from non-wovens, except apparel	Complete	7%
13.96	Manufacture of other technical and industrial textiles	Complete	7%
13.99	Manufacture of other textiles n.e.c.	Incomplete	0%
14.11	Manufacture of leather clothes	Complete	7%
14.12	Manufacture of workwear	Complete	7%
14.13	Manufacture of other outerwear	Complete	7%
14.14	Manufacture of underwear	Complete	7%
14.19	Manufacture of other wearing apparel and accessories	Complete	7%
14.2	Manufacture of articles of fur	Complete	7%
14.31	Manufacture of knitted and crocheted hosiery	Complete	7%
14.39	Manufacture of other knitted and crocheted apparel	Complete	7%
15.11	Tanning and dressing of leather; dressing and dyeing of fur	Incomplete	0%
15.2	Manufacture of footwear	Complete	7%
16.29	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials	Incomplete	0%
17.22	Manufacture of household and sanitary goods and of toilet requisites	Incomplete	0%
17.23	Manufacture of paper stationery	Incomplete	0%
18.12	Other printing	Incomplete	0%
18.13	Pre-press and pre-media services	Complete	100%
22.19	Manufacture of other rubber products	Incomplete	0%
22.29	Manufacture of other plastic products	Incomplete	0%
23.44	Manufacture of other technical ceramic products	Incomplete	0%
32.5	Manufacture of medical and dental instruments and supplies	Incomplete	0%
32.99	Other manufacturing n.e.c.	Incomplete	0%
33.19	Repair of other equipment	Incomplete	0%
46.16	Agents involved in the sale of textiles, clothing, fur, footwear and leather goods	Complete	7%

NACE Code	NACE description	Complete / Incomplete	Creative factor
46.41	Wholesale of textiles	Complete	7%
46.42	Wholesale of clothing and footwear	Complete	7%
46.43	Wholesale of electrical household appliances	Incomplete	0%
46.47	Wholesale of furniture, carpets and lighting equipment	Incomplete	0%
46.48	Wholesale of watches and jewellery	Complete	7%
46.49	Wholesale of other household goods	Incomplete	0%
46.73	Wholesale of wood, construction materials and sanitary equipment	Incomplete	0%
47.19	Other retail sale in non-specialised stores	Complete	7%
47.41	Retail sale of computers, peripheral units and software in specialised stores	Complete	7%
47.42	Retail sale of telecommunications equipment in specialised stores	Complete	7%
47.51	Retail sale of textiles in specialised stores	Complete	7%
47.53	Retail sale of carpets, rugs, wall and floor coverings in specialised stores	Incomplete	0%
47.59	Retail sale of furniture, lighting equipment and other household articles in specialised stores	Incomplete	0%
47.61	Retail sale of books in specialised stores	Complete	100%
47.62	Retail sale of newspapers and stationery in specialised stores	Complete	100%
47.64	Retail sale of sporting equipment in specialised stores	Complete	7%
47.65	Retail sale of games and toys in specialised stores	Complete	7%
47.71	Retail sale of clothing in specialised stores	Complete	7%
47.76	Retail sale of flowers, plants, seeds, fertilisers, pet animals and pet food in specialised stores	Complete	7%
47.77	Retail sale of watches and jewellery in specialised stores	Complete	7%
47.78	Other retail sale of new goods in specialised stores	Complete	7%
47.91	Retail sale via mail order houses or via Internet	Incomplete	0%
58.11	Book publishing	Complete	100%
58.12	Publishing of directories and mailing lists	Complete	100%
58.13	Publishing of newspapers	Complete	100%
58.14	Publishing of journals and periodicals	Complete	100%
58.19	Other publishing activities	Complete	100%
58.21	Publishing of computer games	Complete	100%
58.29	Other software publishing	Complete	100%
59.11	Motion picture, video and television programme production activities	Complete	100%
59.12	Motion picture, video and television programme post-production activities	Complete	100%
59.13	Motion picture, video and television programme distribution activities	Complete	100%
59.14	Motion picture projection activities	Complete	100%
59.2	Sound recording and music publishing activities	Complete	100%
60.1	Radio broadcasting	Complete	100%
60.2	Television programming and broadcasting activities	Complete	100%
61.1	Wired telecommunications activities	Complete	100%
61.2	Wireless telecommunications activities	Complete	100%
61.3	Satellite telecommunications activities	Complete	100%
61.9	Other telecommunications activities	Complete	100%
62.01	Computer programming activities	Complete	100%

NACE Code	NACE description	Complete / Incomplete	Creative factor
63.91	News agency activities	Complete	100%
63.99	Other information service activities n.e.c.	Complete	100%
68.2	Renting and operating of own or leased real estate	Complete	7%
71.11	Architectural activities	Complete	100%
71.12	Engineering activities and related technical consultancy	Complete	100%
73.11	Advertising agencies	Complete	100%
73.12	Media representation	Complete	100%
74.1	Specialised design activities	Complete	100%
74.2	Photographic activities	Complete	100%
74.9	Other professional, scientific and technical activities n.e.c.	Incomplete	0%
77.21	Renting and leasing of recreational and sports goods	Complete	7%
77.22	Renting of video tapes and disks	Complete	7%
77.29	Renting and leasing of other personal and household goods	Complete	7%
77.4	Leasing of intellectual property and similar products, except copyrighted works	Complete	7%
79.9	Other reservation service and related activities	Incomplete	0%
82.3	Organisation of conventions and trade shows	Complete	7%
82.91	Activities of collection agencies and credit bureaus	Complete	7%
82.99	Other business support service activities n.e.c.	Incomplete	0%
85.51	Sports and recreation education	Incomplete	0%
85.52	Cultural education	Incomplete	0%
90.01	Performing arts	Complete	100%
90.02	Support activities to performing arts	Complete	100%
90.03	Artistic creation	Complete	100%
90.04	Operation of arts facilities	Complete	100%
91.01	Library and archives activities	Incomplete	0%
91.02	Museums activities	Complete	100%
91.03	Operation of historical sites and buildings and similar visitor attractions	Complete	100%
93.29	Other amusement and recreation activities	Incomplete	0%
95.29	Repair of other personal and household goods	Incomplete	0%
96.09	Other personal service activities n.e.c.	Complete	0%

Source – *TERA Consultants analysis*

Table 16: Core industries (4-digit NACE Rev. 2 code) – Employment

NACE Code	NACE description	Complete / Incomplete	Creative factor
1.62	Support activities for animal production	Incomplete	0%
2.4	Support services to forestry	Incomplete	0%
17.23	Manufacture of paper stationery	Incomplete	0%
18.11	Printing of newspapers	Complete	100%
18.12	Other printing	Incomplete	0%
18.13	Pre-press and pre-media services	Complete	100%
18.14	Binding and related services	Complete	100%
18.2	Reproduction of recorded media	Complete	100%
32.99	Other manufacturing n.e.c.	Incomplete	0%
58.11	Book publishing	Complete	100%
58.12	Publishing of directories and mailing lists	Complete	100%
58.13	Publishing of newspapers	Complete	100%
58.14	Publishing of journals and periodicals	Complete	100%
58.19	Other publishing activities	Complete	100%
59.11	Motion picture, video and television programme production activities	Complete	100%
59.12	Motion picture, video and television programme post-production activities	Complete	100%
59.13	Motion picture, video and television programme distribution activities	Complete	100%
59.14	Motion picture projection activities	Complete	100%
59.2	Sound recording and music publishing activities	Complete	100%
60.1	Radio broadcasting	Incomplete	0%
60.2	Television programming and broadcasting activities	Incomplete	0%
63.91	News agency activities	Complete	100%
63.99	Other information service activities n.e.c.	Complete	100%
64.2	Activities of holding companies	Incomplete	0%
69.1	Legal activities	Incomplete	0%
69.2	Accounting, bookkeeping and auditing activities; tax consultancy	Incomplete	0%
70.1	Activities of head offices	Incomplete	0%
70.21	Public relations and communication activities	Incomplete	0%
70.22	Business and other management consultancy activities	Incomplete	0%
71.11	Architectural activities	Complete	100%
71.12	Engineering activities and related technical consultancy	Complete	100%
71.2	Technical testing and analysis	Incomplete	0%
73.11	Advertising agencies	Complete	100%
73.12	Media representation	Complete	100%
73.2	Market research and public opinion polling	Incomplete	0%
74.1	Specialised design activities	Complete	100%
74.2	Photographic activities	Complete	100%
74.3	Translation and interpretation activities	Incomplete	0%
74.9	Other professional, scientific and technical activities n.e.c.	Incomplete	0%
77.4	Leasing of intellectual property and similar products, except copyrighted works	Complete	7%

NACE Code	NACE description	Complete / Incomplete	Creative factor
78.1	Activities of employment placement agencies	Incomplete	0%
78.2	Temporary employment agency activities	Incomplete	0%
78.3	Other human resources provision	Incomplete	0%
79.9	Other reservation service and related activities	Incomplete	0%
80.1	Private security activities	Incomplete	0%
80.2	Security systems service activities	Incomplete	0%
80.3	Investigation activities	Incomplete	0%
81.21	General cleaning of buildings	Incomplete	0%
81.22	Other building and industrial cleaning activities	Incomplete	0%
81.29	Other cleaning activities	Incomplete	0%
82.11	Combined office administrative service activities	Incomplete	0%
82.19	Photocopying, document preparation and other specialised office support activities	Incomplete	0%
82.2	Activities of call centres	Incomplete	0%
82.3	Organisation of conventions and trade shows	Complete	7%
82.91	Activities of collection agencies and credit bureaus	Complete	7%
82.92	Packaging activities	Incomplete	0%
82.99	Other business support service activities n.e.c.	Incomplete	0%
85.51	Sports and recreation education	Incomplete	0%
85.52	Cultural education	Incomplete	0%
85.6	Educational support activities	Incomplete	0%
90.01	Performing arts	Complete	100%
90.02	Support activities to performing arts	Complete	100%
90.03	Artistic creation	Complete	100%
90.04	Operation of arts facilities	Complete	100%
91.01	Library and archives activities	Incomplete	0%
91.02	Museums activities	Complete	100%
91.03	Operation of historical sites and buildings and similar visitor attractions	Complete	100%
91.04	Botanical and zoological gardens and nature reserves activities	Incomplete	0%
92	Gambling and betting activities	Incomplete	0%
93.11	Operation of sports facilities	Incomplete	0%
93.12	Activities of sport clubs	Incomplete	0%
93.19	Other sports activities	Incomplete	0%
93.21	Activities of amusement parks and theme parks	Incomplete	0%

Source – *TERA Consultants analysis*

2 ADDITIONAL CORE INDUSTRIES AS DEFINED BY TERA

Table 17: Additional core industries (4-digit NACE Rev. 2 code)

NACE Code	NACE description	Complete / Incomplete	Creative factor
17.23	Manufacture of paper stationery	Incomplete	0%
18.11	Printing of newspapers	Complete	100%
18.12	Other printing	Incomplete	100%
18.13	Pre-press and pre-media services	Complete	100%
18.14	Binding and related services	Complete	100%
18.2	Reproduction of recorded media	Complete	100%
33.12	Repair of machinery	Incomplete	0%
58.11	Book publishing	Incomplete	100%
58.12	Publishing of directories and mailing lists	Incomplete	100%
58.13	Publishing of newspapers	Incomplete	100%
58.14	Publishing of journals and periodicals	Incomplete	100%
58.19	Other publishing activities	Complete	100%
58.21	Publishing of computer games	Incomplete	100%
58.29	Other software publishing	Incomplete	100%
59.2	Sound recording and music publishing activities	Incomplete	100%
60.1	Radio broadcasting	Incomplete	0%
60.2	Television programming and broadcasting activities	Incomplete	0%
62.01	Computer programming activities	Incomplete	100%
62.02	Computer consultancy activities	Complete	100%
62.03	Computer facilities management activities	Complete	100%
62.09	Other information technology and computer service activities	Incomplete	100%
63.11	Data processing, hosting and related activities	Complete	100%
63.12	Web portals	Complete	100%
95.11	Repair of computers and peripheral equipment	Complete	100%

Source – *TERA Consultants analysis*

3 INTERDEPENDENT INDUSTRIES

Table 18: Interdependent industries (4-digit NACE Rev. 2 code)

NACE Code	NACE description	Complete / Incomplete	Creative factor
17.11	Manufacture of pulp	Complete	100%
17.12	Manufacture of paper and paperboard	Complete	100%
20.59	Manufacture of other chemical products n.e.c.	Incomplete	100%
26.11	Manufacture of electronic components	Incomplete	0%
26.2	Manufacture of computers and peripheral equipment	Complete	100%
26.3	Manufacture of communication equipment	Incomplete	100%
26.4	Manufacture of consumer electronics	Incomplete	100%
26.7	Manufacture of optical instruments and photographic equipment	Incomplete	100%
27.31	Manufacture of fibre optic cables	Incomplete	100%
28.23	Manufacture of musical instruments	Incomplete	100%
28.99	Manufacture of medical and dental instruments and supplies	Incomplete	0%
32.2	Repair of electronic and optical equipment	Complete	100%
32.5	Repair of other equipment	Incomplete	0%
33.13	Wholesale of electrical household appliances	Incomplete	0%
33.19	Wholesale of furniture, carpets and lighting equipment	Incomplete	0%
46.43	Wholesale of computers, computer peripheral equipment and software	Incomplete	0%
46.47	Wholesale of electronic and telecommunications equipment and parts	Incomplete	0%
46.51	Wholesale of office furniture	Complete	100%
46.52	Wholesale of other office machinery and equipment	Complete	100%
46.65	Wholesale of solid, liquid and gaseous fuels and related products	Complete	100%
46.66	Wholesale of metals and metal ores	Complete	100%
46.71	Wholesale of wood, construction materials and sanitary equipment	Complete	9%
46.72	Wholesale of hardware, plumbing and heating equipment and supplies	Complete	9%
46.73	Wholesale of chemical products	Incomplete	0%
46.74	Wholesale of other intermediate products	Complete	9%
46.75	Wholesale of waste and scrap	Complete	9%
46.76	Retail sale of telecommunications equipment in specialised stores	Complete	9%
46.77	Retail sale of audio and video equipment in specialised stores	Complete	9%
47.42	Manufacture of other special-purpose machinery n.e.c.	Complete	100%
47.43	Retail sale of carpets, rugs, wall and floor coverings in specialised stores	Complete	100%
47.53	Manufacture of office machinery and equipment (except computers and peripheral equipment)	Incomplete	0%
47.54	Retail sale of electrical household appliances in specialised stores	Complete	100%
47.59	Retail sale of furniture, lighting equipment and other household articles in specialised stores	Incomplete	100%
47.63	Retail sale of music and video recordings in specialised stores	Complete	100%
47.64	Retail sale of flowers, plants, seeds, fertilisers, pet animals and pet food in specialised stores	Complete	100%
47.65	Retail sale of watches and jewellery in specialised stores	Complete	100%

NACE Code	NACE description	Complete / Incomplete	Creative factor
47.76	Other retail sale of new goods in specialised stores	Complete	100%
47.77	Other information technology and computer service activities	Complete	100%
47.78	Renting and leasing of recreational and sports goods	Complete	100%
62.09	Retail sale of sporting equipment in specialised stores	Incomplete	0%
77.21	Renting of video tapes and disks	Complete	100%
77.22	Renting and leasing of other personal and household goods	Complete	100%
77.29	Renting and leasing of office machinery and equipment (including computers)	Complete	100%
77.33	Retail sale of games and toys in specialised stores	Complete	100%
77.33	Renting and leasing of office machinery and equipment (including computers)	Complete	100%
95.29	Repair of other personal and household goods	Incomplete	0%

Source – *TERA Consultants analysis*

4 NON-DEDICATED SUPPORT INDUSTRIES

Table 19: Non-dedicated support industries (4-digit NACE Rev. 2 code)

NACE Code	NACE description	Complete / Incomplete	Creative factor
46.11	Agents involved in the sale of agricultural raw materials, live animals, textile raw materials and semi-finished goods	Complete	7%
46.12	Agents involved in the sale of fuels, ores, metals and industrial chemicals	Complete	7%
46.13	Agents involved in the sale of timber and building materials	Complete	7%
46.14	Agents involved in the sale of machinery, industrial equipment, ships and aircraft	Complete	7%
46.15	Agents involved in the sale of furniture, household goods, hardware and ironmongery	Complete	7%
46.16	Agents involved in the sale of textiles, clothing, fur, footwear and leather goods	Complete	7%
46.17	Agents involved in the sale of food, beverages and tobacco	Complete	7%
46.18	Agents specialised in the sale of other particular products	Complete	7%
46.19	Agents involved in the sale of a variety of goods	Complete	7%
46.41	Wholesale of textiles	Complete	7%
46.42	Wholesale of clothing and footwear	Complete	7%
46.43	Wholesale of electrical household appliances	Incomplete	7%
46.47	Wholesale of furniture, carpets and lighting equipment	Incomplete	7%
46.51	Wholesale of computers, computer peripheral equipment and software	Complete	7%
46.52	Wholesale of electronic and telecommunications equipment and parts	Complete	7%
46.61	Wholesale of agricultural machinery, equipment and supplies	Complete	7%
46.62	Wholesale of machine tools	Complete	7%
46.63	Wholesale of mining, construction and civil engineering machinery	Complete	7%
46.64	Wholesale of machinery for the textile industry and of sewing and knitting machines	Complete	7%
46.65	Wholesale of office furniture	Complete	7%
46.66	Wholesale of other office machinery and equipment	Complete	7%

NACE Code	NACE description	Complete / Incomplete	Creative factor
46.69	Wholesale of other machinery and equipment	Complete	7%
46.9	Non-specialised wholesale trade	Complete	7%
47.11	Retail sale in non-specialised stores with food, beverages or tobacco predominating	Complete	7%
47.19	Other retail sale in non-specialised stores	Complete	7%
47.41	Retail sale of computers, peripheral units and software in specialised stores	Complete	7%
47.42	Retail sale of telecommunications equipment in specialised stores	Complete	7%
47.43	Retail sale of audio and video equipment in specialised stores	Complete	7%
47.51	Retail sale of textiles in specialised stores	Complete	7%
47.52	Retail sale of hardware, paints and glass in specialised stores	Complete	7%
47.53	Retail sale of carpets, rugs, wall and floor coverings in specialised stores	Complete	7%
47.54	Retail sale of electrical household appliances in specialised stores	Complete	7%
47.59	Retail sale of furniture, lighting equipment and other household articles in specialised stores	Complete	7%
47.61	Retail sale of books in specialised stores	Complete	7%
47.62	Retail sale of newspapers and stationery in specialised stores	Complete	7%
47.63	Retail sale of music and video recordings in specialised stores	Complete	7%
47.64	Retail sale of sporting equipment in specialised stores	Complete	7%
47.65	Retail sale of games and toys in specialised stores	Complete	7%
47.71	Retail sale of clothing in specialised stores	Complete	7%
47.72	Retail sale of footwear and leather goods in specialised stores	Complete	7%
47.76	Retail sale of flowers, plants, seeds, fertilisers, pet animals and pet food in specialised stores	Complete	7%
47.77	Retail sale of watches and jewellery in specialised stores	Complete	7%
47.78	Other retail sale of new goods in specialised stores	Complete	7%
47.79	Retail sale of second-hand goods in stores	Incomplete	0%
47.81	Retail sale via stalls and markets of food, beverages and tobacco products	Complete	7%
47.82	Retail sale via stalls and markets of textiles, clothing and footwear	Complete	7%
47.89	Retail sale via stalls and markets of other goods	Complete	7%
47.91	Retail sale via mail order houses or via Internet	Complete	7%
47.99	Other retail sale not in stores, stalls or markets	Complete	7%
49.1	Passenger rail transport, interurban	Complete	7%
49.2	Freight rail transport	Complete	7%
49.31	Urban and suburban passenger land transport	Complete	7%
49.32	Taxi operation	Complete	7%
49.39	Other passenger land transport n.e.c.	Complete	7%
49.41	Freight transport by road	Complete	7%
49.42	Removal services	Complete	7%
50.1	Sea and coastal passenger water transport	Complete	7%
50.2	Sea and coastal freight water transport	Complete	7%
50.3	Inland passenger water transport	Complete	7%
50.4	Inland freight water transport	Complete	7%
51.1	Passenger air transport	Complete	7%
51.21	Freight air transport	Complete	7%

NACE Code	NACE description	Complete / Incomplete	Creative factor
51.22	Space transport	Complete	7%
52.1	Warehousing and storage	Complete	7%
52.21	Service activities incidental to land transportation	Incomplete	0%
52.22	Service activities incidental to water transportation	Incomplete	0%
52.23	Service activities incidental to air transportation	Complete	7%
52.24	Cargo handling	Complete	7%
52.29	Other transportation support activities	Complete	7%
53.1	Postal activities under universal service obligation	Complete	7%
53.2	Other postal and courier activities	Complete	7%
60.1	Radio broadcasting	Incomplete	7%
60.2	Television programming and broadcasting activities	Incomplete	7%
61.1	Wired telecommunications activities	Complete	7%
61.2	Wireless telecommunications activities	Complete	7%
61.3	Satellite telecommunications activities	Complete	7%
61.9	Other telecommunications activities	Complete	7%
74.9	Other professional, scientific and technical activities n.e.c.	Incomplete	0%
79.11	Travel agency activities	Complete	7%
79.12	Tour operator activities	Complete	7%
79.9	Other reservation service and related activities	Incomplete	7%
82.19	Photocopying, document preparation and other specialised office support activities	Incomplete	7%
85.32	Technical and vocational secondary education	Incomplete	0%

Source – *TERA Consultants analysis*

APPENDICES

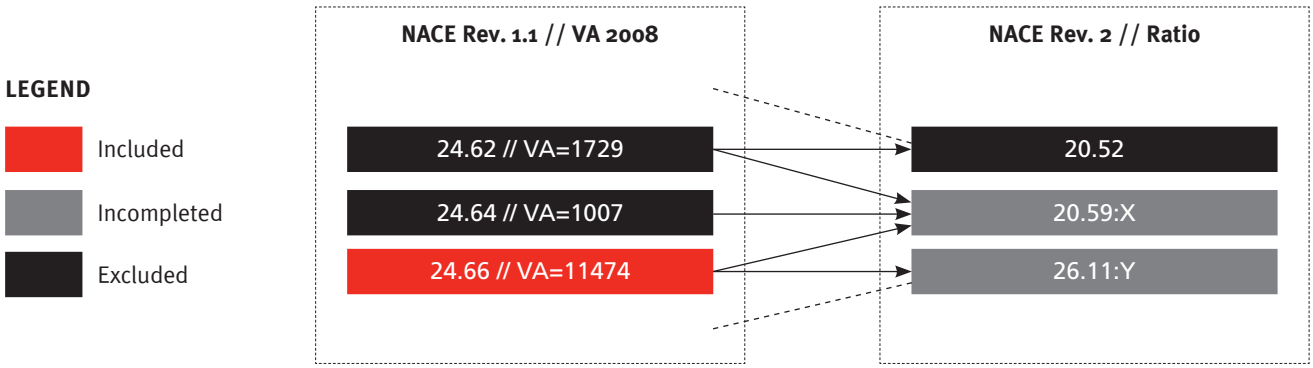
Appendix 2: Incomplete sector – estimate of the share of the sector related to creative industries

In order to evaluate if a sector in NACE Rev. 2 has a great number of its antecedents included in the initial study, the share of its antecedents included in the initial study among all its antecedents is calculated.

- For each antecedent expressed in the NACE Rev. 1.1, we calculate its average value per sector in the NACE Rev. 2: it is equal to the value added (respectively employment) of this sector divided by the number of its images in the NACE Rev. 2.
- We sum this average value per sector in the NACE Rev. 2 for all antecedents expressed in the NACE REV. 1.1 included in the initial study [A].
- We sum this average value per sector in the NACE Rev. 2 for all antecedents expressed in the NACE REV. 1.1 (included or excluded from the initial study) [B].
- We divide A by B.

Figure 3 summarizes this methodology.

Figure 3: Estimate of the share of the sector related to creative industries



Source – *TERA Consultants analysis*

$$X = \frac{\frac{11474}{2}}{\frac{11474}{2} + \frac{1007}{1} + \frac{1729}{2}} = 74\%$$

APPENDICES

Appendix 3: Data completion methodology

Some values (in 2008 and 2011) are derived from data provided by Eurostat, using the "underlying equations" of the NACE classification, or using previous years distribution.
The NACE classification gathers and presents the information at various level of aggregation. The most aggregate sectors have 2-digit code and the less aggregate ones have a 4-digit code. The sum of all the 4-digit codes having the same three first digits is equal to the sector coded by these three digits. Similarly, the sum of all the 3-digit codes having the same two first digits is equal to the sector coded by these two digits. For some NACE code we used **these underlying equations** to compute the value for the missing sectors. Table 20 gives an example of application.

Table 20: Example of inference by underlying equation

NACE Code	2008
79.1	3 900
79.11	2 662
79.12	X

X = 3900-2662

Source – *TERA Consultants analysis*

The second method is based on a top-down approach and use previous years distribution. To apply this method to a sector two conditions must be fulfilled: a) data must be available for at least one year between 2008 and 2011, b) if we want to estimate the value of a 4-digit NACE code, data must be available for the 3-digit NACE code it belongs to[21].

- We compute an average ratio between the 3-digit NACE and the 4-digit NACE.
- We multiply this ratio by the value of the 3-digit NACE at the year the value is needed.

Table 21 shows an example of application.

Table 21: Example of estimate by using previous years' distribution

NACE Code	2009	2010	2011
72.1	4 184	4 308	4 441
72.11	422	438	X

Source – *TERA Consultants analysis*

$$X = \frac{\frac{422}{4184} + \frac{438}{4308}}{2} * 4441$$

[21] *For 3-digit code a 2-digit code is used.*

APPENDICES

Appendix 4: Sectors related to Creative industries (3-digit NACE Rev. 2 code) and assigned factors

1 CORE INDUSTRIES

Table 22: Core industries (3-digit NACE Rev. 2 code) – Value added

NACE Code	NACE description	Creative factor
47.6	Retail sale of cultural and recreation goods in specialised stores	54%
58.1	Publishing of books, periodicals and other publishing activities	100%
58.2	Software publishing	100%
59.1	Motion picture, video and television programme activities	100%
59.2	Sound recording and music publishing activities	100%
60.1	Radio broadcasting	100%
60.2	Television programming and broadcasting activities	100%
61.1	Wired telecommunications activities	100%
61.2	Wireless telecommunications activities	100%
61.3	Satellite telecommunications activities	100%
61.9	Other telecommunications activities	100%
63.9	Other information service activities	100%
71.1	Architectural and engineering activities and related technical consultancy	100%
73.1	Advertising	7%
74.1	Specialised design activities	7%
90	Creative, arts and entertainment activities	100%

Source – *TERA Consultants analysis*

Table 23: Core industries (3-digit NACE Rev. 2 code) – Employment

NACE Code	NACE description	Creative factor
18.1	Printing and service activities related to printing	100%
58.1	Publishing of books, periodicals and other publishing activities	100%
59.1	Motion picture, video and television programme activities	100%
59.2	Sound recording and music publishing activities	100%
63.9	Other information service activities	100%
71.1	Architectural and engineering activities and related technical consultancy	100%
73.1	Advertising	100%
74.1	Specialised design activities	100%
74.2	Photographic activities	100%
90	Creative, arts and entertainment activities	100%

Source – *TERA Consultants analysis*

2 ADDITIONAL CORE INDUSTRIES AS DEFINED BY TERA

Table 24: Additional core industries (3-digit NACE Rev. 2 code)

NACE Code	NACE description	Creative factor
18.1	Printing and service activities related to printing	100%
18.2	Reproduction of recorded media	100%
58.1	Publishing of books, periodicals and other publishing activities	100%
58.2	Software publishing	100%
62	Computer programming, consultancy and related activities	100%
63.1	Data processing, hosting and related activities; web portals	100%

Source – *TERA Consultants analysis*

3 INTERDEPENDENT INDUSTRIES

Table 25: Interdependent industries (3-digit NACE Rev. 2 code)

NACE Code	NACE description	Creative factor
17.1	Manufacture of pulp, paper and paperboard	100%
26.2	Manufacture of computers and peripheral equipment	100%
26.3	Manufacture of communication equipment	100%
26.4	Manufacture of consumer electronics	100%
26.7	Manufacture of optical instruments and photographic equipment	100%
32.2	Manufacture of musical instruments	100%
46.5	Wholesale of information and communication equipment	100%
46.7	Other specialised wholesale	9%
47.4	Retail sale of information and communication equipment in specialised stores	100%
47.5	Retail sale of other household equipment in specialised stores	100%
47.6	Retail sale of cultural and recreation goods in specialised stores	100%
77.2	Renting and leasing of personal and household goods	100%

Source – *TERA Consultants analysis*

4 NON-DEDICATED SUPPORT INDUSTRIES

Table 26: Non-dedicated support industries (3-digit NACE Rev. 2 code)

NACE Code	NACE description	Creative factor
46.1	Wholesale on a fee or contract basis	7%
46.4	Wholesale of household goods	7%
46.5	Wholesale of information and communication equipment	7%
46.6	Wholesale of other machinery, equipment and supplies	7%
46.9	Non-specialised wholesale trade	7%
47.1	Retail sale in non-specialised stores	7%
47.4	Retail sale of information and communication equipment in specialised stores	7%
47.5	Retail sale of other household equipment in specialised stores	7%
47.6	Retail sale of cultural and recreation goods in specialised stores	7%
47.7	Retail sale of other goods in specialised stores	7%
47.8	Retail sale via stalls and markets	7%
47.9	Retail trade not in stores, stalls or markets	7%
49.1	Passenger rail transport, interurban	7%
49.2	Freight rail transport	7%
49.3	Other passenger land transport	7%
49.4	Freight transport by road and removal services	7%
50.1	Sea and coastal passenger water transport	7%
50.2	Sea and coastal freight water transport	7%
50.3	Inland passenger water transport	7%
50.4	Inland freight water transport	7%
51.1	Passenger air transport	7%
51.2	Freight air transport and space transport	7%
52.1	Warehousing and storage	7%
52.2	Support activities for transportation	7%
53.1	Postal activities under universal service obligation	7%
53.2	Other postal and courier activities	7%
60.1	Radio broadcasting	7%
60.2	Television programming and broadcasting activities	7%
61.1	Wired telecommunications activities	7%
61.2	Wireless telecommunications activities	7%
61.3	Satellite telecommunications activities	7%
61.9	Other telecommunications activities	7%
79.1	Travel agency and tour operator activities	7%
79.9	Other reservation service and related activities	7%

Source – *TERA Consultants analysis*

APPENDICES

Appendix 5: Differences between forecast and actual figures

1 SUMMARY OF THE CONCLUSIONS OF 2010 TERA STUDY

The 2010 TERA study included a forecast of the impact of digital piracy in Europe, in terms of employment, if no legislative action was taken. The methodology was based upon the two following steps:

- The initial study calculated piracy's impact in 2008 on the audio, audio-visual and software industry. This calculation was made at the national level for the UK, France, Germany, Italy and Spain, and then extrapolated at European level using the ratio of GDP between EU 27 and the 5 studied countries. This extrapolation was therefore based on the assumption that the impact of piracy in the five main European countries was similar to the one in the other European countries.

- Based on the 2008 estimate, the piracy impact has been calculated up to 2015 using two traffic trends:
  - Scenario 1, where digital piracy growth follows the "file sharing" traffic trend, assuming that piracy behaviour will continue to rely on peer-to-peer (P2P);
  - Scenario 2, where digital piracy growth follows the "global consumer IP" traffic trends, therefore assuming that piracy techniques will expand beyond P2P.

The initial study concluded that based on current projections and assuming no significant policy changes, the European Union's creative industries could expect to see, depending on scenario 1 or 2,

- by 2011: cumulative retail revenue losses between €56 billion and €64 billion, resulting in jobs lost between 350,000 and 490,000.
- by 2015: cumulative retail revenue losses between €166 billion and €240 billion, resulting in jobs lost between 600,000 and 1.2 million.

Table 27: Piracy losses in Europe, 2008 to 2015 – "File sharing" and "Consumer IP traffic" trend scenario

	2008	2009	2010	2011	2012	2013	2014	2015
Scenario 1: "File sharing" trend								
Retail losses (billion €)	10	12	15	19	22	26	30	32
Cumulative job losses	186 600	227 500	276 900	351 500	422 400	491 800	555 700	611 300
Scenario 2: "Consumer IP traffic" trend								
Retail losses (billion €)	10	13	17	24	32	40	48	56
Cumulative job losses	186 600	253 800	345 000	490 200	655 100	834 800	1 027 000	1 216 800

Source – *2010 TERA study, TERA analysis*

Moreover, in the top five European countries, the initial study concluded that the economic impact of piracy represents in 2008 €7.4 billion in revenue losses and 140,000 direct and indirect losses.

Table 28: The economic impact of piracy on Europe's creative industries (2008)

	UK	FRANCE	GERMANY	ITALY	SPAIN	EU 5	EU27
Retail losses (M €)	1 410	1 681	1 178	1 434	1 707	7 410	9 881
Retail losses (% of EU 27)	14%	17%	12%	15%	17%	75%	100%
Direct and indirect job losses	39 000	31 400	34 000	22 400	13 200	140 000	186 600
Direct and indirect job losses (% of EU 27)	21%	17%	18%	12%	7%	75%	100%

Source – *2010 TERA study*

2 COMPARISON BETWEEN FORECAST AND ACTUAL FIGURES

Using the actual 2011 figures, as calculated in chapters 1 and 2 of this report, we can now compare the results of our initial forecast with the real figures.
This comparison yields the conclusion that, for the five central European countries, the forecast of the initial study have proved accurate:

- The actual job losses encompasses the initial study's estimates;
- The assumptions of scenario 2 are globally consistent with the way Internet piracy evolved between 2008 and 2011.

Table 29: The impact of piracy on job losses in Europe between 2008 and 2011 (forecasted in 2010 TERA study)

	2008	2011	2008/2011
Scenario 1: "File sharing" trend			
EU 5	-140 000	-264 002	-124 002
Rest of EU (EU 27-EU 5)	-46 600	-87 498	-41 098
EU 27	-186 600	-351 500	-164 900
Scenario 2: "Consumer IP traffic" trend			
EU 5	-140 000	-368 176	-228 176
Rest of EU (EU 27-EU 5)	-46 600	-122 024	-75 424
EU 27	-186 600	-490 200	-303 600

Source – *initial study, TERA analysis*

- In the top five European countries, real job losses in the creative industries between 2008 and 2011 amount to 189,633.

However, in order to measure the impact piracy has had on the job destruction, it is necessary to estimate how the employment would have evolved in the creative industries absent all piracy ("counterfactual" scenario), and compare this scenario to the actual job losses.

In a first stage of analysis, one can consider that, absent piracy, the employment in the creative industries would have evolved as in the overall economy[22] or as in the service industries[23].

Between 2008 and 2011, total employment has decreased by 1.3%, which corresponds to a "structural" destruction of 125,144 jobs in the creative industries. While employment in service activities has increased by 7.9%, which corresponds to a creation of 765,491 jobs in the creative industries.

Using this as an estimate of the counterfactual scenario, the number of jobs destruction related to piracy between 2008 and 2011 in the top five European countries is comprised between 64,089 and 955,125.

[22] *The overall structural changes of the cultural industries as well as the long period since Internet piracy has been practiced make it impossible to reliably use the "historical" growth rate of the cultural industries as a relevant counterfactual.*

[23] *In its Green Paper "Unlocking the potential of cultural and creative industries", the Commission states that the growth of cultural and creative industries could be comparable to the service economic sector: "cultural and creative industries are recognized as growth sectors in the abovementioned Commission Consultation Paper as well as in the Commission Staff Working Document «Challenges for EU support to innovation services – Fostering new markets and jobs through innovation» - SEC(2009) 1195."*

Table 30: The impact of piracy on job losses in the five main European countries between 2008 and 2011 (new estimate)

	2008	2011	2008/2011	2008/2011
Creative industries - factual	9 649 048	9 459 415	-189 633	-2.0%
Overall economy	137 452 800	135 664 400	-1 788 400	-1.3%
Creative industries – counterfactual 1	9 649 048	9 523 504	-125 544	-1.3%
Impact of piracy – counterfactual 1			-64 089	
Service industries[24]	45 427 833	49 031 776	3 603 943	+7.9%
Creative industries – counterfactual 2	9 649 048	10 414 540	765 491	+7.9%
Impact of piracy – counterfactual 2			-955 125	

Source – *TERA analysis*

In the five central European countries, the initial study forecasted cumulative job losses in the range of 264,002 (75% of 351,500 cumulative job losses at EU 27 level) and 368,176 (75% of 490,200 cumulative job losses at EU 27 level) by 2011. Our new estimate is between 204,089 (140,000 as a base for 2008 plus 64,089 additional losses between 2008 and 2011) and 1,095,125 (140,000 plus 955,125).

With regards to the value destruction, the initial study forecasted cumulative retail losses in the five central European countries from 2008 to 2011 (four years) in the range of €42 and €48 billion. Our new estimate between 2008 and 2011 is in the range of €27.1 and €39.7 billion. Our new estimate for the four years between 2008 and 2011 is in the range of €34.5 billion (€7.4 billion as a base for 2008 plus €27.1 billion value destruction between 2008 and 2011) and €47.1 billion (€7.4 plus €39.7).

[24] *Commission Staff Working Document «Challenges for EU support to innovation services – Fostering new markets and jobs through innovation» - SEC(2009) 1195 considers that services industries comprises NACE codes G to P.*
Due to limited availability of business statistics, G to N NACE codes are accounted. And financial services (NACE Rev. 2 Section K) are kept separate because of their specific nature.

Table 31: The impact of piracy on value added destruction (in € billion) in the five main European countries between 2008 and 2011 (new estimate)

	2008	2011	2008/2011	2008/2011
Creative industries - factual	637.6	617.9	-19.8	-3.1%
Overall economy	8 906.1	9 008.9	102.9	+1.2%
Creative industries – counterfactual 1	637.6	645.0	7.4	+1.2%
Impact of piracy – counterfactual 1			-27.1	
Service industries	2 529,3	2 608,5	79,2	+3.1%
Creative industries – counterfactual 2	637,6	657,6	20,0	+3.1%
Impact of piracy – counterfactual 2			-39,7	

Source – *TERA analysis*

3 EVOLUTION OF INTERNET PIRACY BETWEEN 2008 AND 2011

The two scenarios described in the initial report were based upon hypothesis concerning the growth of the illegal Internet traffic:

- Scenario 1 considered that, as peer to peer would stay the main technology, illegal traffic would grow as peer-to-peer file sharing. This growth rate was estimated as 190% using the Cisco 2009 report;
- Scenario 2 considered that, due to the development of new technologies, illegal traffic would grow as the overall Internet traffic. This growth rate was estimated at 290% using the same Cisco report.

Assessing the growth of illegal traffic can be done using a three-step approach:

- Identifying the various technologies that can be used for illegal file sharing;
- Measuring the growth of the each traffic type;
- Assessing the proportion of each traffic type that is related to illegal content.

The overall illegal traffic growth will then be calculated as an average of the growth rate of each traffic type, weighted by the rate at which each traffic type is used to transfer illegal content.

3.a Illegal file sharing technologies

The main technologies used for piracy are peer-to-peer (P2P), streaming and direct download.

Peer-to-peer technology is defined as a communication structure in which individuals interact directly without necessarily going through a centralized system. Users can share information, make files available to one another and contribute to shared projects. Technically speaking, "peer-to-peer" refers to organized networks that connect computers across the Internet using a specific file sharing protocol. Examples of software used for peer-to-peer include BitTorrent, eDonkey or Gnutella. Though peer-to-peer technology has been developed for legitimate purposes, it is also used to share pirated musical content, movies and software.
The second technology is **streaming.** It allows Internet users to play a multimedia file without having completely downloaded it. Streaming has become a popular method of distribution of digital content, in particular audio and video content. As a matter of fact, it is often easier to use and faster than Peer to Peer.

Direct download (or cyber locker) is a centralized file sharing system based on a client-server architecture, where content is stored on a single file server or in parallel across multiple file servers in a server farm for Internet users to download. MegaUpload was a typical example of the usage of direct download technology.
Streaming, peer-to-peer and direct download are the three main file-sharing technologies used during the 2008-2011 period. Since the initial study, no really new file sharing protocols have been introduced, only patches to the existing protocols.

3.b Evolution of Internet traffic, by traffic type

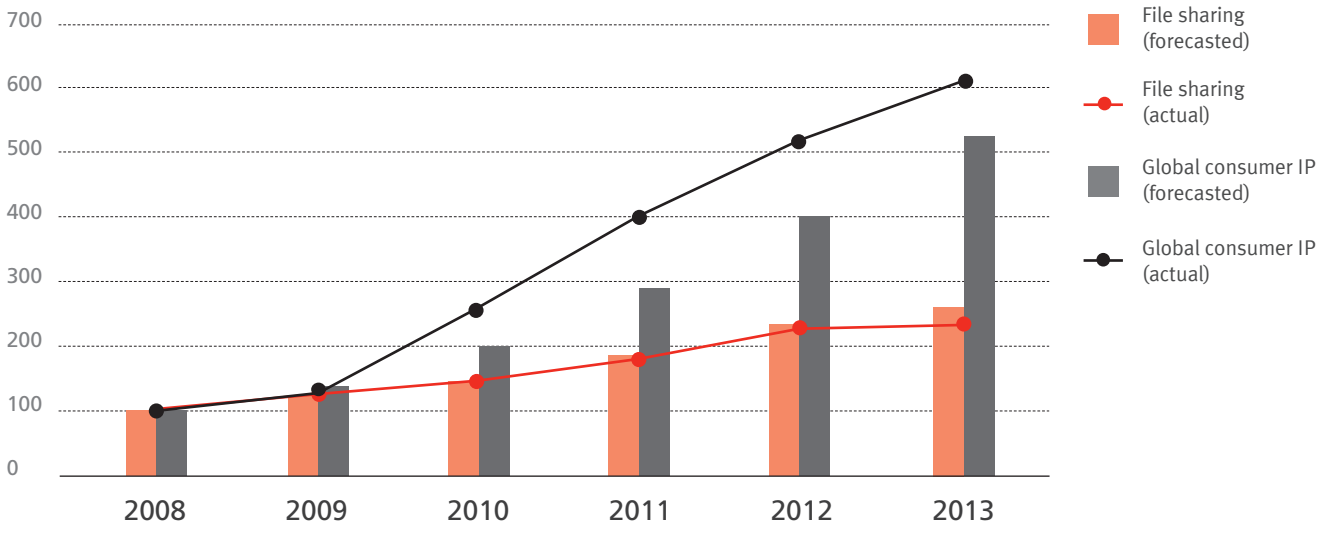
Cisco has been publishing annual studies on the Internet traffic between 2009 and 2012. These studies aggregate various analyst projections for broadband connections, video subscribers, mobile connections, and Internet application adoption. Based upon these third party analyses, Cisco's makes its own estimates for application adoption, minutes of use, and kilobytes per minute.

The global consumer IP traffic is divided into four categories:

- Web, email, and data: includes web, email, instant messaging, and other data traffic (excludes file sharing);
- File sharing: includes peer-to-peer traffic from all recognized P2P systems such as BitTorrent and eDonkey, as well as traffic from web-based file-sharing systems (direct download);
- Gaming: includes casual online gaming, networked console gaming, and multiplayer virtual-world gaming;
- Internet video: includes short-form Internet video (for example, YouTube), long-form Internet video (for example Hulu), live Internet video, Internet-video-to-TV (for example, Netflix through Roku), online video purchases and rentals, webcam viewing, and web-based video monitoring (excludes P2P video file downloads).

Figure below shows the actual real rate of growth for file sharing traffic and for the overall consumer IP traffic (these rates of growth are compared with their 2009 estimates).

Figure 4: Actual and forecasted in 2009 file sharing and "Internet video to PC" traffic growth in Europe – 2008 to 2013, base 100 in 2008.



Source – *Cisco Visual Networking Index, TERA analysis*

3.c Proportion of infringing traffic for peer-to-peer and streaming

The proportion of each traffic type that concerns the transfer of illegal content can be assed using a study by Envisional called "Technical report: an estimate of Infringing use of the Internet"[25].

Across all geographical areas, 23.76 % of traffic is estimated by Envisional to be copyright infringing.

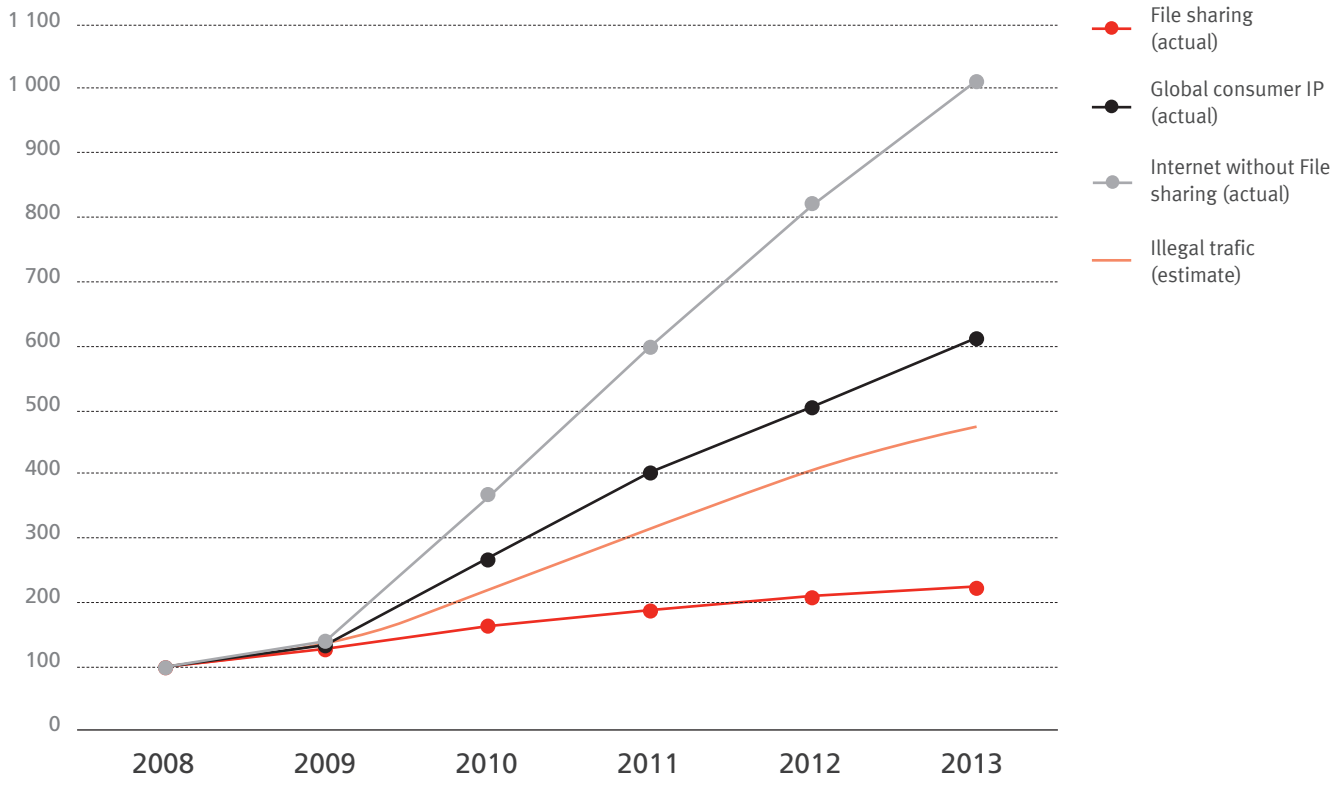
- Peer-to-peer illegal traffic represents 16.4% of total traffic and 69% of total infringing traffic.
- 26.6% of the global traffic is estimated to be due to video streaming. However, Envisional's analysis estimates that the vast majority of video streaming is legal, only 5.3% is streamed illegitimately representing 1.4% of all internet traffic or 6% of all infringing traffic.
- Cyber locker traffic (direct downloads from sites such as MegaUpload, Rapidshare, or HotFile) is estimated to be 7% of all Internet traffic. 73.2% of non-pornographic cyber locker site traffic is deemed illegal (representing 5.1% of all internet traffic or 21% of all infringing traffic).

[25] *http://documents.envisional.com/docs/Envisional-Internet_Usage-Jan2011.pdf*

3.d Calculation of the illegal traffic growth and Conclusion

Based upon the previous elements, we can now estimate the growth rate of illegal Internet traffic.
Combining the growth rate of file sharing and video streaming (estimated as the growth rate of all Internet traffic minus file sharing) and the proportion of each traffic type related to illegal transfer, we calculated that the illegal traffic growth between 2008 and 2011 amounted to 312% (see Figure 5 below).

Figure 5: Estimate of illegal traffic growth in Europe from 2008 to 2013, base 100 in 2008



Source – *TERA analysis*

Comparing the real illegal traffic growth rate with the rate used in the scenario 1 (190%) and in scenario 2 (290%), it appears that scenario 2 was the closest to the real evolution of illegal traffic.

APPENDICES

Appendix 6: Comparison with other studies

1 UK: CREATIVE INDUSTRIES ECONOMIC ESTIMATES – JANUARY 2014[26]

The Department for Culture, Media & Sport of the United Kingdom has published in January 2014 a study related to the creative Industries. It uses official national statistical sources to measure the contribution made by the Creative Industries to UK Employment, Gross Value Added (GVA) and Exports of Services.

The distinction is made between Creative Economy and Creative Industries and defined as follows:

1. "The Creative Economy, which includes the contribution of those who are in creative occupations outside the creative industries as well as those employed in the Creative Industries.
2. The Creative Industries, a subset of the Creative Economy which includes only those working in the Creative Industries themselves (and who may either be in creative occupations or in other roles e.g. finance)."

The British study found that:

- the number of employees in the Creative Economy has increased by 6% between 2011 and 2012, reaching 2,550,000 jobs in 2012.

Table 32: Employment in the Creative Economy (2011-2012)[27]

Creative Industries Group	Employment in the Creative Economy 2011	Employment in the Creative Economy 2012	Difference	Percentage Difference
Advertising and marketing	468,000	465,000	-3,000	-0.5%
Architecture	121,000	120,000	-1,000	-1.0%
Crafts	104,000	102,000	-2,000	-1.9%
Design: product, graphic and fashion design	151,000	166,000	16,000	10.4%
Film, TV, video, radio and photography	232,000	266,000	34,000	**14.9%**
IT, software and computer services	709,000	791,000	82,000	**11.6%**
Publishing	236,000,	255,000	19,000	8.1%
Museums, galleries and libraries	113,000	108,000	-5,000	-4.2%
Music, performing and visual arts	274,000	277,000	3,000	0.9%
Total Creative	**2,407,000**	**2,550,000**	**143,000**	**6.0%**
UK Total Employment	**29,935,000**	**30,150,000**	**215,000**	**0.7%**
Percentage Share of UK Total	**8.0%**	**8.5%**	-	-

Source – *Creative Industries Economic Estimates – January 2014*

- The number of employees in the Creative Industries has increased by 9% between 2011 and 2012, reaching nearly 1,700,000 jobs in 2012.

[26] *https://www.gov.uk/government/statistics/creative-industries-economic-estimates-january-2014*
[27] *Notes: Figures in bold indicate a statistically significant change; Figures have been rounded to the nearest thousand, and therefore estimates may not sum across rows or columns to equal totals.*

Table 33: Employment in the Creative Industries[28]

Creative Industries Group	Creative Industries Employment 2011	Creative Industries Employment 2012	Percentage Change
Advertising and marketing	147,000	143,000	-2.8%
Architecture	93,000	89,000	-4.2%
Crafts	9,000	7,000	-19.5%
Design: product, graphic and fashion design	100,000	116,000	**16.2%**
Film, TV, video, radio and photography	209,000	238,000	**13.6%**
IT, software and computer services	482,000	558,000	**15.6%**
Publishing	207,000	223,000	7.5%
Museums, galleries and libraries	90,000	85,000	-5.4%
Music, performing and visual arts	212,000	224,000	5.6%
Creative Industries Total	**1,551,000**	**1,684,000**	**8.6%**
UK Total Employment	**29,935,000**	**30,150,000**	**0.7%**
Percentage Share of UK Total	**5.2%**	**5.6%**	-

Source – *Creative Industries Economic Estimates – January 2014*

- Despite an adverse economic situation during the considered period, the increase of GVA between 2008 and 2012 is of £10 million.

Table 34: GVA of the UK Creative Industries (2008-2012)[29]

	GVA (£ m)				
Creative Industries Group	**2008**	**2009**	**2010**	**2011**	**2012**
Advertising and marketing	8,347	6,967	6,840	8,099	10,229
Architecture	3,565	3,205	2,638	3,223	3,491
Crafts	195	218	268	266	248
Design: product, graphic and fashion design	1,856	1,886	2,049	2,504	2,491
Film, TV, video, radio and photography	8,801	6,923	7,973	9,979	9,752
IT, software and computer services	26,018	26,403	26,991	27,939	30,904
Publishing	9,255	8,968	9,580	9,228	9,706
Museums, galleries and libraries	-	-	-	-	-
Music, performing and visual arts	3,740	3,779	3,434	4,039	4,574
Total	**61,784**	**58,391**	**59,825**	**65,277**	**71,395**
UK Total (ONS Blue Book, ABML)	**1,312,112**	**1,280,261**	**1,327,923**	**1,360,925**	**1,383,082**
Percentage Share of UK Total	**4.71%**	**4.56%**	**4.51%**	**4.80%**	**5.16%**

Source – *Creative Industries Economic Estimates – January 2014*

[28] *Notes: Figures in bold indicate a statistically significant change; Figures have been rounded to the nearest thousand, and therefore totals may not sum; Due to limitations in the industry coding, the employment for crafts on an industry basis does not fully cover the crafts sector.*

[29] *Notes: Figures are expressed in current prices (i.e. not accounting for inflation); The ABS does not fully account for GVA of Museums, galleries and libraries so these data are not shown in this table; The ABS does not include data for micro-business so may underestimate GVA, particularly for groups including Music and Crafts where self-employment is substantial.*

If comparison with our study were done, it should be noticed that:

- The British study used the following definitions:
  - Regarding the definition of Creative Industries (p.4): "The Creative Industries were defined in the Government's 2001 Creative Industries Mapping Document as "those industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property"".
  - Regarding Employment data (p.31): "Employment data have been sourced from the Annual Population Survey (APS). The APS database contains a large number of variables, but only a few are used in this publication. Micro-data (record level data) have been analysed using syntax programmes. First, the data have been restricted to those who are employees or self-employed [...]".
  - As for GVA (p.15): "Gross Value Added (GVA), calculated in current prices (i.e. not accounting for inflation) has been estimated for businesses within the Creative Industries using the Annual Business Survey (ABS). This refers to GVA, which is directly attributable to the Creative Industries. To note: A GVA estimate for the wider Creative Economy has not been included, as these economic estimates do not attempt to calculate the GVA contribution of creative jobs outside of the Creative Industries." And (p.32): "Data relating to GVA have been sourced from the provisional 2012 Annual Business Survey (ABS) for each industry, and the Blue Book Dataset for UK totals"[30]. Unlike Employment data, the GVA data only accounts for macro-businesses. For instance, marginal employment and self-employment are not accounted for (see Inclusion of micro-businesses, §2 p.30).

- As a consequence,
  - The perimeter adopted in our study is broader than the Creative Economy perimeter used in the British study. The TERA perimeter is however restricted to copyright intensive industries and the related industries/ services, which is why it is smaller than the Creative Economy perimeter in the British study.
  - The British study perimeter uses the SIC 2007 classification for industries, which is partly coherent with the NACE classification used in our study.
  - In comparison with the TERA approach, the British study only considers core industries directly linked to cultural and creative activities when it comes to Creative Industries. The criteria for inclusion into the Creative Industries perimeter are the number of jobs created and the "creative intensity" (p.31): "The number of creative jobs in each industry has been divided by the total number of jobs in that industry. Industries (SIC07) which have more than 6,000 jobs and a "creative intensity" of more than 30 per cent were considered as candidates for inclusion."
  - The British study doesn't include any sector inside the "Products of Agriculture, Forestry and Fishing" section (which includes the preparation of paper), the "Manufactured Products" section (which includes consumer electronics), the "Wholesale and Retail Trade Services" section, the "Real Estate" section and the "Other Services" section (which includes repair services of electronics and personal goods).

[30] *Information on the ABS can be found here: http://www.ons.gov.uk/ons/rel/abs/annual-business-survey/index.html; Information on the Blue Book can be found here: http://www.ons.gov.uk/ons/rel/naa1-rd/united-kingdom-national-accounts/index.html*

Inside the "Information and Communication Services", the sub-sections "Programming and Broadcasting Services", "Telecommunications Services" and "Information Services" are ignored, as well as the sub-sections "Gambling and Betting Services" and "Sporting, Amusement and Recreation Services" inside the "Arts, Entertainment and Recreation Services" section.

- As for Employment data, which was obtained through a survey, both macro- and micro-businesses are accounted for. Full time and part time jobs count equally and were not converted into full time equivalents.

2 FRANCE: FIRST PANORAMA OF CULTURAL AND CREATIVE INDUSTRIES[31] – NOVEMBER 2013

EY, with the participation of the industrial actors grouped inside the platform France Créative, published in November 2013 the study "France: First Panorama of Cultural and Creative Industries". The study aimed at analysing and enhancing creative industries in France's economy. Multiple sources (over 300) from different origins (public and private) were consolidated to produce this study[32].

Two levels of "impacts" in the Cultural and Creative Industries are considered here (see p.12):

1. "Direct impacts", which concern core activities that directly produce cultural and creative goods or services, covering intellectual production as well as distribution.
2. "Related impacts", which concern activities necessary to yet not directly related to the production of cultural and creative contents. For example, the impacts of tourism services for festivals in the Performing Arts field and teaching in the Music field are accounted for as "related impacts".

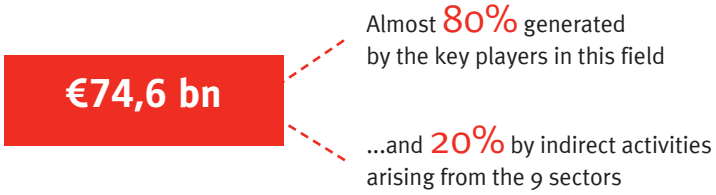
The French study concludes that the annual Cultural and Creative Industries turnover for the year 2011 is of nearly €75 billion. It contributed to create directly or indirectly 1.2 million jobs, which represents 5% of total French employment.

[31] *http://www.francecreative.fr/wp-content/uploads/2013/11/Premier_panorama_economique_des_industries_culturelles_et_creatives_en_france_2013.pdf*
[32] *The sources used are: "public or private sources, thematic and sector barometers, statistical series and economic data, studies of impact and economic analyses, reports and experts' opinions... This overview is the result of the consultation with and analysis of more than 300 sources throughout the first quarter of 2012." (p.2)*

Figure 6: Estimation of the economic and social impact of cultural industries in France (2011)[33]

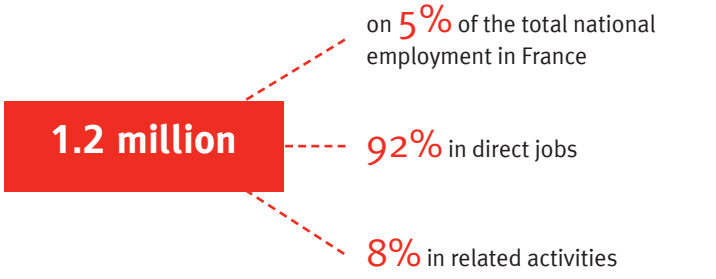
2011 Turnover

In 2011, the cultural and creative industries generated a global turnover of more than €74 billion.
Almost 80% of this amount was secured by the key players in this field (creation, production, distribution, etc.) and the o ther 20% by indirect activities arising from each of the 9 sectors.



2011 Employment

In 2011 the cultural and creative industries employed 1.2 million people in France, or 5% of the total national employment, of which 92% were in direct jobs and 8% in related activities.
The visual arts (€19.8 billion), television (€14.9 billion) and the print media (€10.7 billion) are the 3 sectors producing the most significant turnover of all of the 9 markets of cultural and creative industries. In terms of jobs, the visual arts (307,716) outrank the performing arts (267,713) and music (240,874).



Estimated economic impact (turnover – TO) and social impact (jobs) of the cultural industries in France (NB. 2011 figures)

	Visual arts	Music	Performing arts	Cinema	Television	Radio	Video games	Book industry	Print media	Deduplicated total for the cultural industries
Direct TO (in € bn)	18 759	6 041	5 989	3 297	10 048	1 355	3 677	5 095	10 402	61 425
Related TO (in € bn)	1 055	2 559	2 396	1 087	4 873	240	1 314	520	270	13 193
Total TO (in € bn)	**19 814**	**8 600**	**8 385**	**4 384**	**14 921**	**1 595**	**4 991**	**5 615**	**10 672**	**74 618**
Direct jobs	298 446	233 857	249 712	101 699	134 967	16 556	18 597	71 416	89 514	1 124 089
Related jobs	9 270	7 016	18 001	4 191	41 501	894	5 038	8 197	12 419	104 166
Total jobs	**307 716**	**240 874**	**267 713**	**105 890**	**176 467**	**17 450**	**23 635**	**79 613**	**101 933**	**1 228 255**

Source – *France Créative (2013)*

[33] *Notes: Concerning the total free of duplicates, in order to have a complete vision of the market beyond particular fields, the data inside a monograph can go beyond their specific sector therefore rows may not sum with the consolidated total; The cinema and audio-visual media fields are traditionally merged together inside the "audio-visual field" label, however they are differentiated here.*

Perimeter and variables used are quite different from TERA study that explains why it is difficult to compare with our results:

- The perimeter used in the French Cultural and Creative Industries study (French study) is not explicitly defined using a reference classification (such as NACE codes), but rather using an intuitive definition where nine fields of activity are accounted for: Graphic and Plastic Arts, Music, Performing Arts, Cinema, Television Broadcasting, Radio Broadcasting, Video Games, Books and the Press/Newspapers and Magazines[34].
- Regarding employment, it is the number of "jobs" (persons who earn an income from a particular creative activity, whether "direct" or "related") and not the number of employees that is considered. Full and part time jobs are equally accounted for. Again, as this study is based on several other studies and sources, the accounting methodology for jobs is not clearly determined inside the document, so we cannot assume that self-employment and marginal employment are included in the final data.
- The variable used to measure the economic impact of the Cultural and Creative Industries is turnover and not GVA[35] as in our study.

3 CULTURE AND CREATIVE INDUSTRIES – MONITORING REPORTS 2012[36] AND 2010[37]

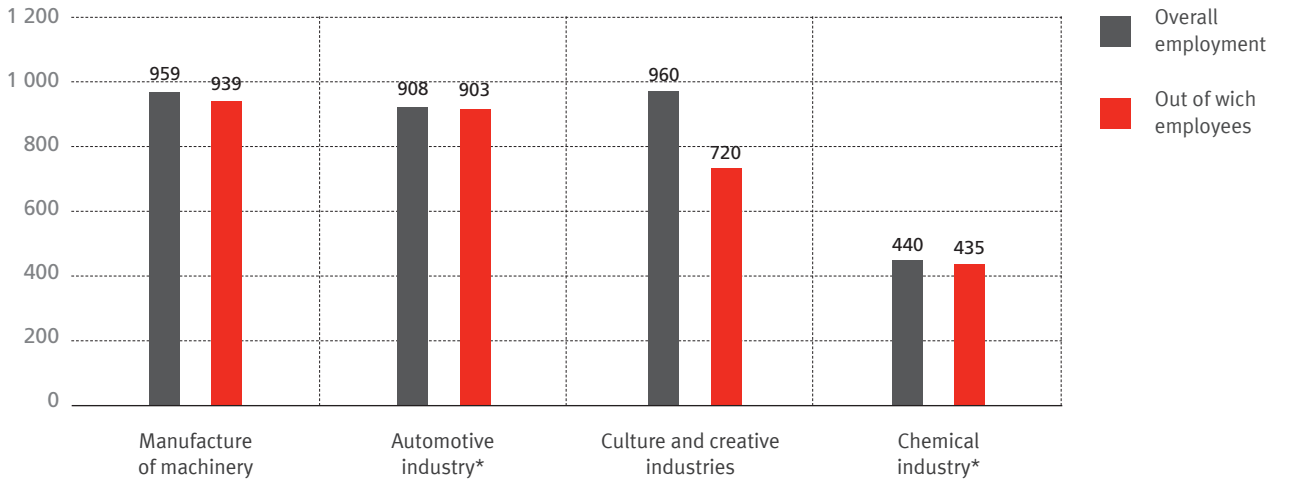
The Federal Government Commissioner for Culture and the Media, for the Initiative Cultural and Creative Industries of the German Federal Government published in December 2012 a study that describes the situation of culture and creative industries in Germany from 2009 to 2011.
Data used is official statistical data from the German Federal Statistical Office (Destatis) and the Federal Agency for Employment.

The German study showed:

- Regarding employment that culture and creative industries account for 960,000 employment out of which 720,000 were employees, and that the average annual growth rate in the employment market amounts to 1.2 % between 2009 and 2011.

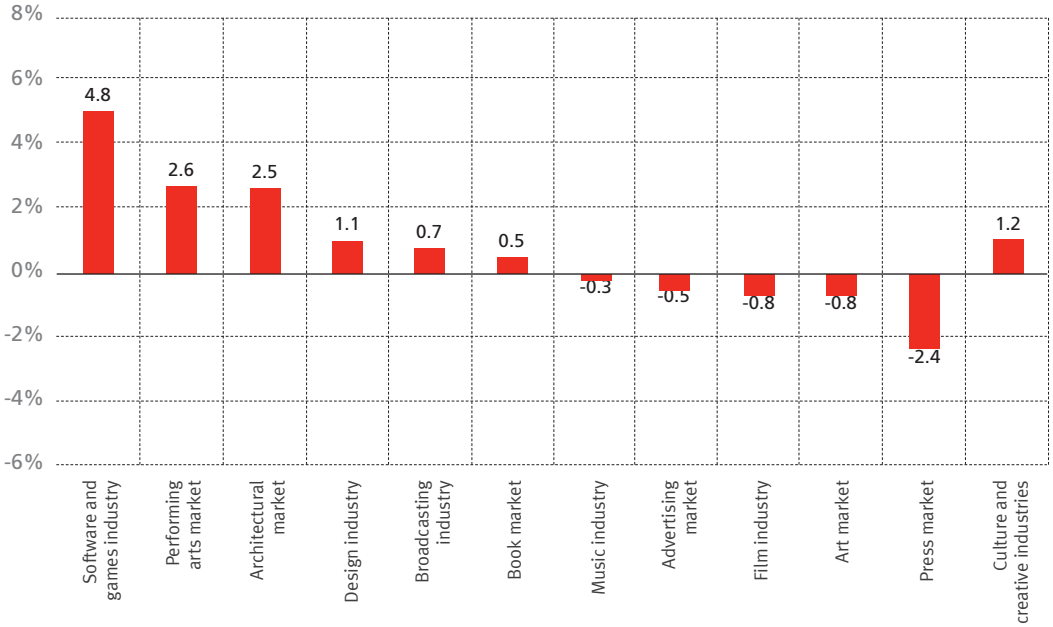
[34] *"In order to measure these unsuspected strengths, we cross-checked [the] nine "vertical pillars" [visual arts, music, cinema, television, radio, performing arts, press media, the book industry and video games] against the wide spectrum of creative activities which provide economic value and jobs, in areas such as idea conception, design, production, distribution, performance, broadcasting and management, but also, for example, activities relating to education and to tourism, where applicable." (p.1)*
[35] *"Faced with the complexity of this exercise, we wanted to formulate a chart which was as simple and easy to read as possible, and thus decided on two analysis indicators: the "turnover (TO)" (and its "budgetary" equivalent for the non-market sector) and "jobs", by which we mean the total of all individuals earning an income, in various forms, from both direct and related activities. Evidently, other statistical indicators (value added or "full-time equivalent" jobs, for instance) could have proved meaningful or interesting to analyse." (p.12)*
[36] *http://www.kultur-kreativ-wirtschaft.de/Dateien/KuK/PDF/monitoring-zu-ausgewaehlten-wirtschaftlichen-eckdaten-der-kultur-und-kreativwirtschaft-2011-kurz-englisch,property=pdf,bereich=kuk,sprache=de,rwb=true.pdf*
[37] *http://www.kulturwirtschaft.de/wp-content/uploads/2012/08/CCI-Germany-2010_EN9.pdf*

Figure 7: Persons employed in the culture and creative industries, compared across branches, 2010 (in thousands)[38]



Source – *Turnover tax statistics, Destatis (2012), employment data, Federal Agency for Employment (2012), Office for Culture Industries Research*

Figure 8: Development of employment in the market segments of the culture and creative industries, 2009-2011 (average change 2009-2011, in per cent)[39]

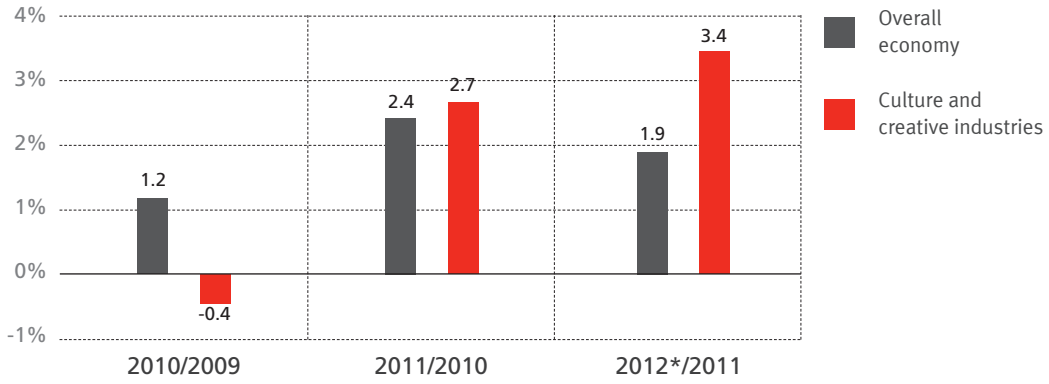


Source – *Turnover tax statistics, Destatis (2012), employment data, Federal Agency for Employment (2012), Office for Culture Industries Research*

[38] *Notes: Employed persons include self-employed persons according to turnover tax statistics (more than €17,500 annual turnover) and employees liable to social insurance deductions (excluding marginally employed persons) according to employment data; *Automotive industry includes other manufacturing of vehicles; *Chemical industry includes the pharmaceutical industry.*

[39] *Notes: Basic data 2011 are estimates or temporary data.*

Figure 9: Development of employment in the culture and creative industries in the overall economy (change against previous year, in per cent)[40]



Source – *Employment data, Federal Agency for Employment (2012), Office for Culture Industries Research*

- Regarding GVA, despite an adverse economic environment around the year 2009, Cultural and Creative Industries have developed considerably through 2009-2012, starting from a negative growth rate (-0,4% in 2009-2010) to reach a 3,4% growth rate in 2011-2012 (see Figure 9). It should also be noted that Cultural and Creative Industries experienced a greater economic growth compared to the overall economic activity in Germany during 2010-2012.

[40] *Notes: *Culture and creative industries 2012 data are estimates; Number of employees liable to insurance deductions, excluding marginal employment.*

Table 35: Key Data on Culture and Creative Industries in Germany 2009-2011[41]

Category	2009	2010	2011*	Change in % 2011*/2010
Statistical core figures				
No. of enterprises[1] in thousands				
- Culture and creative industries (CCI)	238	240	244	2.0 %
- Share of CCI in overall economy	7.6 %	7.6 %	7.5 %	-
Turnover in billion €				
- Culture and creative industries (CCI)	134.3	137.3	143.4	4.4 %
- Share of CCI in overall economy	2.7 %	2.6 %	2.6 %	-
No. of employees (liable to social insurance deductions)[2] in thousands				
- Culture and creative industries (CCI)	723	720	740	2.7 %
- Share of CCI in overall economy	2.6 %	2.6 %	2.6 %	-
No. of persons employed[3] in thousands				
- Culture and creative industries (CCI)	962	960	984	2.5 %
- Share of CCI in overall economy	3.2 %	3.1 %	3.1 %	-
Statistical estimates				
No. of marginally self-employed[4] in thousands				
- Culture and creative industries (CCI)	194	209	225	7.4 %
- Share of CCI in overall economy	18.0 %	19.1 %	19.9 %	-
No. of marginally employees[5] in thousands				
- Culture and creative industries (CCI)	510	504.6	486.1	-3.7 %
- Share of CCI in overall economy	7.1 %	6.9 %	4.0 %	-
No. of marginally employed persons in thousands[6]				
- Culture and creative industries (CCI)	704	714	711	-0.4 %
- Share of CCI in overall economy	6.2 %	6.2 %	6.0 %	-
Statistical core figures and estimates				
No. of total persons employed[7] in thousands				
- Culture and creative industries (CCI)	1,666	1,674	1,695	1.3 %
- Share of CCI in overall economy	4.3 %	4.3 %	4.3 %	-
Gross value added[8]				
- Culture and creative industries (CCI) in billion €	61.5	61.4	62.7	2.2 %
- Share of CCI in GDP	2.6 %	2.5 %	2.4 %	-
- Gross Domestic Product (GDP) in billion €	2,375	2,496	2,593	3.9 %
Key data for culture and creative industries				
Turnover per enterprise in thousand €	563	573	587	2.4 %
Turnover per employee in thousand €	186	191	194	1.7 %
Turnover per person employed in thousand €	140	143	146	1.8 %
Employees per enterprise	3.0	3.0	3.0	0.7 %
Persons employed per enterprise	4.0	4.0	4.0	0.5 %
Gross value added per person employed in thousand €	63.9	63.9	63.7	-0.3 %
Share of self-employed in persons employed in per cent	25	25	25	-

Source – *Turnover tax statistics, Destatis (2012), labour market statistics, Federal Agency for Employment (2012), Office for Culture Industries Research*

[41] *Notes: *Preliminary data and estimates; employees liable to insurance deductions and employed persons in 2011 (preliminary data of the Federal Agency for Employment).*
[1] *Taxable entrepreneurs with annual turnovers of €17,500 and more;*
[2] *Employees liable to social insurance deductions working full and part time, without marginally employed persons;*
[3] *Employed persons include taxable entrepreneurs and employees liable to social insurance deductions;*
[4] *In addition: marginally employed persons (free-lances, self-employed persons with less than €17,500 annual turnover), data based on Microceneurs;*
[5] *In addition: marginally employed persons based on Microceneurs data;*
[6] *Employed persons include all self-employed persons including marginally employed persons based on Microceneurs data;*
[7] *Total persons employed, core figures and estimates;*
[8] *Gross value added in 2010 based on national accounting data; minimum data only (national accounting data, updated October 2011, WZ-selection: 58-60, 72, 90-92, excluding 62, 71, 74), gross value added 2011 estimated.*

To compare with our study, it should be noticed regarding the perimeter of the German study and the definitions:

- The study field used in the German Cultural and Creative Industries study (German study) has a broad span: "The 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" (p.1). The study encompasses eleven core fields of the creative industry according to the definition relying in the Creative Act ("schöpferischer Akt") and including as well other sub-fields such as new economic branches in arts and crafts.

- The resulting perimeter for the German study is very close to the British one, only a little broader: Retail Trade Services (except sale of motor vehicles and motorcycles), Information Services, Rental and Leasing Services sections as well as Library, Archive and Museum Services sub-sections, which are included in the TERA core perimeter, are wholly or partly integrated in the German perimeter while they are left out of the British one. Also, out of the TERA non-core perimeter, Printing and Recording Services as well as Historical Visitor Attraction, Botanical Garden and Nature Reserve Services are wholly or partly included in the German Perimeter while excluded from the British one.

- It should be noted that: "Employment data (persons employed) are based on a combination of turnover tax and employment statistics and therefore also preliminary. The figures on gross value added for the years 2009 and 2010 were calculated based on national accounting data" (p.7). In this study, self-employment and marginal employment (free-lances, self-employed persons with less than €17,500 annual turnover) data are available for all economic indicators (deduced from turnover data analysis and specialized micro-data investigation Microcensus statistics).

4 EU: INTELLECTUAL PROPERTY RIGHTS INTENSIVE INDUSTRIES: CONTRIBUTION TO ECONOMIC PERFORMANCE AND EMPLOYMENT IN THE EUROPEAN UNION[42] – SEPTEMBER 2013

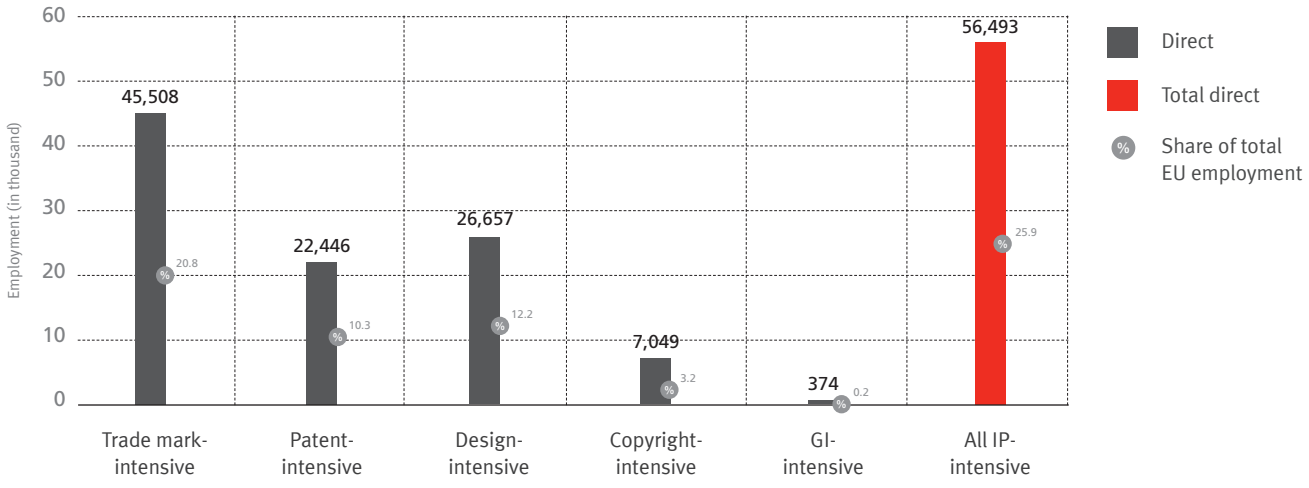
The EU Industry-Level Analysis Report (EU study) was carried out as a joint project between Office for Harmonization in the Internal Market (OHIM) and the European Patent Office, and benefiting from input from other Intellectual Property offices, European Commission services and international organisations. It was published in September 2013. Intellectual Property Rights (IPR)-intensive industries are addressed by differentiating patent-, trade mark-, design-, and copyright-intensive industries as well as geographical indications.

The EU study is intended to provide results that are comparable to those obtained for the US economy.
The methodology used is therefore closely related to that used by the Economics and Statistics Administration in the US Department of Commerce and the United States Patent and Trademark Office (USPTO). For comparison purposes with other European studies, the World Intellectual Property Organization (WIPO) methodology is used in Appendix 10 of the report.

The EU study found:

- Copyright-intensive industries in the EU study represent over 7 million jobs and contribute to 3.2% of total EU employment (see Figure 10). They represent more than 9 million jobs if non-core industries are accounted for (see Figure 11).

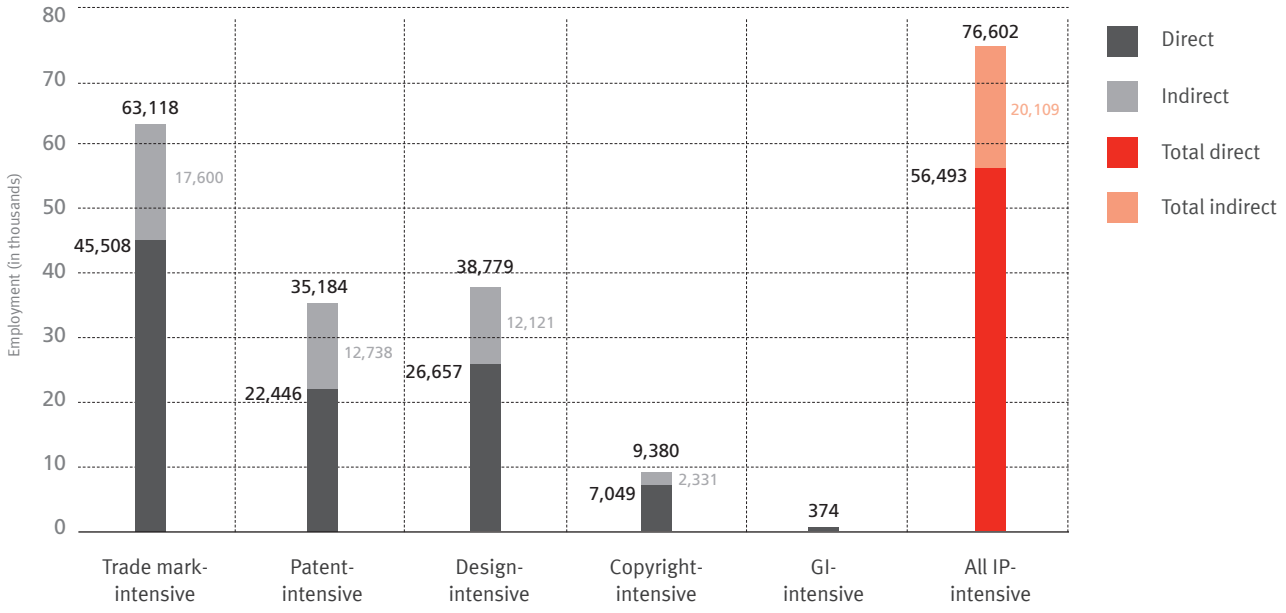
Figure 10: Employment in IPR-intensive industries



Source – *Industry-Level Analysis Report, September 2013*

[42] *Industry-Level Analysis Report, September 2013*
The economic indicators were calculated as an average of the years 2008-2010.

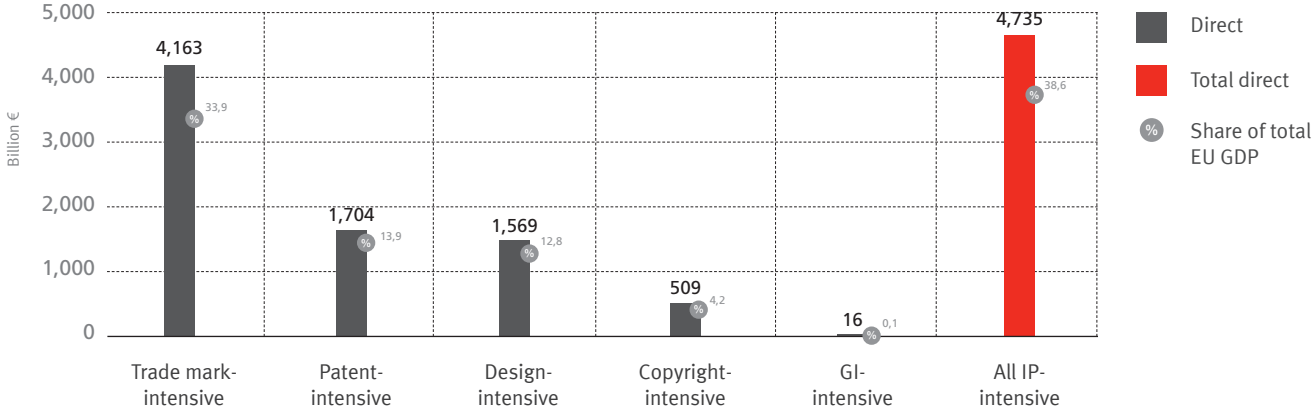
Figure 11: Direct and indirect employment in IPR-intensive industries



Source – *Industry-Level Analysis Report, September 2013*

- As for GDP, copyright-intensive industries in the EU study create €509 billion and contribute to 4.2% of total EU GDP (see Figure 12). For France, the contribution of copyright-intensive industries for GDP and employment are respectively of 4.5% and 3.4% (see Figure 13).

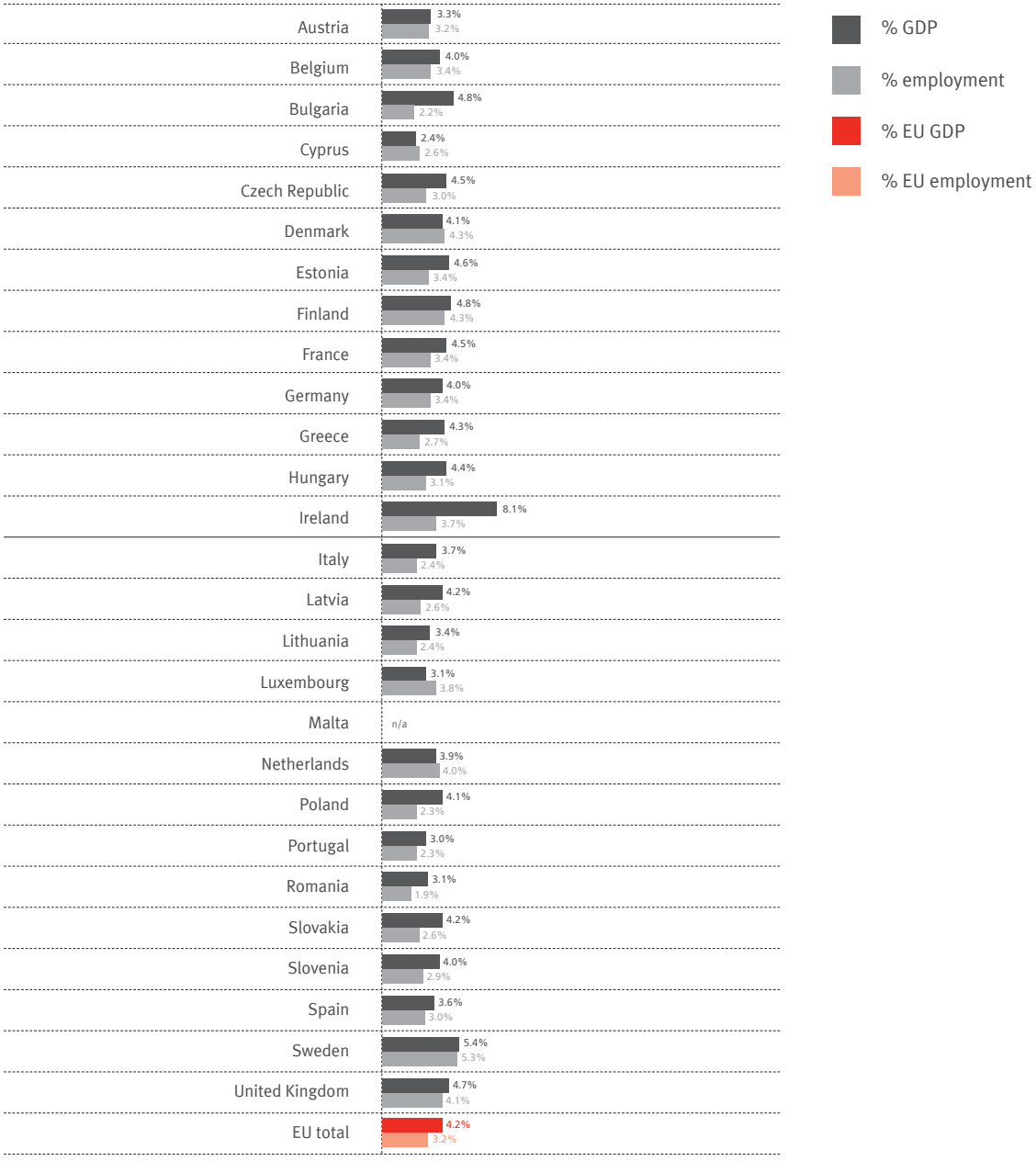
Figure 12: Contribution of IPR-intensive industries to GDP



Source – *Industry-Level Analysis Report, September 2013*

- The following Table shows the results for each member state.

Figure 13: GDP and employment shares in copyright-intensive industries by Member State, 2010



Source – *Industry-Level Analysis Report, September 2013*

To compare with our study:

- The definition of each of the IPR-intensive industry branch and the corresponding industry list are available in Appendix 9 of the report. 321 activity sectors are included in the IPR-intensive industries, while only 31 form the copyright-intensive group (according to WIPO and USTPO combined[40]). Similarly to the TERA approach, Intellectual Property industries are divided into core ("direct") and non core ("indirect").

- If the EU and the TERA study are both based on the WIPO definition, TERA perimeter is broader as it corresponds to the European Union study's core copyright-intensive activity sectors as well as part of the patent- and trademark-intensive activity sectors, including manufacturing industries, which can also overlap if analysed separately inside this study.

- The employment[41] data is obtained through a survey and therefore accounts for any type of person employed, including the self-employed and the marginally employed.

[40] *The original WIPO methodology includes 49 activity sectors, while USPTO is stricter (33 activity sectors). In this study, the methodology used was WIPO adapted to USPTO for a better comparability between European and US studies, reducing the final number of activity sectors accounted for to 31.*

[41] *P.58: "The definition of "employment", as used by Eurostat and other statistical agencies, is as follows: employed persons are persons, aged 15 and over (with some country-specific exceptions), who, during the reference week, performed work, even for just one hour a week, for pay, profit or family gain, or who were not at work but had a job or business from which they were temporarily absent because of illness, holidays, industrial dispute or education and training."*

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About TERA CONSULTANTS

"The economic contribution of the creative industries to EU GDP and employment -*Evolution 2008-2011*" study was conducted by TERA Consultants. TERA Consultants is an independent consultancy firm providing services in the field of ICT and combining the expertise of economists and engineers.
Laurent Benzoni has been the director of the study.
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