

# IPR-intensive industries: contribution to economic performance and employment in the European Union

Joint EPO-OHIM study

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# Intellectual property rights intensive industries: contribution to economic performance and employment in the European Union

Industry-Level Analysis Report, September 2013

A joint project between the European Patent Office and the  
Office for Harmonization in the Internal Market



Full report available at:  
[www.epo.org/ip-intensive-industries](http://www.epo.org/ip-intensive-industries)

# Overview of the IP rights



## Patent

**Subject Matter** Inventions, **novelty**

**Conferred Rights** Exclusive right to make, use, and sell the patented invention

**Benefits of Rights Protection** Incentive for innovation; protection of knowledge promotes sharing of it

**Duration** Typically 20 years from filing



## Design

Original **ornamental** and **non-functional** features of an article or product

Exclusive right to use the design and prevent its use by others

Original ornamental and non-functional features of an article or product

The usual maximum term is 25 years



## Trade mark

**Distinctive** signs that distinguish on company's goods or services from others

Exclusive right to use the trademark

Promotes quality and competition between brands; provides the public with brand information and use in commerce

Commonly 10 years from filing, but can be renewed indefinitely for successive periods



## Copyright

Creative and **original** works; maps and technical drawings; computer programmes and databases

Exclusive right to reproduction, including making the work available to the public, distribution, rental, sale, translation and public performance

Ensures compensation to creators; provides broad public access to creative works

From 50 years to a lifetime plus 70 years



## Geographical indication

Product whose **quality and reputation** is linked to its geographical origin

Exclusive rights for commercialisation of comparable products, preventing imitation

Promotes quality; provides consumers with brand information

Indefinite, no need for renewal

# Background of the study

- Main objectives
  - To **quantify** the contribution of IPR-intensive sectors to the EU economy
  - To provide evidence on the significance of intellectual property rights and raise public awareness.
- Broad scope of the study
  - **combined effect** of various intellectual property rights: patents, trade marks, designs, copyright and geographical indications
  - **IPR-intensive industries** identified out of all EU industries
  - **27 EU Member States** (not Croatia)

# Main findings

Economic indicator	Contribution of IPR-intensive industries	
	%	Value
<b>EU employment</b>	<b>35%</b>	77 million
- <i>direct</i>	26%	
- <i>indirect</i>	9%	
<b>EU GDP</b>	<b>39%</b>	4.7 trillion Euro
<b>EU wage premium</b>	<b>+ 41%</b>	715 Euro/month
<b>EU trade</b>		
- % total EU imports	<b>88%</b>	1.4 trillion Euro
- % total EU exports	<b>90%</b>	1.2 trillion Euro

# Into the methodology

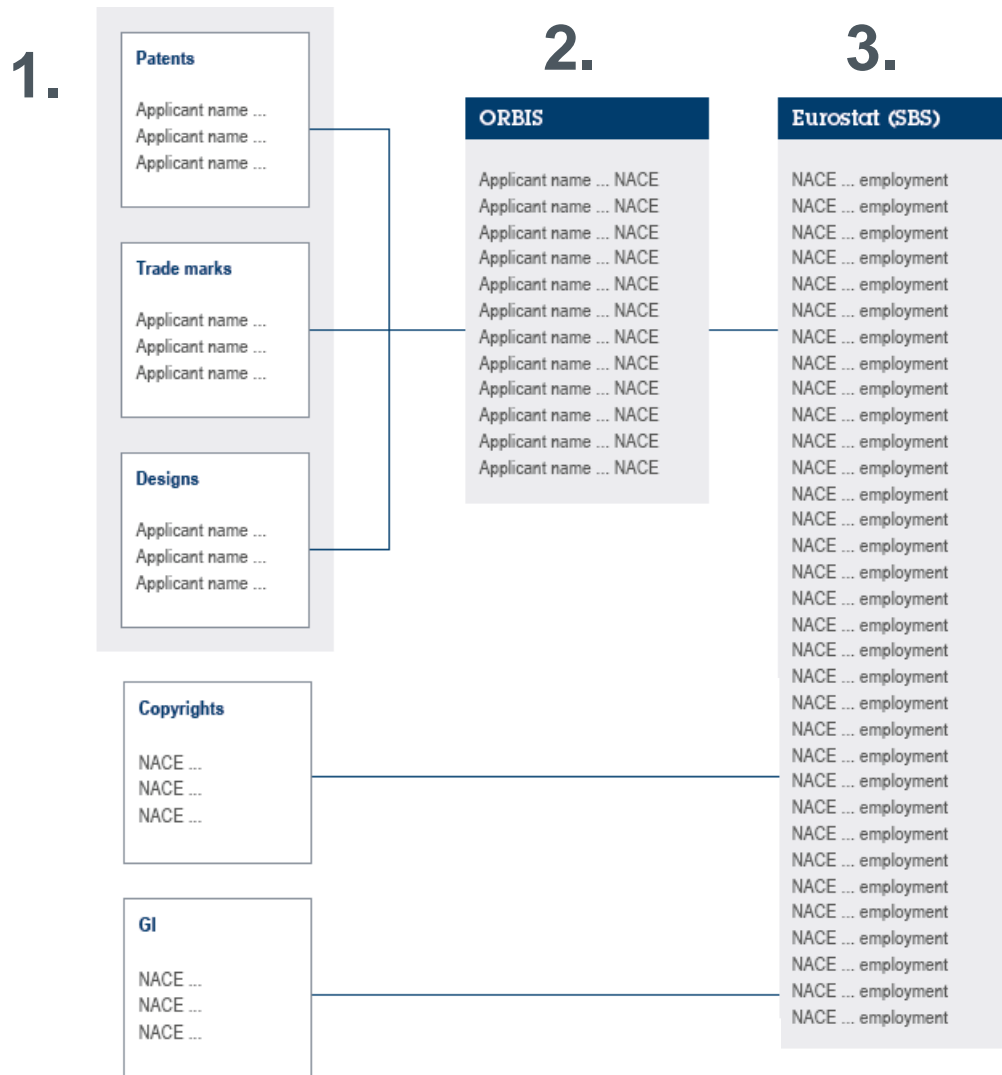




# Methodology – data sources

- Similar method used for **patents, trade marks** and **designs**
- **Databases:**
  - EPO PATSTAT
  - OHIM's register of Community Trade Marks
  - OHIM's register of Registered Community Designs
  - ORBIS
  - Eurostat: Structural Business Statistics (SBS) employment, GDP, wages, trade by NACE industry classification
- **Main challenge:** matching of these databases

# Methodology – matching





# Some details of the matching

- Matching of PATSTAT and ORBIS:
  - **Algorithm** to match **applicant names** in PATSTAT with **company names** in ORBIS
  - Matching done at the **country** level
  - Depending on country, roughly **40% to 70%** match (i.e. OHIM and EPO applicant names found in ORBIS)
  - Limitations
    - No private individuals in ORBIS
    - Changes of names of applicants not communicated to EPO/OHIM
    - Spelling differences not captured by matching algorithms
    - Gaps in ORBIS
- NACE code (4-digit level) for **primary area** of activity of a company was used to assign NACE code to patent applicants

# Identification of patent-intensive sectors

- **Absolute patent intensity** for each industry
  - All patent applications between 1 January 2004 and 31 December 2008 ...
  - ... with at least one applicant based in the EU
  - ... which are granted (by February 2013)
  - Sum of granted patents of each company in the same primary NACE code
  - at the EU level
- **Relative patent intensity**
  - Number of patents per 1,000 employees
- Above-average industries in terms of relative patent intensity

→ **PATENT-INTENSIVE INDUSTRIES**

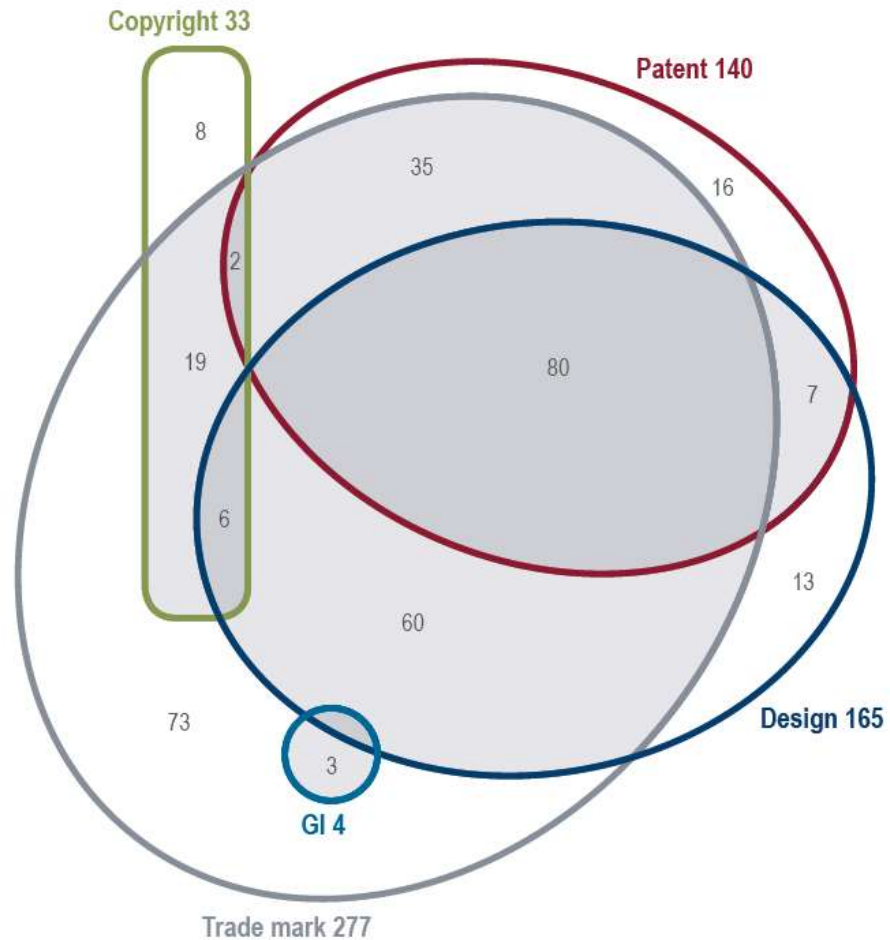
# Number of IPR-intensive industries

	Total number of industries active in specific IPR	Average number per 1000 employees	Intensive industries
<b>Patent</b>	449	0.69	140
<b>Trade mark</b>	501	3.16	277
<b>Design</b>	470	1.61	165
<b>Copyright</b>	n.a.	n.a.	33
<b>GI *</b>	n.a.	n.a.	4
<b>At least one IPR</b>	<b>615</b>		<b>321</b>

*\* Operation of dairies and cheese making; distilling, rectifying and blending of spirits; manufacture of wine from grape; manufacture of beer*

# Overlap between rights in IPR-intensive industries

- Most IPR-intensive industries are intensive in **more than one type of IPR**.
- Trade marks are used by most of the industries.
- No **double counting** when assessing the impact on the economy.



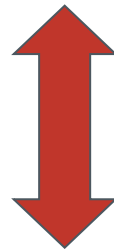
# Top 20 patent-intensive industries

Table 10: The 20 most patent-intensive industries

NACE code	NACE description	Total employment *	Patents/1000 employees
28.24	Manufacture of power-driven hand tools	25.500	109,74
77.40	Leasing of intellectual property and similar products, except copyrighted works	16.150	69,23
21.10	Manufacture of basic pharmaceutical products	54.600	27,57
20.59	Manufacture of other chemical products n.e.c.	130.250	19,08
72.11	Research and experimental development on biotechnology	46.750	15,64
26.70	Manufacture of optical instruments and photographic equipment	51.100	13,67
26.51	Manufacture of instruments and appliances for measuring, testing and navigation	342.900	13,35
27.51	Manufacture of electric domestic appliances	213.150	13,12
28.91	Manufacture of machinery for metallurgy	52.350	12,33
26.60	Manufacture of irradiation, electromedical and electrotherapeutic equipment	49.250	12,26
28.94	Manufacture of machinery for textile, apparel and leather production	66.100	9,84
72.19	Other research and experimental development on natural sciences and engineering	400.650	9,65
24.45	Other non-ferrous metal production	19.100	9,56
26.30	Manufacture of communication equipment	245.050	9,35
26.11	Manufacture of electronic components	241.950	8,51
06.20	Extraction of natural gas	25.250	8,51
30.99	Manufacture of other transport equipment n.e.c.	6.100	7,99
20.11	Manufacture of industrial gases	38.600	7,77
28.95	Manufacture of machinery for paper and paperboard production	40.500	7,58
30.40	Manufacture of military fighting vehicles	11.400	7,58

## Link to main economic variables

**IPR-intensive industries identified on the basis of successful applications in the period 2004 – 2008**



**Industry economic performance indicators in the period 2008 - 2010**

## Link to main economic variables - some caveats

- Careful interpretation of results required:
  - **no causal relationships** between IPR and economic variables
  - **no value** of IPR for firms or for industries
  - for some countries a relatively large share of applicants **unaccounted for**
  - assumption of **no variation** in the use of IPR between firms **within an industry**
  - assumption of **no variation** in the industry use of IPR **across countries**



# Contribution to the EU economy

Economic indicator	Contribution of IPR-intensive industries	
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## Country level

- Contribution of the identified IPR intensive industries to the economy of a specific country
- Origin of IPR that is used in these industries is not analysed
- No measure of innovativeness
- Differences in contribution of IPR-intensive industries between individual countries are caused by:
  - differences in **industrial structure**; and
  - the presence of specific **companies**

# Contribution to the Greek economy

Contribution of industries:	% GDP	% employment
<b>IPR-intensive</b>	<b>33.1%</b>	<b>20.8%</b>
Patent-intensive	7.9%	5.7%
Trade mark-intensive	30.3%	17.2%
Design-intensive	8.0%	9.2%
Copyright intensive	4.3%	2.7%
GI-intensive industries *	0.1%	0.2%

\* Operation of dairies and cheese making; distilling, rectifying and blending of spirits; manufacture of wine from grape; manufacture of beer. Share of GI in food & drink industry value added: 6.5%

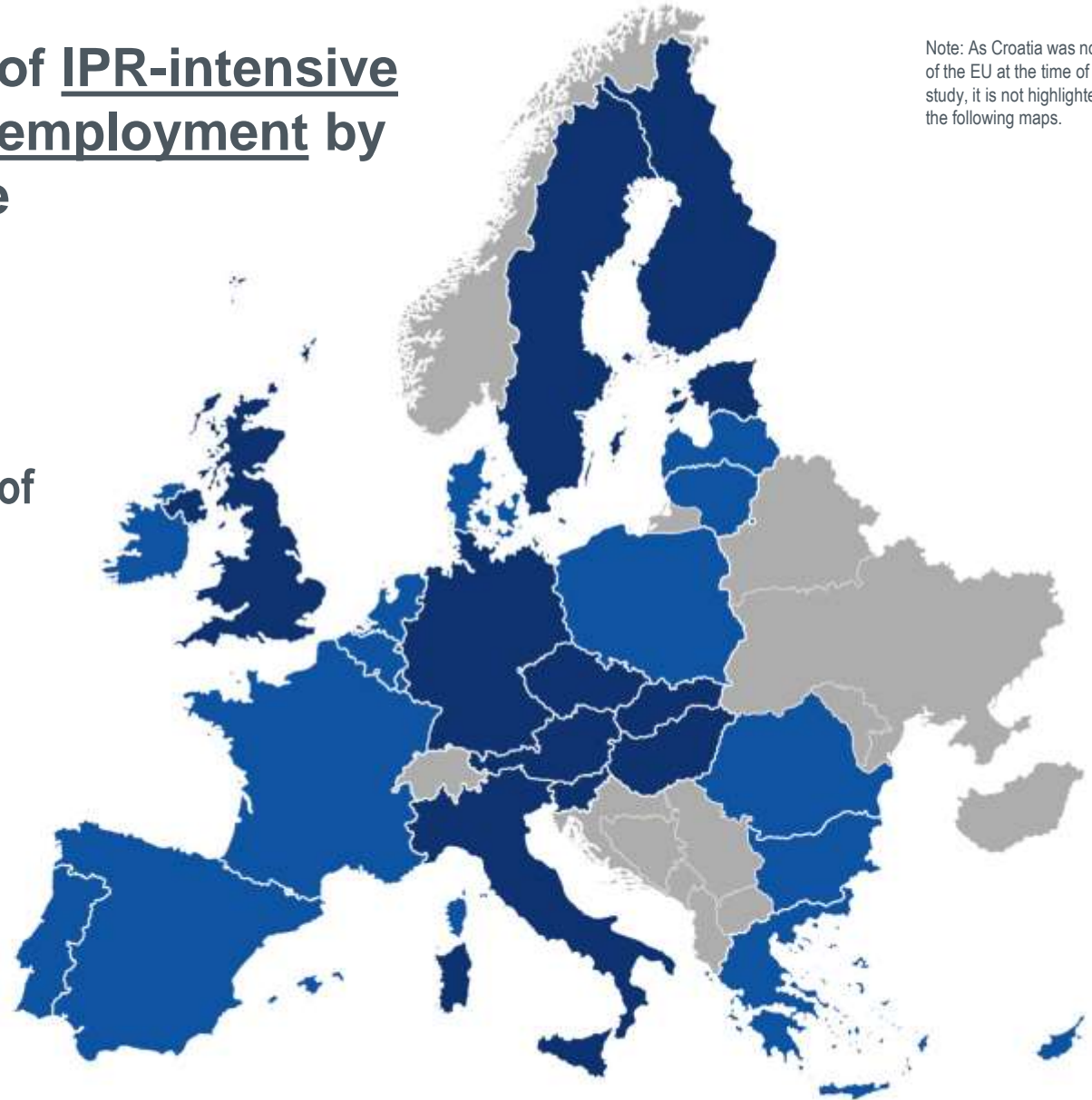


## Contribution of IPR-intensive industries to employment by Member State

IPR-intensive industries directly contribute **25.9%** of employment in the EU.

25.9%  
EU average

- above EU average
- below EU average



Note: As Croatia was not a part of the EU at the time of the study, it is not highlighted on the following maps.



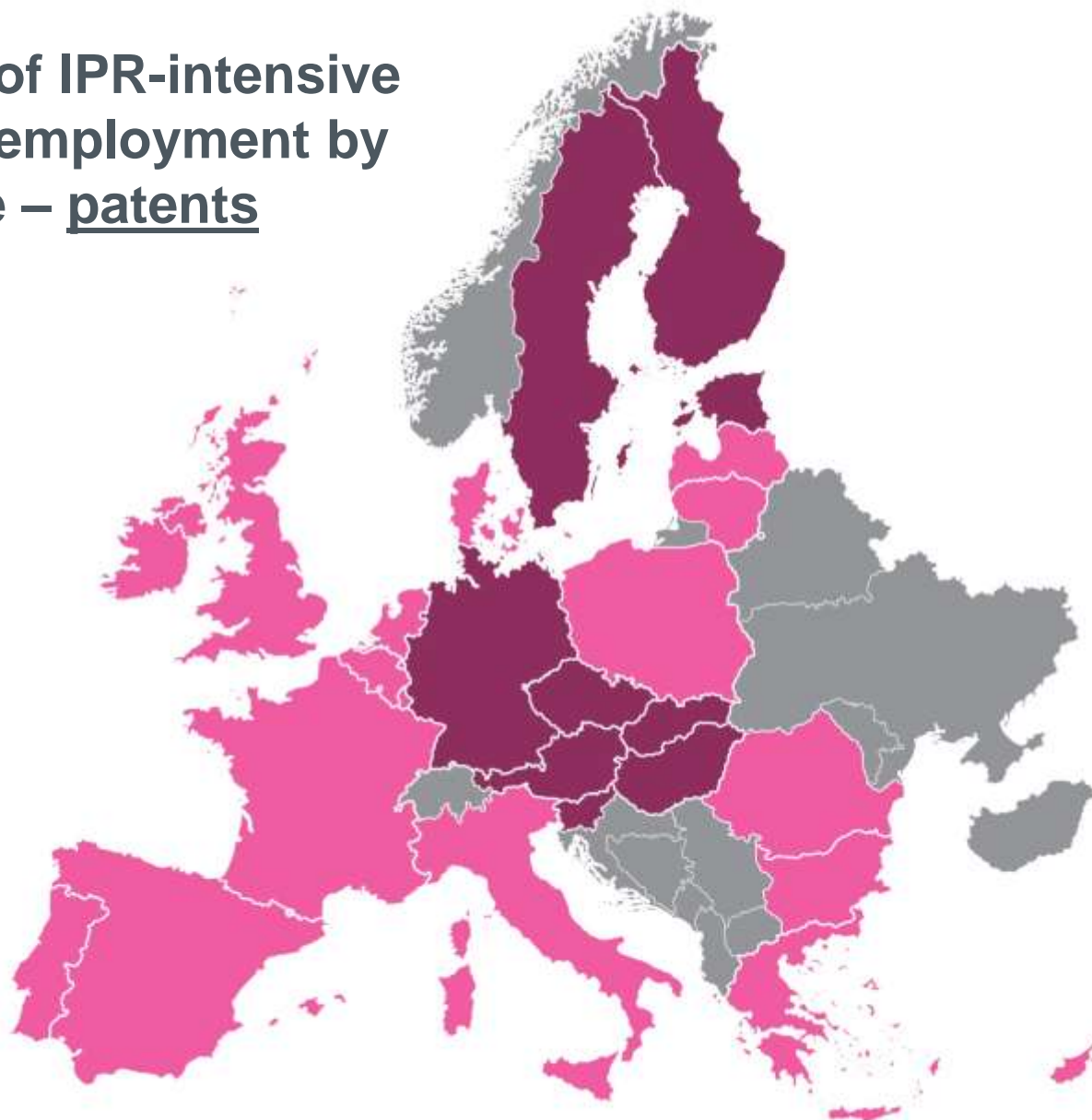
## Contribution of IPR-intensive industries to employment by Member State – patents

Patent-intensive industries contribute **10.3% of employment** in the EU.



10.3%  
EU average

- above EU average
- below EU average



IPR-intensive industries: contribution to economic performance and employment in the European Union



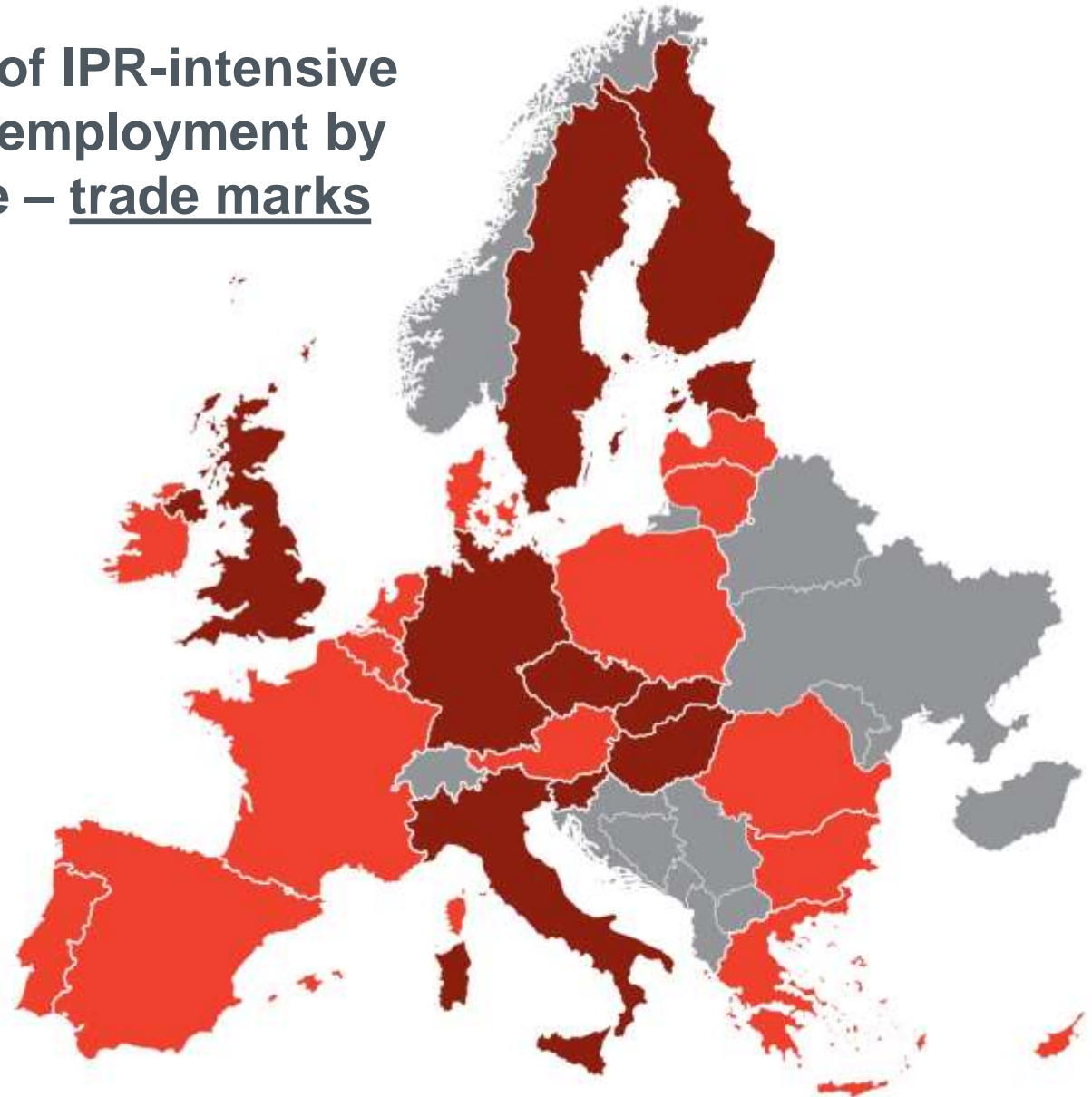
## Contribution of IPR-intensive industries to employment by Member State – trade marks

In the EU as a whole, **trade mark-intensive** industries contribute **20.8% of employment.**



20.8%  
EU average

- above EU average
- below EU average



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## Contribution of IPR-intensive industries to employment by Member State – geographical indication

GI-intensive industries contribute **0.2%** of employment in the EU.

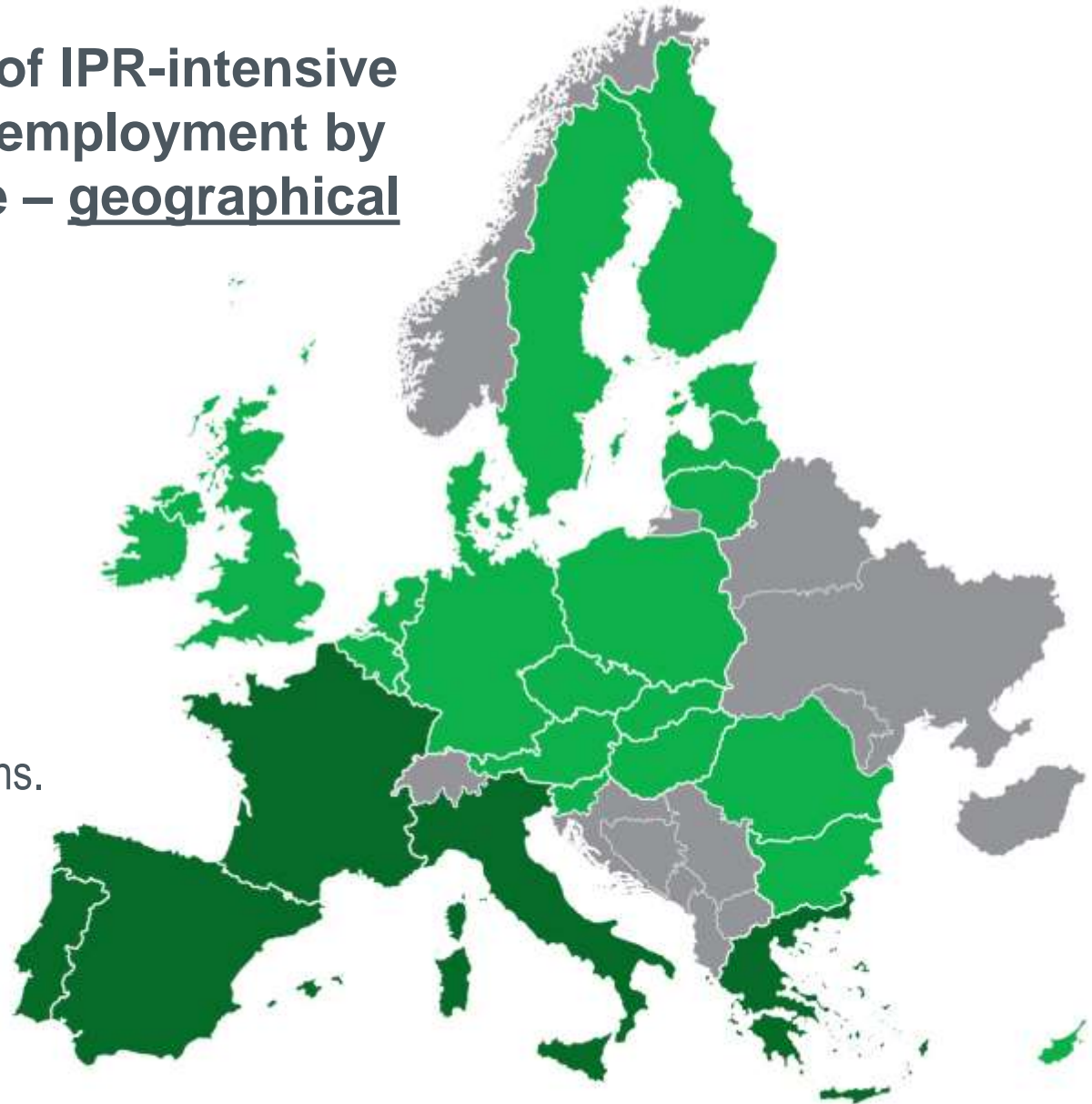
They are an **important source of jobs** in several countries/regions.



0.2%  
EU average

● above EU average

● below EU average





# Follow-up study with OHIM

- Impact of IPRs on firm performance
- European and national applications of patents, trade marks and designs
- Econometric analysis
- Interplay between various IPRs – eg. are patents and trade marks substitutes or complements?
- Expected publication: Q3/Q4 2014

*Thank you for your attention*