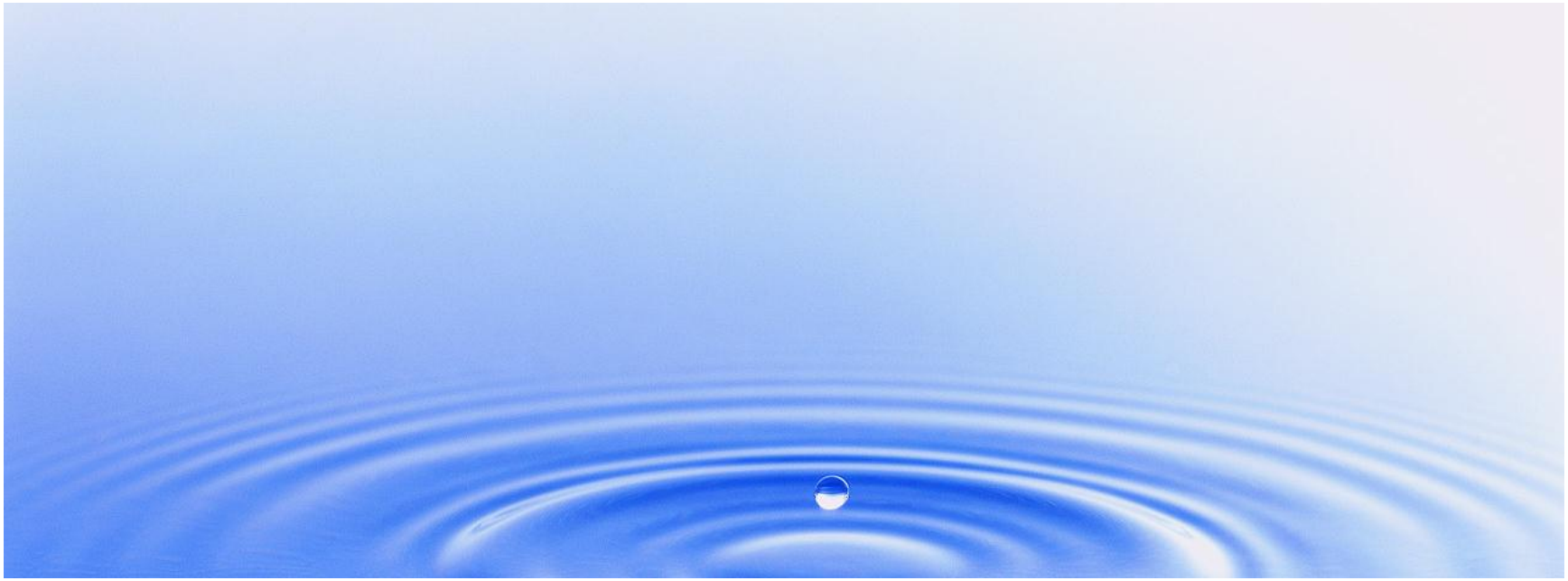
COMPUTER-IMPLEMENTED INVENTIONS* – EMPIRICAL EVIDENCE

Dr. Rainer Frietsch

Conference: "Innovation in a European Digital Market - The Role of Patents“

17th March 2015, Brussels



* A Study funded by TIIC - Technology, Innovation and Investment Council e.V.

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Structure of my talk

1. The policy context
2. Our approach and our operationalization
3. Some empirical evidence: Size effects, internationalization, and SMEs
4. Summarizing conclusions

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Policy context: the need for empirical evidence

- Harmonization in Europe: Proposal by the European Parliament on the patentability of CII (2002) -> clear rules; pro patentability of CII
- Germany 2013: cross-party initiative to restrict/abolish the patentability also of CII
- H2020: Focus on Key Enabling Technologies; Germany: Digitalization and Industry 4.0

Research questions (selection)

- What is the share of computer implemented inventions (CII) at the EPO?
- Which industrial sectors are filing CII patents? How important are CII within sectors?
- How much employment and production volume is directly and indirectly dependent on CII patents?

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The three pillars of our study

1. **PATSTAT analysis**
   - Patent applications at the EPO (and at the GPTO by German applicants)
   - Identification of CII patents based on keyword searches in abstracts and claims according to an adapted method suggested by Xie and Miyazaki (2013)

2. **Survey** of patenting companies and control groups
   - Motives to file patents or not to file patents
   - Opinion/assessment by companies how a change in the patentability of CII would affect their economic performance and their competitiveness
   - Differentiation by sector and especially by size of the companies

3. **Matching** of patent and company databases
   - Estimation of direct and indirect employment effects
   - *Scenarios of impact on employment*

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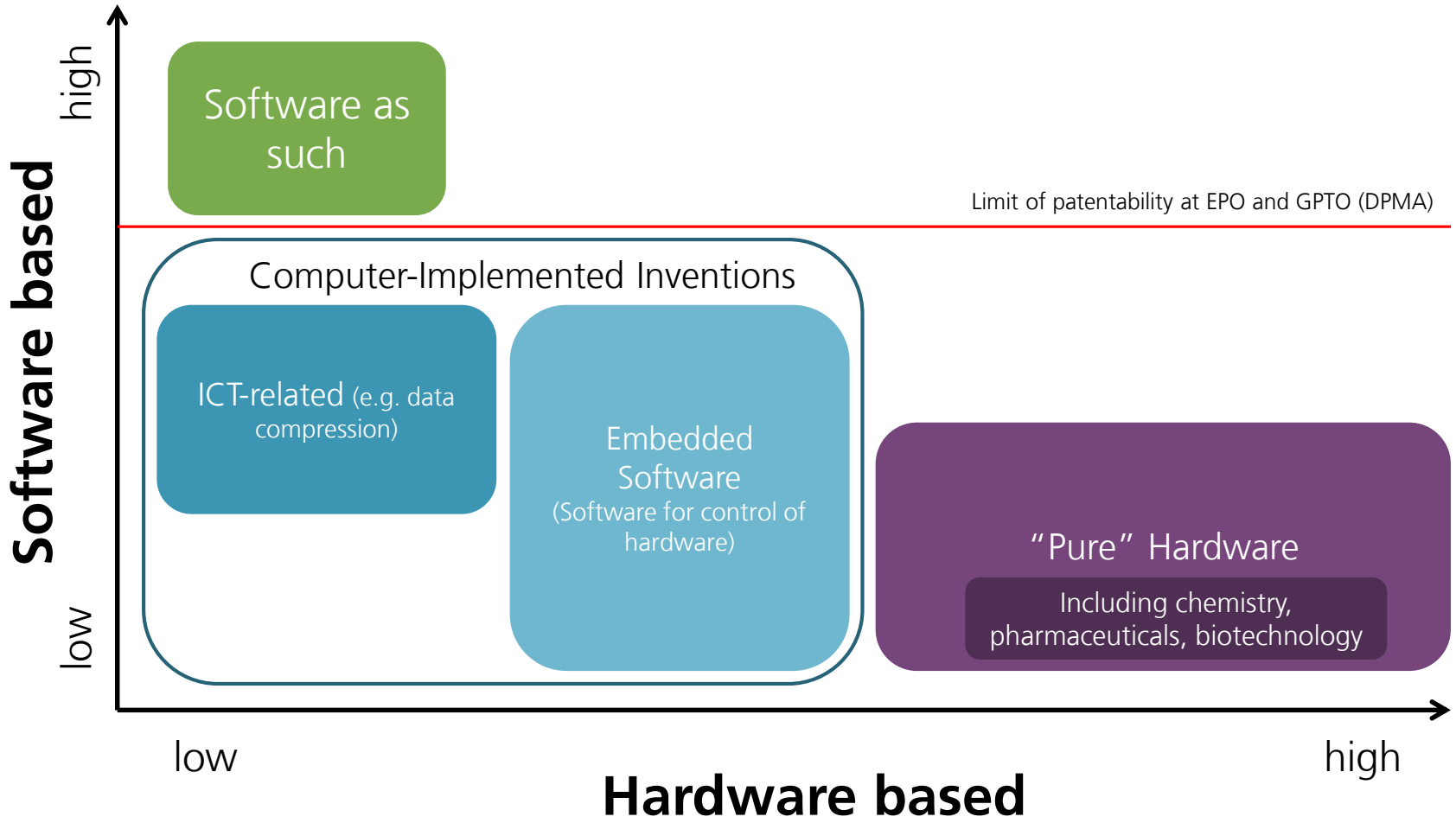
Graphical representation of the definitions and their operationalization



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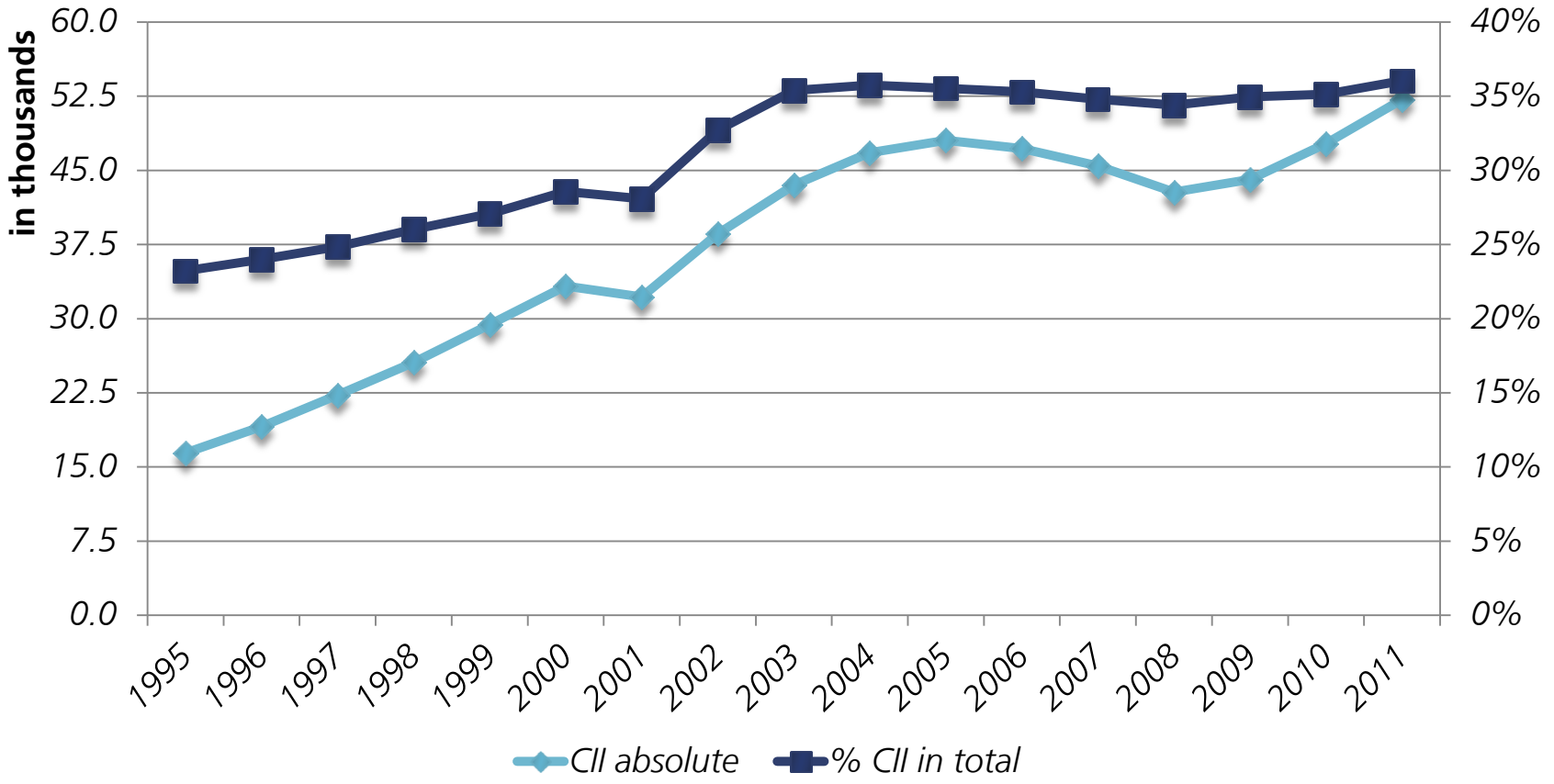
Absolute number and shares of CII priority filings in total filings at the EPO



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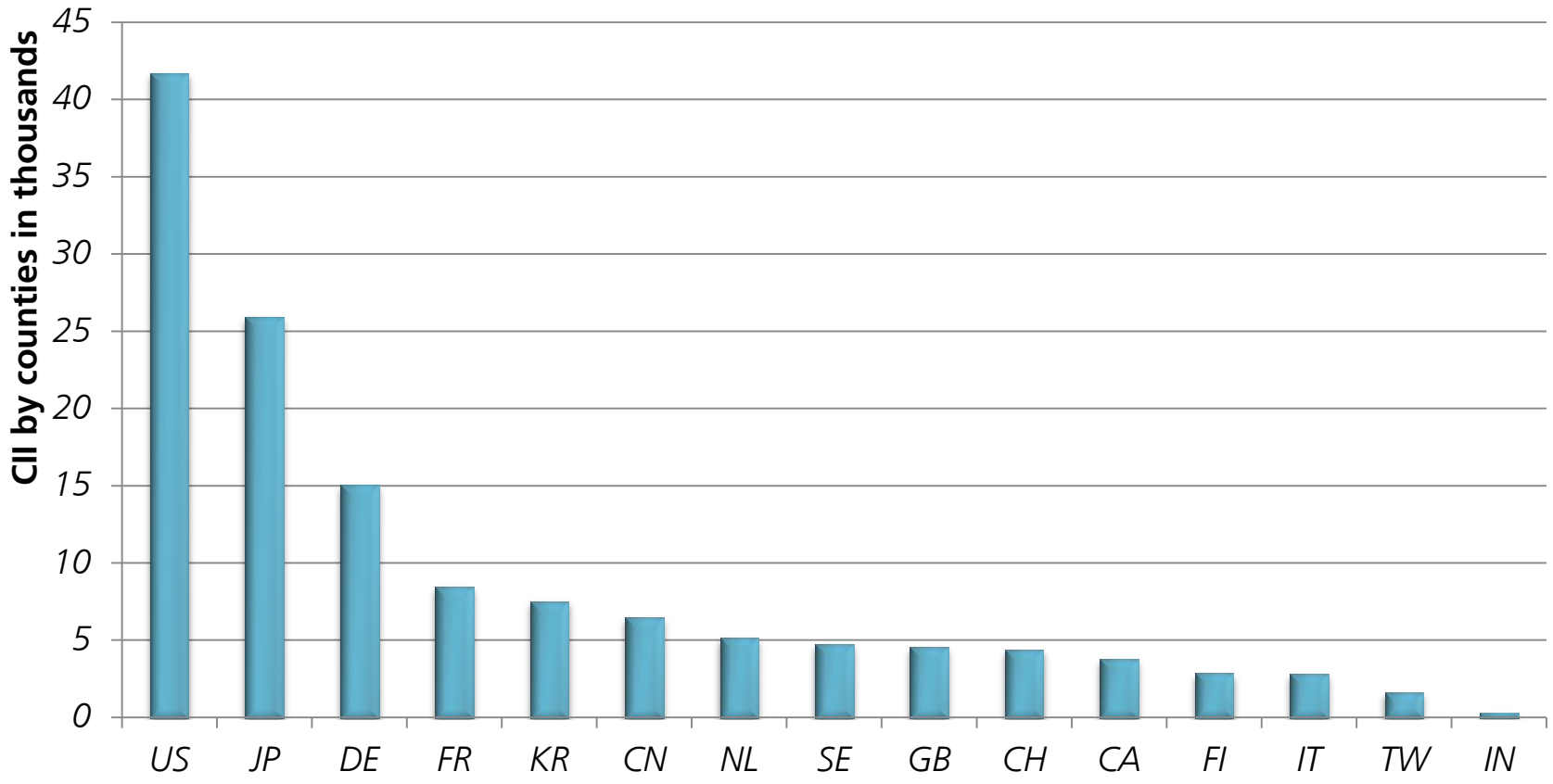
Absolute numbers of CII priority filings at the EPO by applicant countries, 2009-2011



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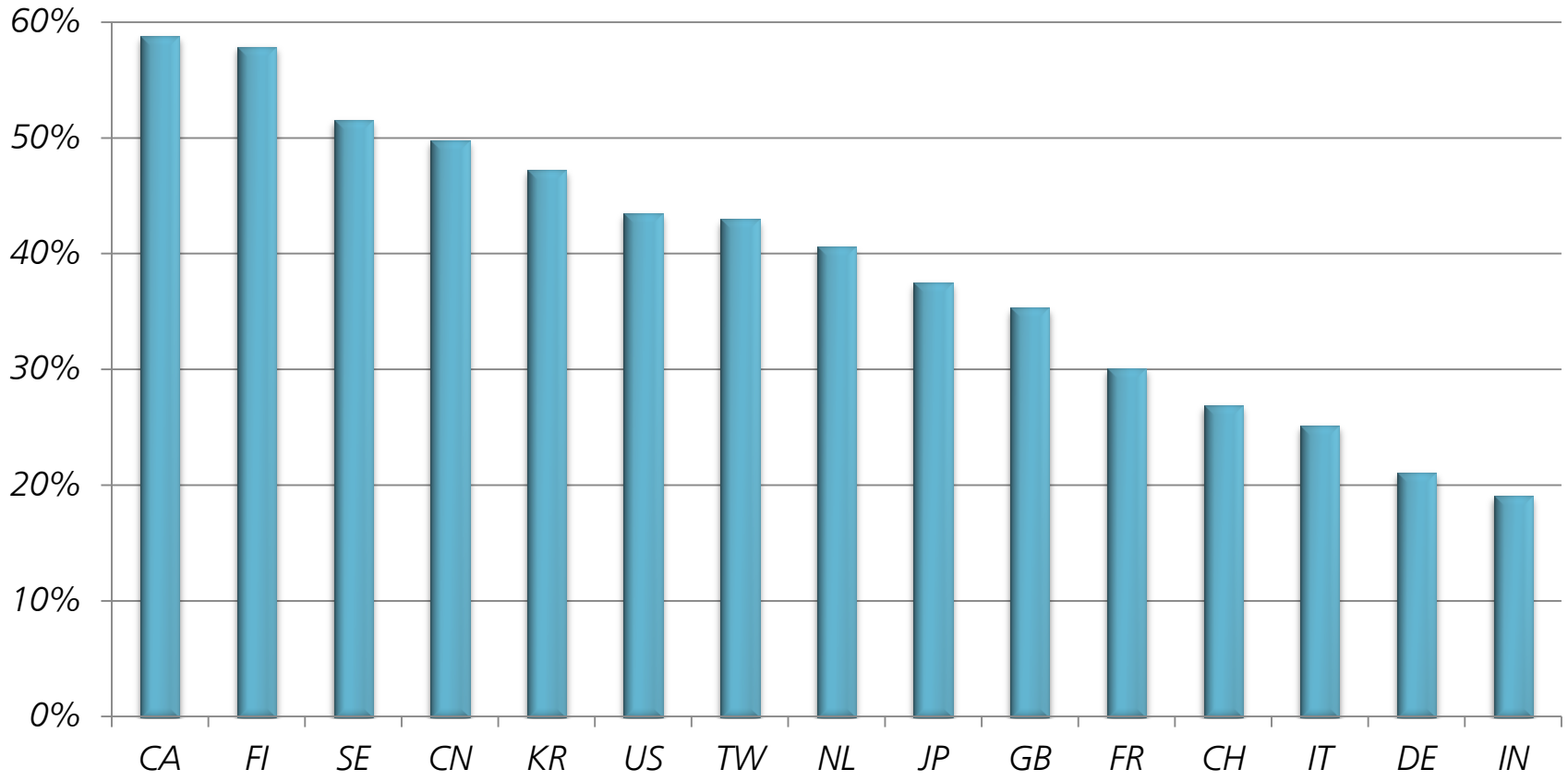
Shares of CII priority filings in total filings per country, 2009-2011



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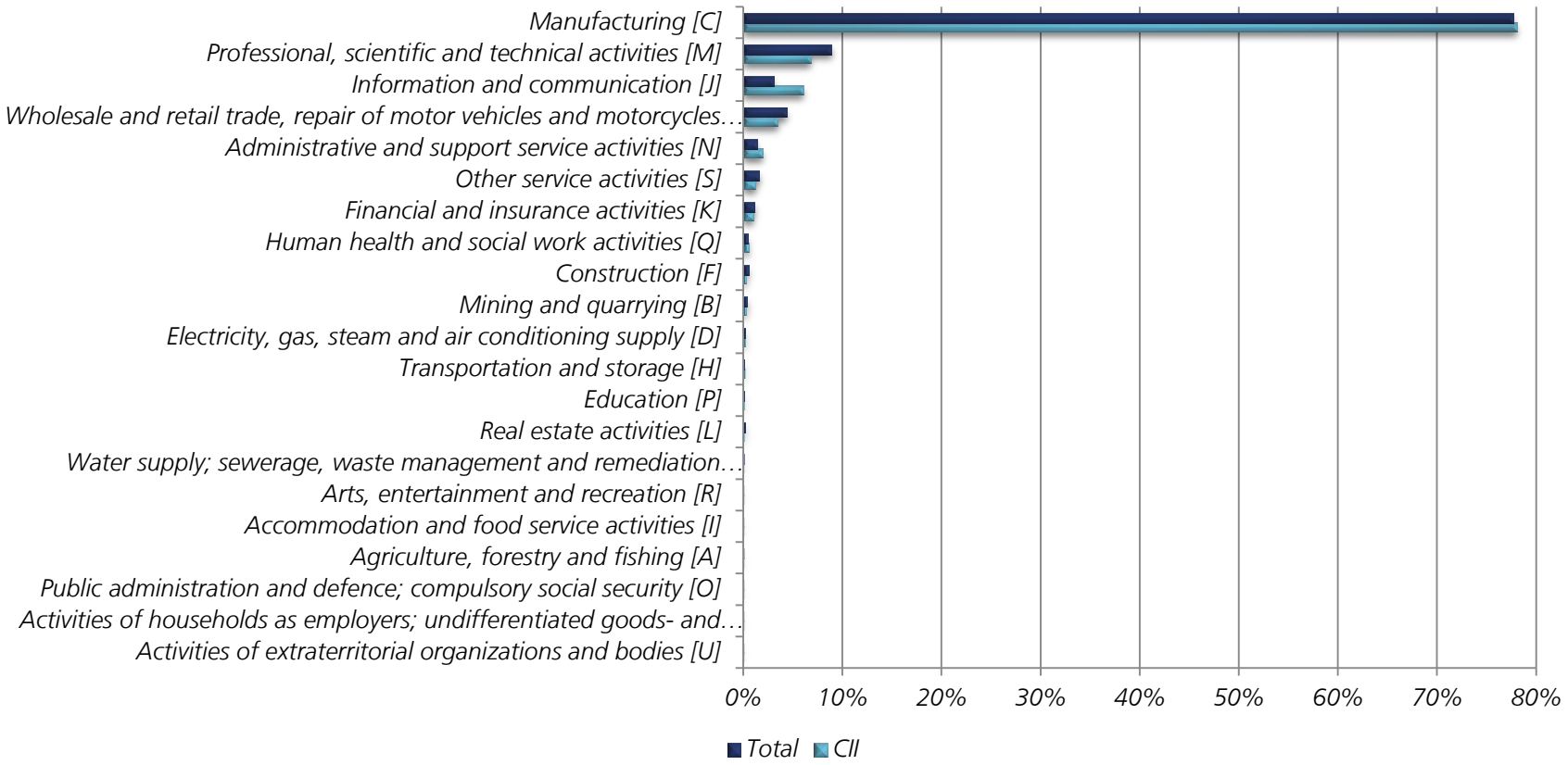
Shares of EPO patent filings in total filings by industrial areas, all countries 2009-2011



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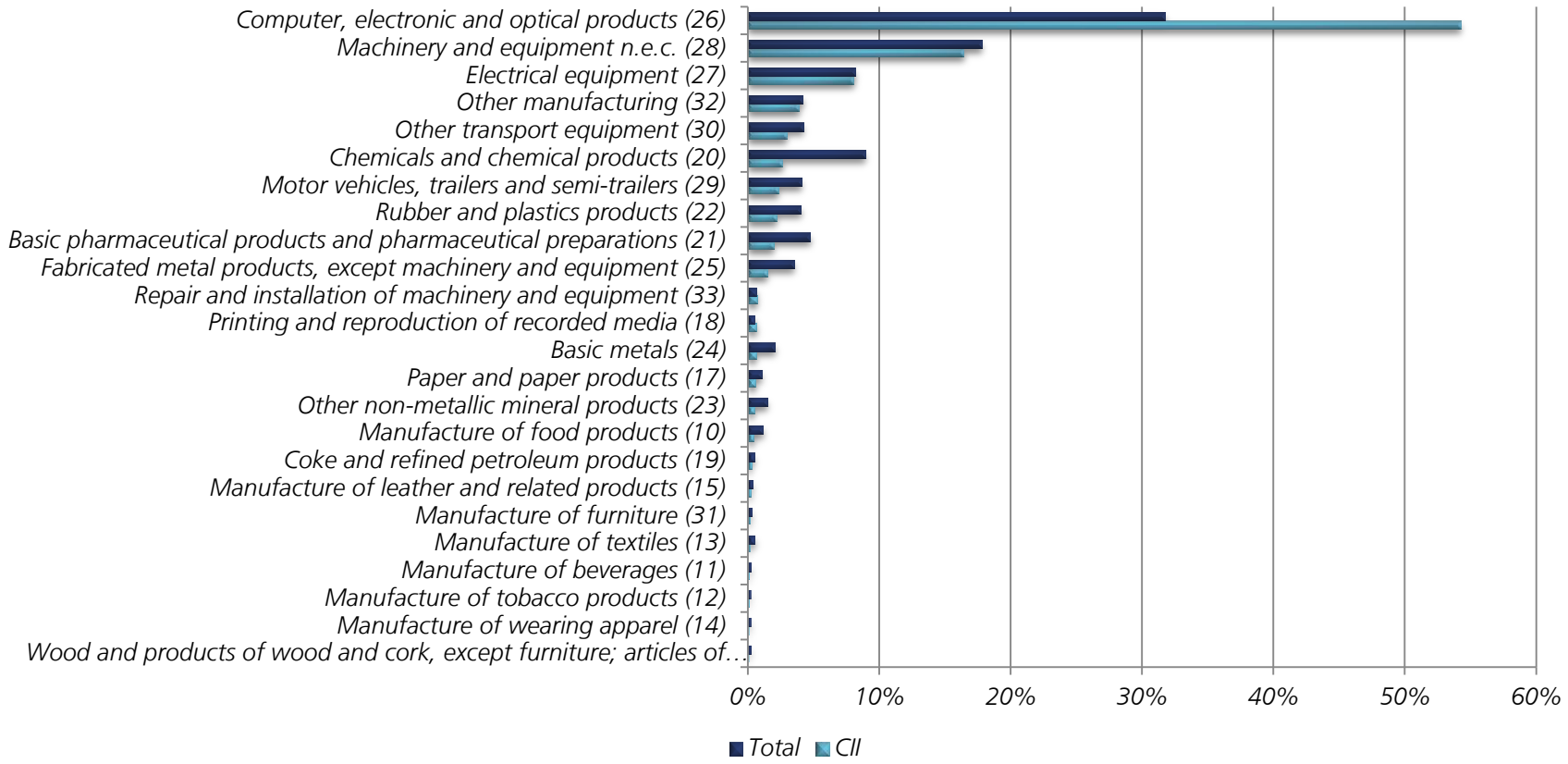
Shares of EPO patent filings in total filings by manufacturing sectors, all countries 2009-2011



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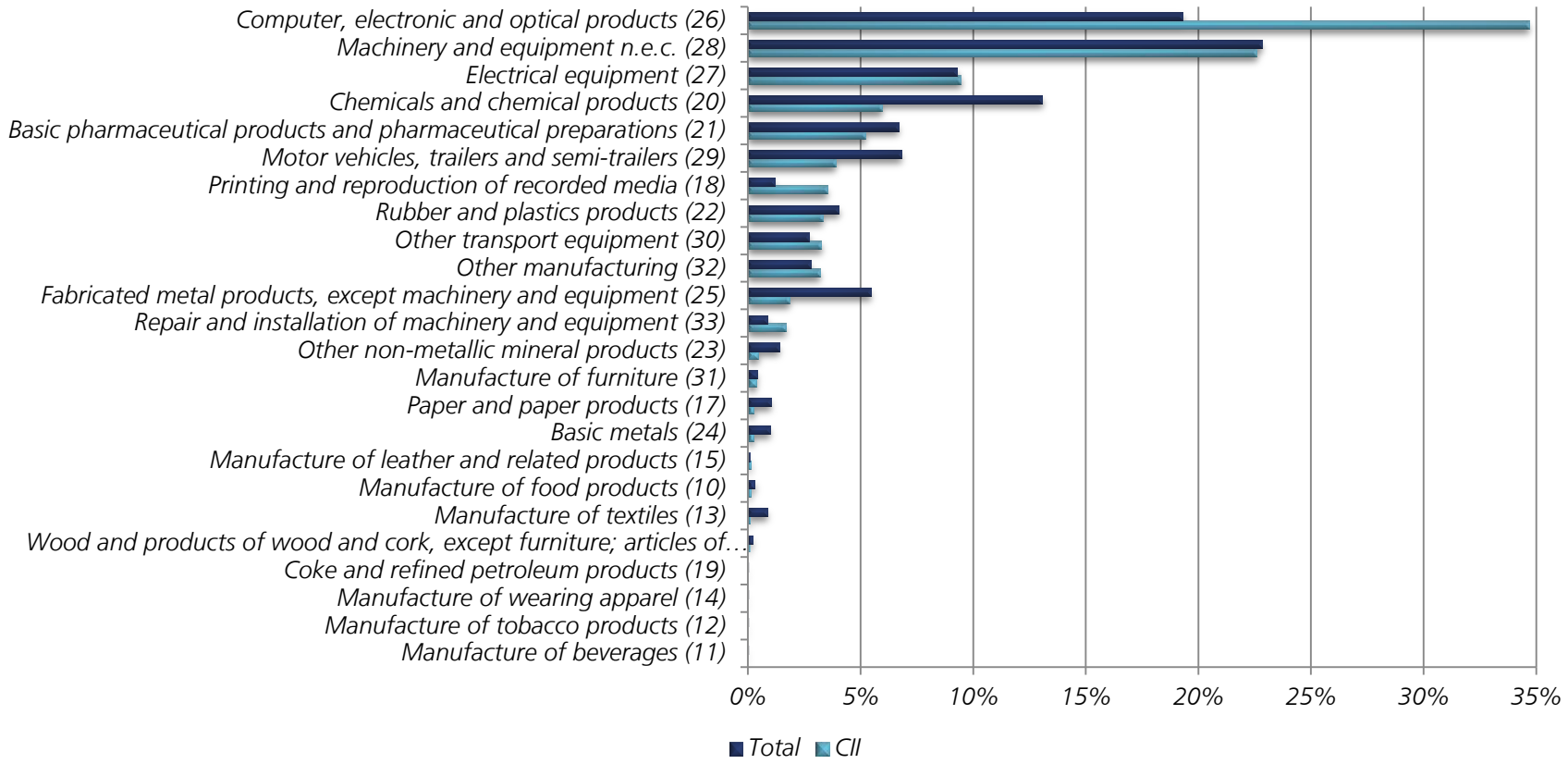
Shares of EPO patent filings in total filings by manufacturing sectors, Germany 2009-2011



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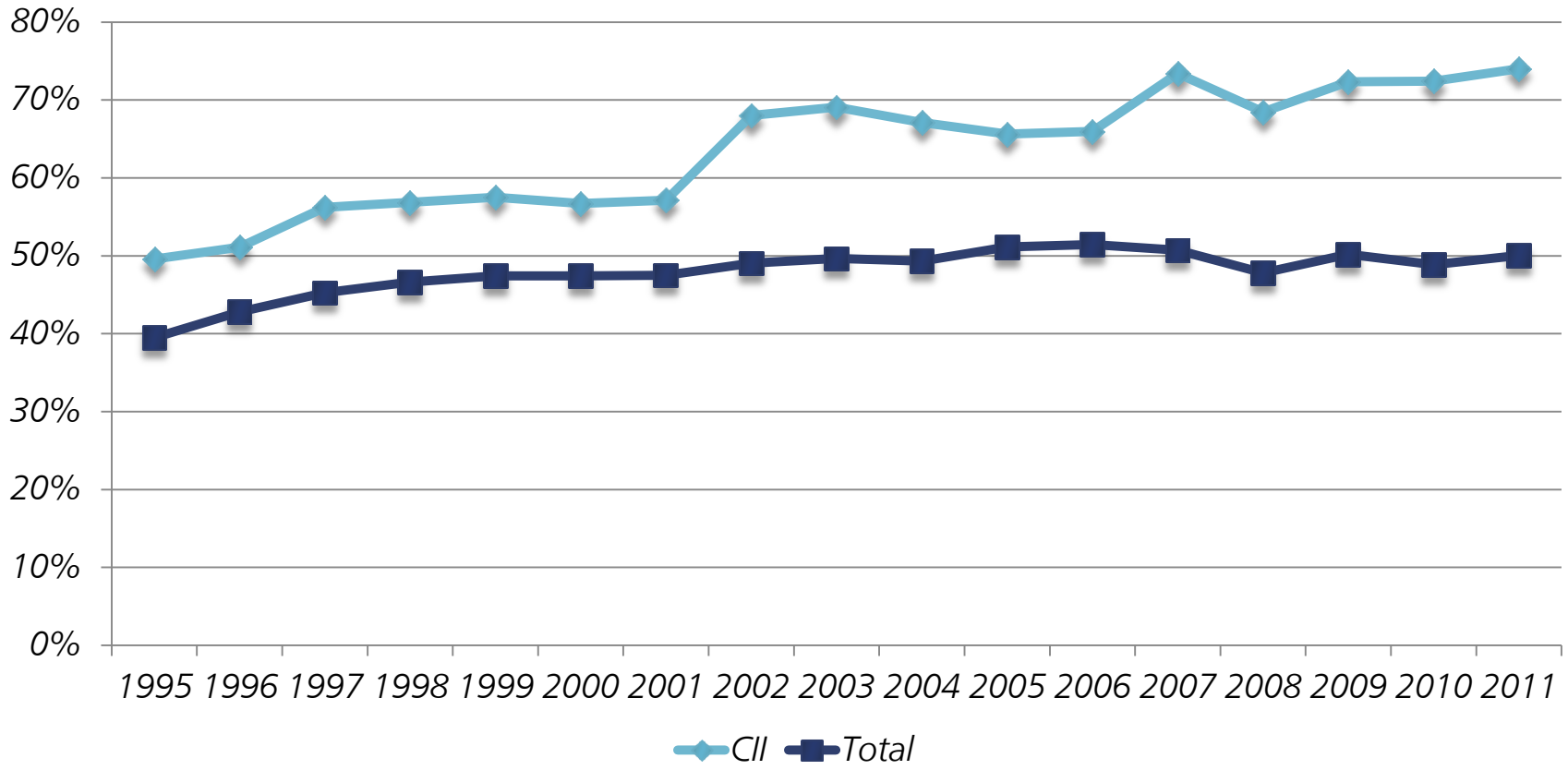
Shares of German applications at the GPTO also filed at the EPO – "Internationalization rate"



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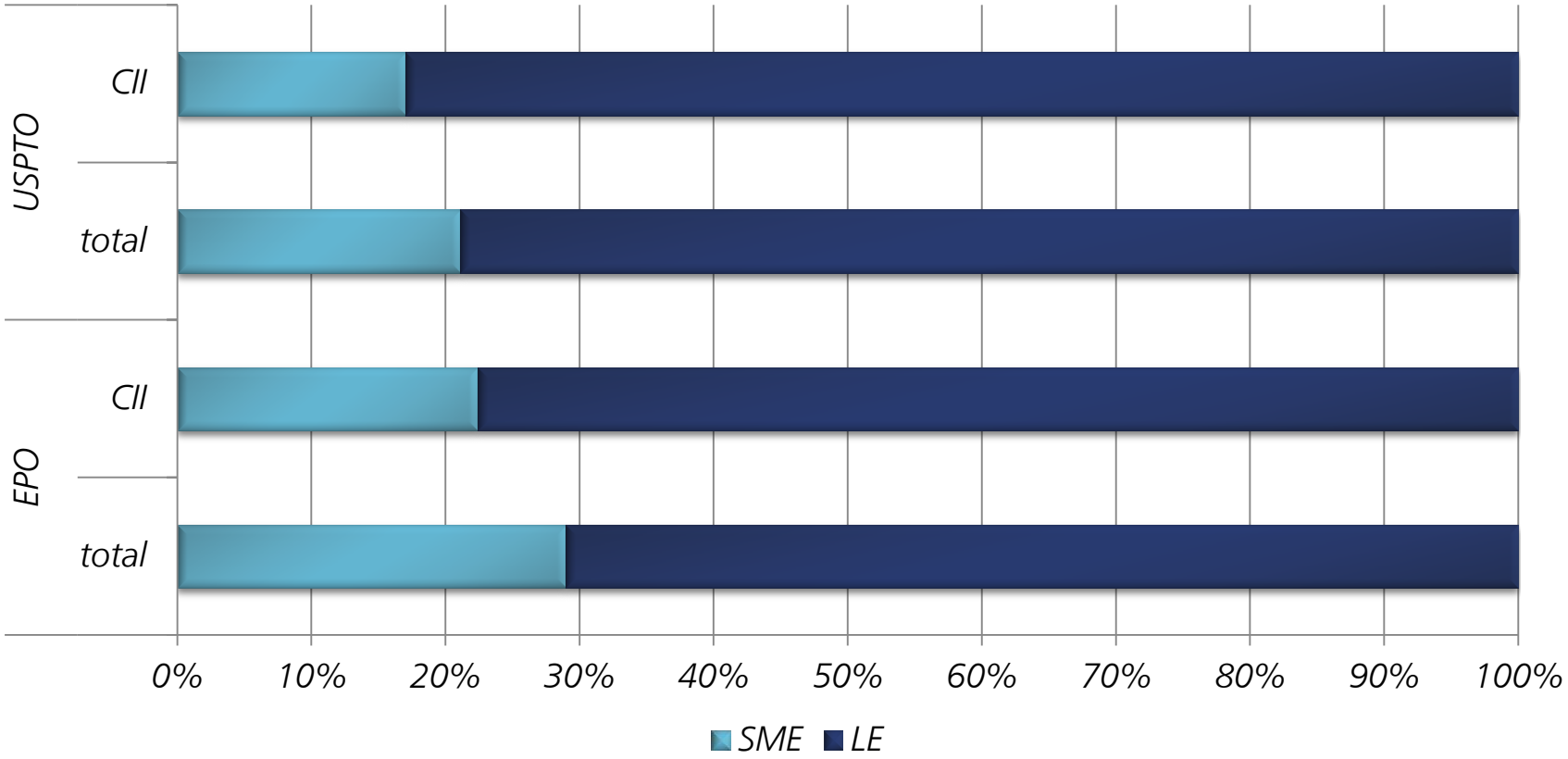
Shares of SME/LE filings in total filings by companies, 2010



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Summarizing conclusions

- In the policy/political debate a sound and **solid empirical foundation** was missing, especially on the economic effects of CII patenting
- **Over 35%** of EPO patent filings are CIIs
- CII patent filings are **not limited to the software industry** (78% of CII patents in Europe are filed within the Manufacturing Sector)
  - It is **not true** that European software developers and SMEs are making disproportionately little use of patenting compared with large companies and US firms
  - Commercializability of CII is high and also Europeans seem to benefit from it
- CII are (increasingly) relevant across many industry sectors
  - Decisive for the competitiveness of a number of sectors – especially internationally
  - In the manufacturing sector in Germany 14.2% (abs.: 963.000) of the jobs are dependent on CII
- SMEs actively patent CII, but the gap to LEs is larger in Europe: **less tacit knowledge?!**
  - A majority of companies interviewed (68% of the surveyed companies) want to maintain the status quo for patent protection on CII

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Contact and further information

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Dr. Rainer Frietsch

Fraunhofer Institute for Systems and Innovation Research ISI

Breslauer Straße 48 | 76139 Karlsruhe | Germany

Phone +49 721 6809-197 | Fax +49 721 6809-176

rainer.frietsch@isi.fraunhofer.de

http://www.isi.fraunhofer.de