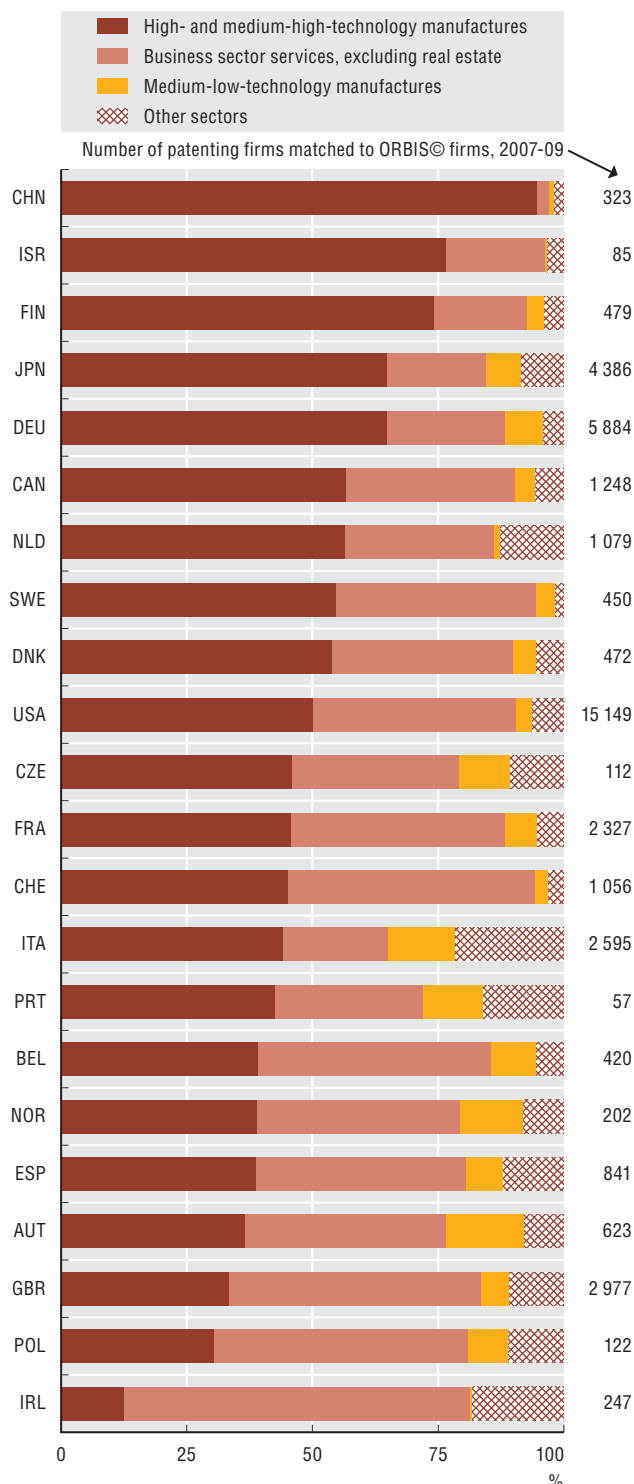


## 11. Patenting firms

## Patenting activity by sector, 2007-09

As a percentage of patents filed by firms, at the EPO and USPTO



Source: OECD, calculations based on the Worldwide Patent Statistical Database, EPO, April 2011; and ORBIS© Database, Bureau van Dijk Electronic Publishing, December 2010; matched using algorithms in the Imalinker system developed for the OECD by IDENER, Seville, 2011. See chapter notes.

StatLink <http://dx.doi.org/10.1787/888932488084>

Applicants in patent documents can be enterprises, organisations or persons. Business registers include information on enterprises and their main characteristics. By matching patent applicants' names to enterprise names in business registers the patenting behaviour of firms can be linked to firm characteristics such as industrial sector, age and size. Matched patent and firm data can also review industries' contribution to the development of key technologies, such as biotechnology and information and communication technology (ICT).

Statistics obtained by matching patent and enterprise data show that firms in high- and medium-high-technology manufacturing sectors perform on average 56% of all patenting. Exceptions are Ireland, Poland and the United Kingdom, where more than 50% of patents come from firms in the business services sector. Medium-low-technology manufacturing firms seldom contribute more than 10% of patent filings.

Matched enterprise and patent data also reveal the broad industrial basis of key enabling technologies. Chemical firms contribute to the advancement of pharmaceuticals and biotechnologies, and to a lesser extent to nanotechnologies. Not surprisingly, research and development service providers are essential to these fields, as are institutions such as universities. New ICT-related technologies are concentrated in a set of computer and communications industries, while environmental technologies are shaped by the patenting activity of specialised machinery manufacturers and certain technical and engineering service activities.

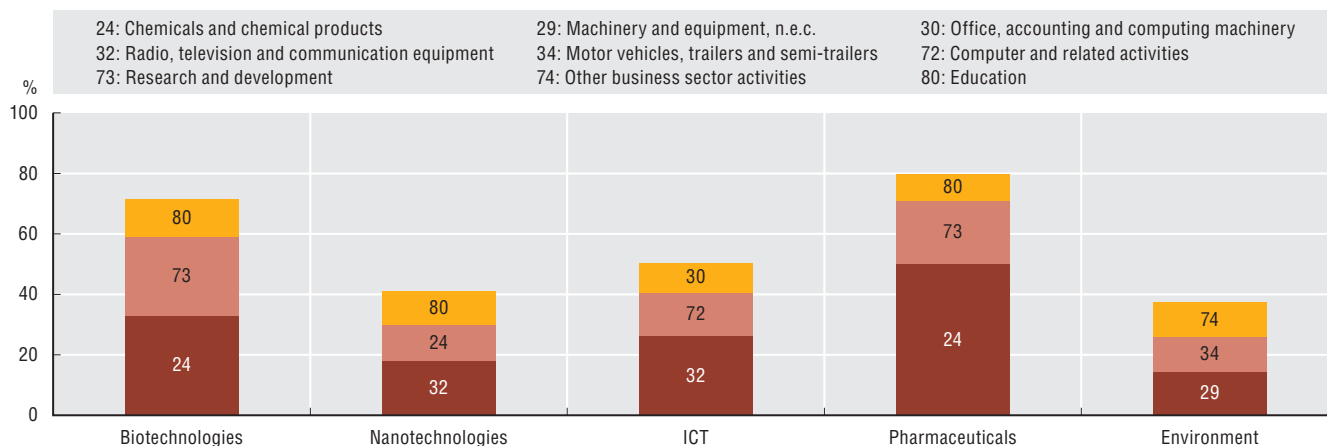
The presence of young firms among patent applicants underlines the inventive dynamics of firms early in their development and their desire to develop new activities and products; this may affect their survival and growth. During 2007-09 firms less than five years old filing at least one patent application represented on average 25% of all patenting firms, and generated 10% of patent applications. The share of young patenting firms varies considerably across countries, led by Ireland (42%) and followed by the Nordic economies.

## Definitions

Patenting firms were linked to the ORBIS© database using combinations of string matching algorithms that optimise the precision of the match. The patent portfolio of firms refers to patents filed at the European Patent Office (EPO) and at the US Patent and Trademark Office (USPTO) between 2007 and 2009. The industry list is based on ISIC Rev. 3. Young patenting firms are those with an incorporation date in ORBIS© between 2004 and 2009.

### Top three industries patenting in selected technology fields, 2007-09

Share of industries' contribution to patent applications in selected technology fields, EPO and USPTO patents

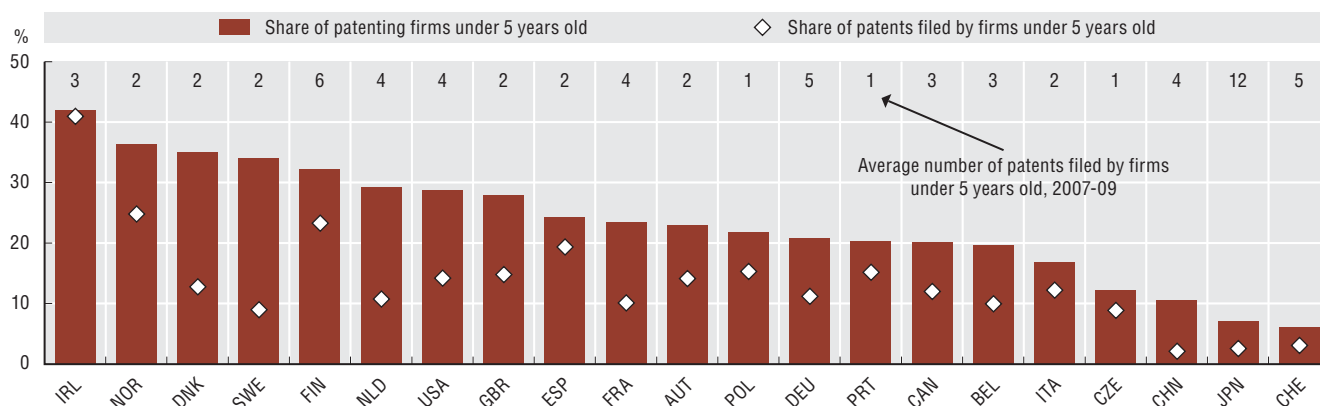


Source: OECD, calculations based on the Worldwide Patent Statistical Database, EPO, April 2011; and ORBIS® Database, Bureau van Dijk Electronic Publishing, December 2010; matched using algorithms in the Imalinker system developed for the OECD by IDENER, Seville, 2011. See chapter notes.

StatLink <http://dx.doi.org/10.1787/888932488103>

### Patenting activity of young firms, 2007-09

Share of young patenting firms and share of patents filed by young patenting firms, EPO and USPTO



Source: OECD, calculations based on the Worldwide Patent Statistical Database, EPO, April 2011; and ORBIS® Database, Bureau van Dijk Electronic Publishing, December 2010; matched using algorithms in the Imalinker system developed for the OECD by IDENER, Seville, 2011. See chapter notes.

StatLink <http://dx.doi.org/10.1787/888932488122>

### Measurability

Linking patent data to enterprise data requires harmonising firms' names. This is done using country-specific "dictionaries" covering legal entities, common names and expressions, as well as phonetic and linguistic rules that may affect how enterprise names are written. String matching algorithms – mainly token-based and string-metric-based – then use this information to compare the names in the different datasets and provide a matching accuracy score. Using software developed for OECD by IDENER, Seville, 68 million patents in EPO's Worldwide Patent Statistical Database (PATSTAT) and 80 million companies in Bureau van Dijk's ORBIS® firm data were matched for enterprises worldwide. Ideally, the matching should be performed on official data such as national business registers, as ORBIS's firm coverage is not exhaustive and differs across countries – in particular small firms are underrepresented. To partially address this and other selection and data consistency issues, the analysis is restricted to countries with matching rates above 60% of patent filings over the period considered.



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