



MEASURING INNOVATION: A NEW PERSPECTIVE



Measuring innovation: What's new?

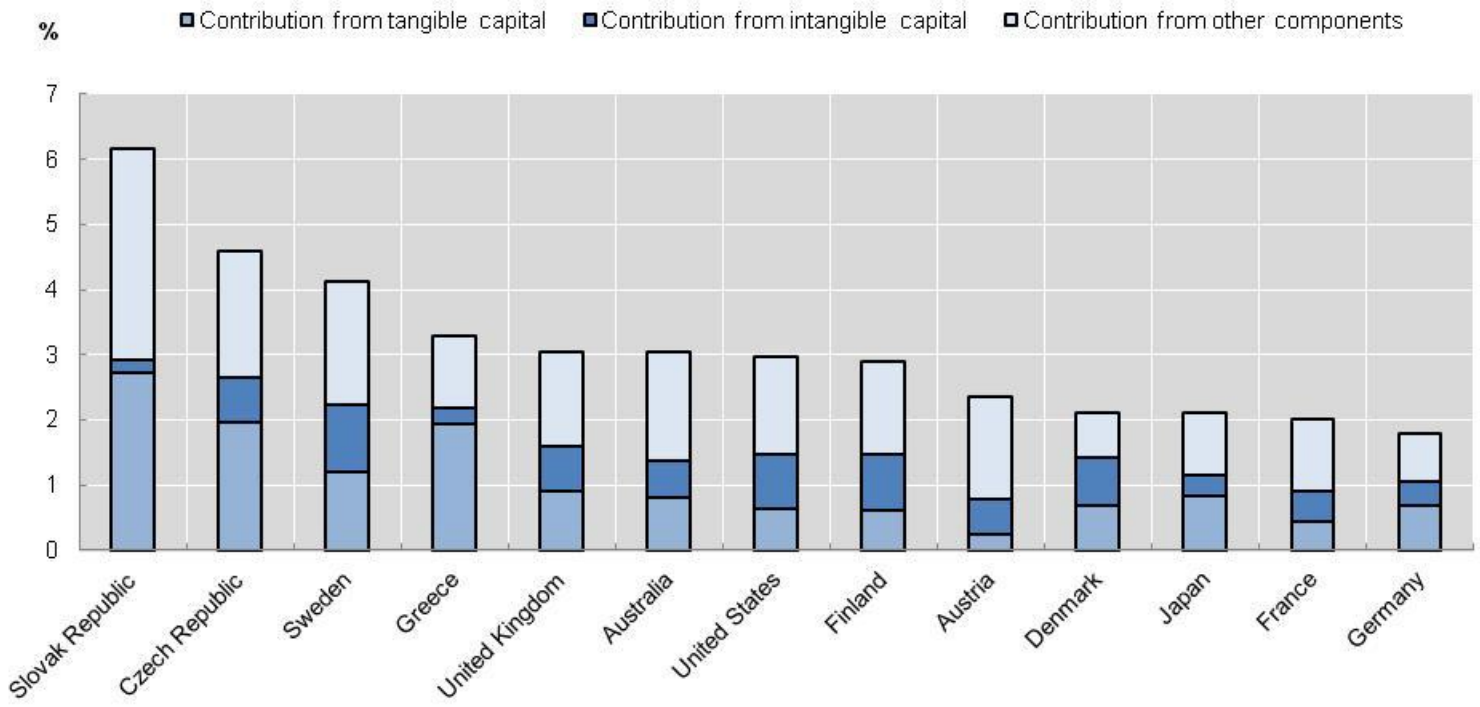
- New ways of looking at traditional indicators
- New experimental indicators that provide insight into new areas of policy interest
- Measurement gaps and challenges
- A forward-looking measurement agenda

THE INNOVATION IMPERATIVE

- **The economic downturn makes it imperative to find new sources of growth**
- **Innovation is a means of dealing with global and social challenges**

Innovation drives growth

Contributions to labour productivity growth, 1995-2006, in %

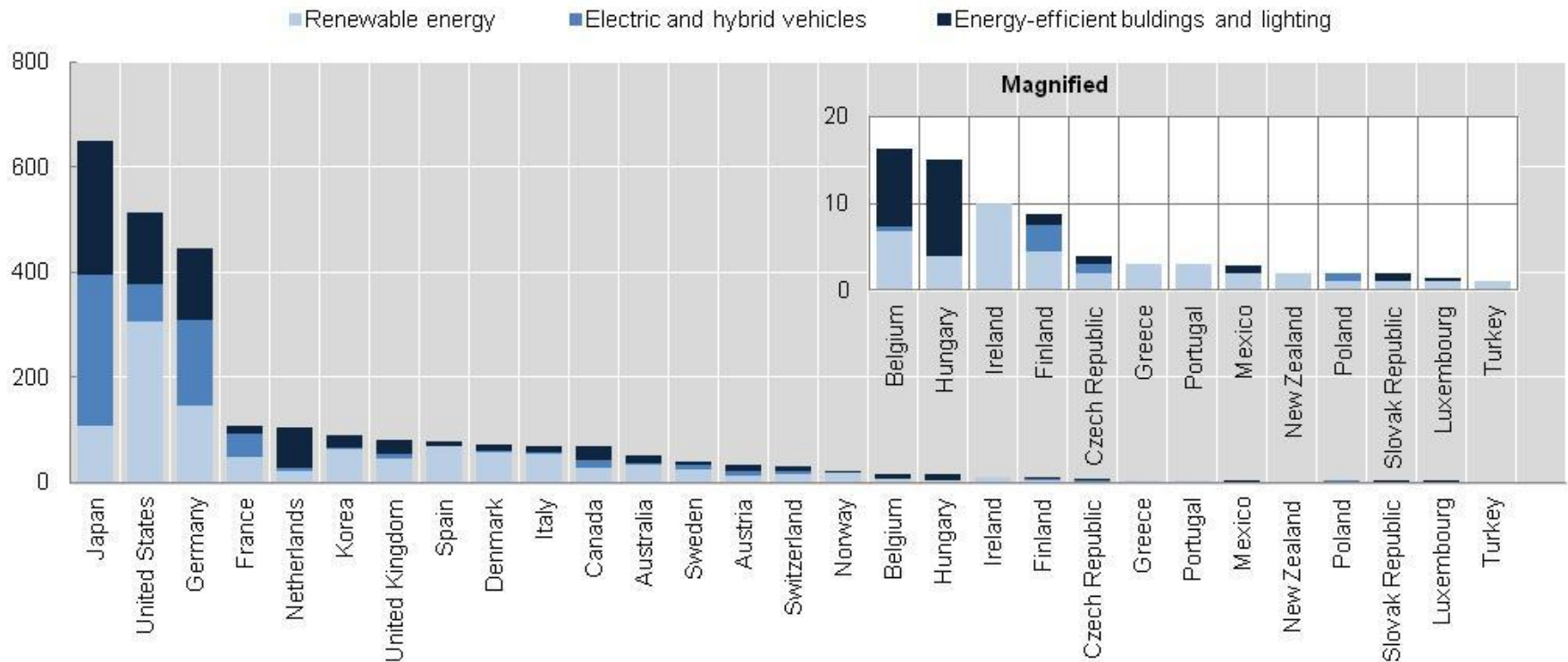


Innovation explains a good portion of labour productivity growth.

Source: OECD (2010), *Measuring Innovation: A New Perspective*, Paris.

The costs of meeting climate challenge depend crucially on the pace of innovation in mitigation technologies

Patents for climate change mitigation technologies, 2007
PCT patent applications

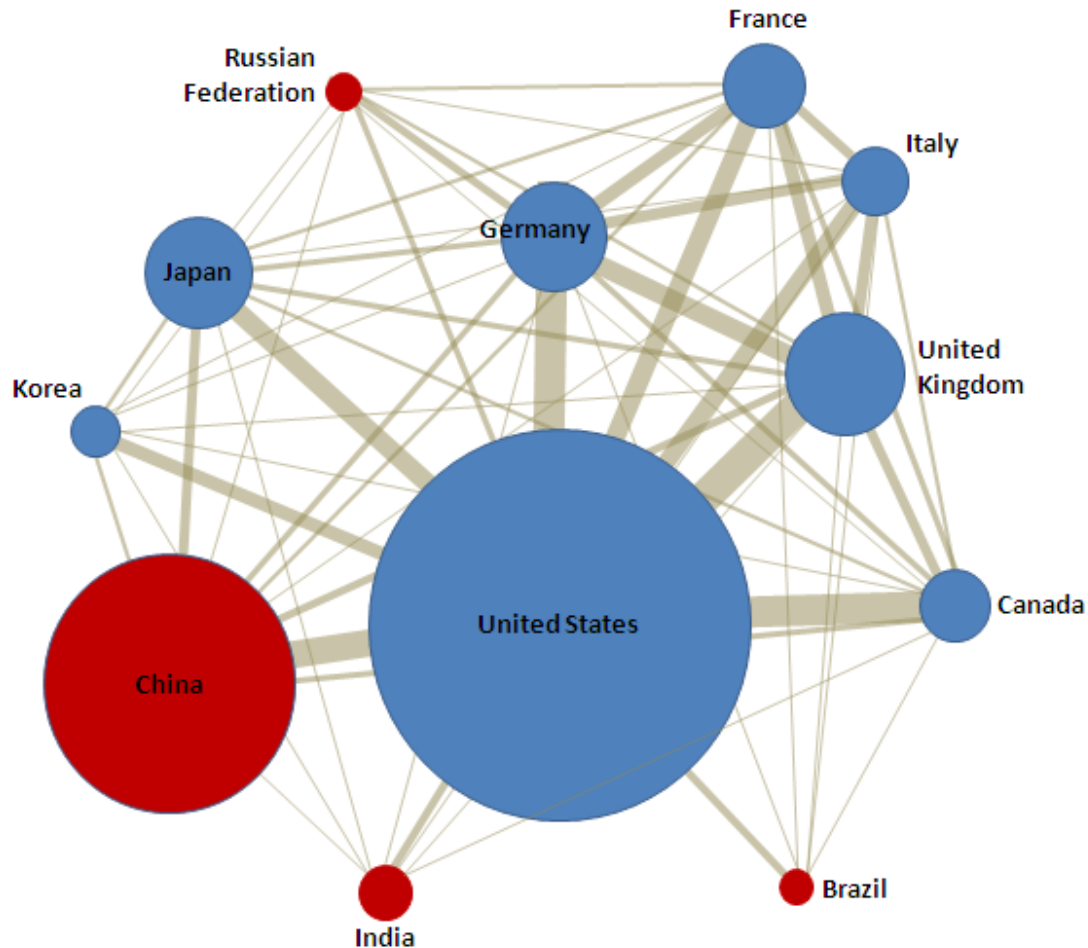


INNOVATION TODAY

- **New ways of using data and first time indicators reveal what's new**

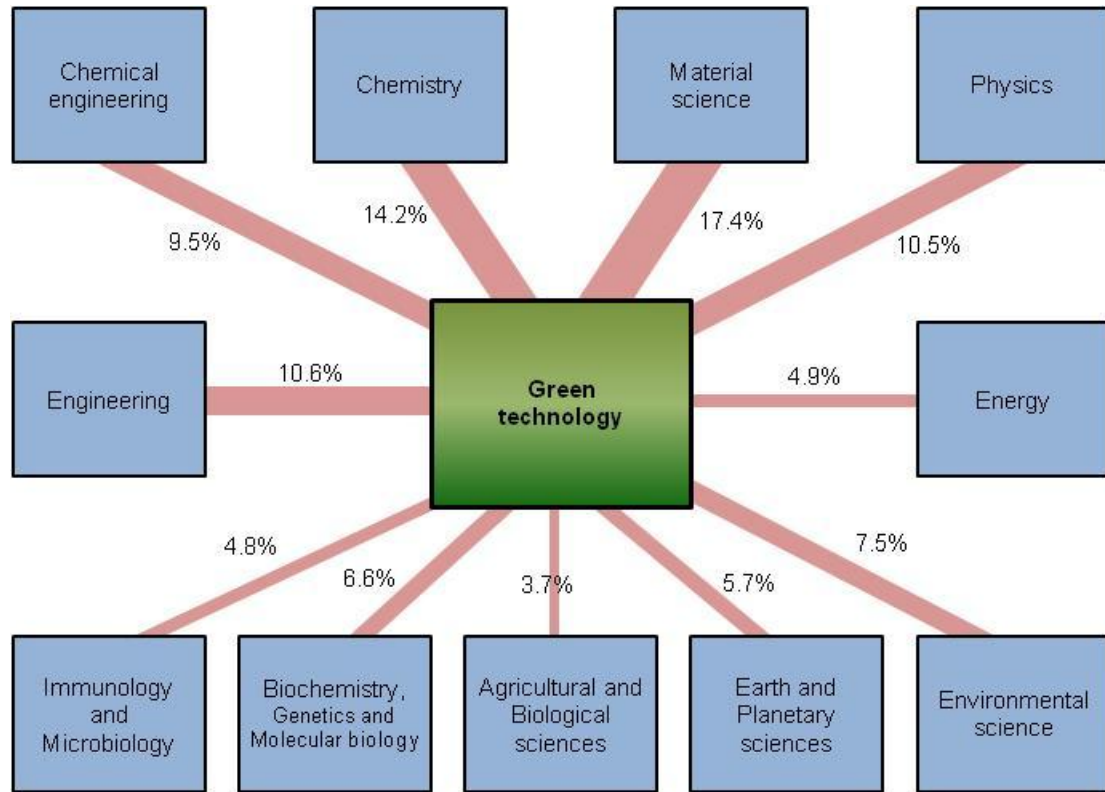
NEW PLAYERS ARE EMERGING AND SCIENTIFIC COLLABORATION IS INTENSIFYING...

2008

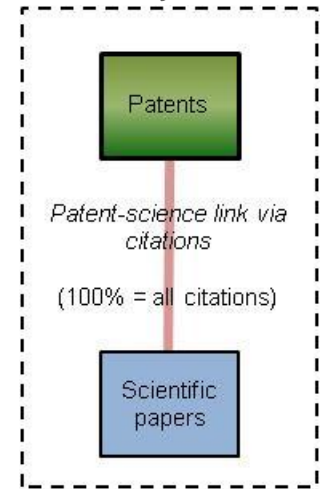


MULTIDISCIPLINARY RESEARCH IS EMERGING TO ADDRESS GLOBAL CHALLENGES

Science for “green” innovation



NEW INDICATOR:
matching environmental patents and scientific publications using co-citation analysis

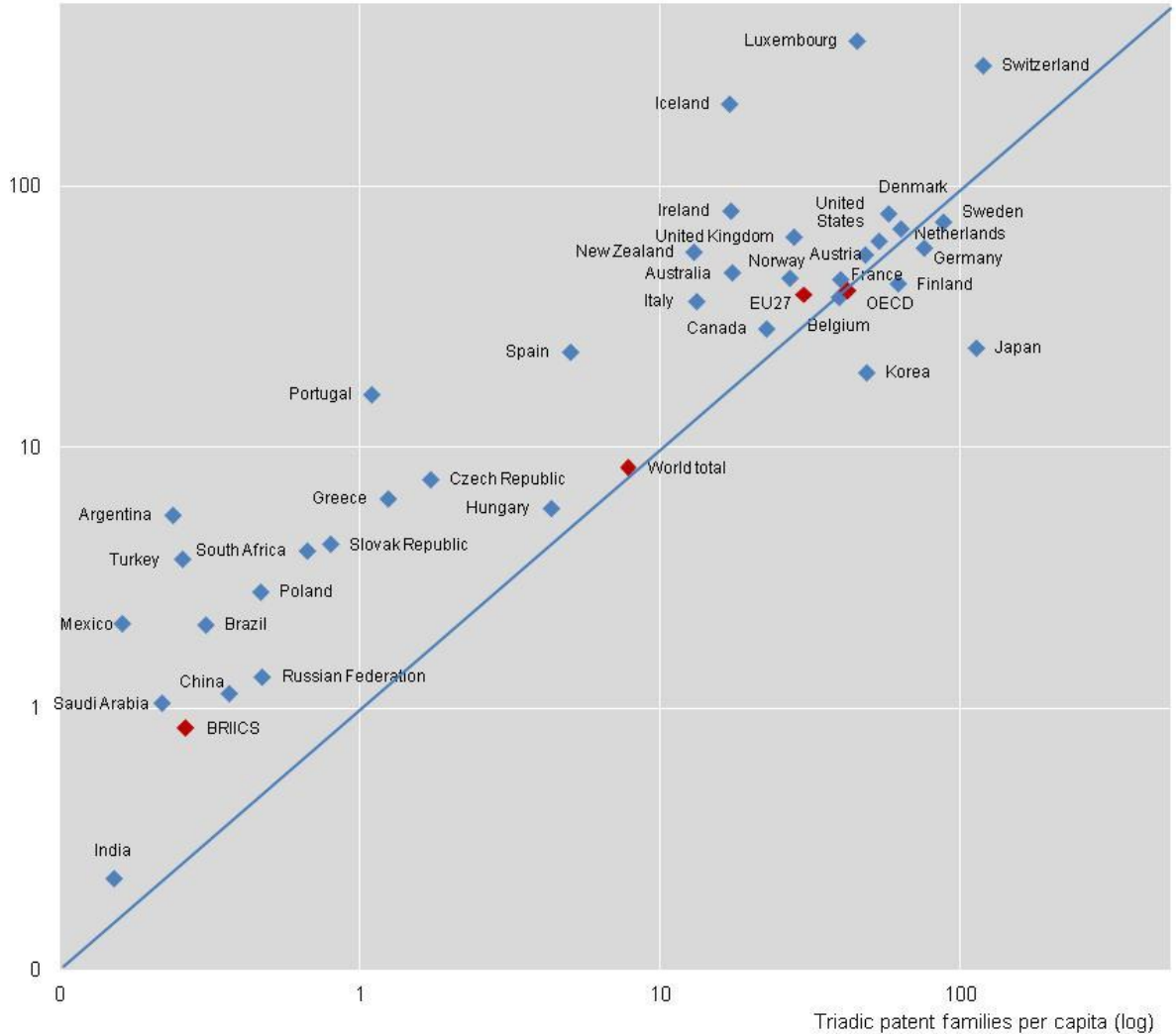


Green technologies (patents) draw on a broad base of scientific knowledge

•Source: OECD (2010), *Measuring Innovation: A New Perspective*, based on Scopus Custom Data, Elsevier, July 2009; OECD, Patent Database, January 2010; and EPO, Worldwide Patent Statistical Database, September 2009. The list of environmental patent applications has been generated through a search algorithm developed by the OECD and EPO (European Patent Office)

MARKETS FOR KNOWLEDGE ARE EMERGING

Cross-border trademarks per capita (log)

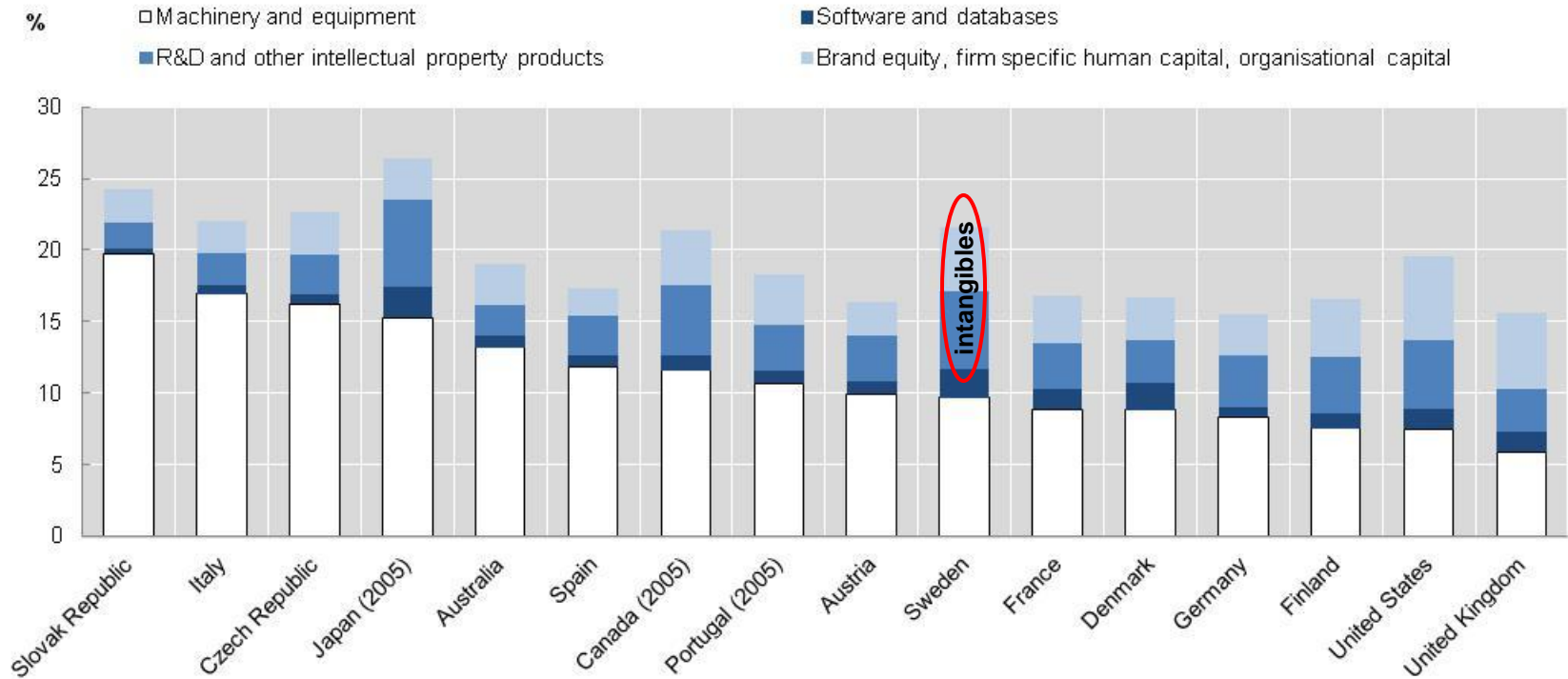


Countries are performing both technological and non-R&D based innovation.

Catching up countries have lower propensity to innovate or lower propensity to seek protection for their innovations

INVESTING IN INNOVATION = INVESTING IN A BROAD RANGE OF COMPLEMENTARY ASSETS

Investment in fixed and intangible assets as a share of GDP, 2006

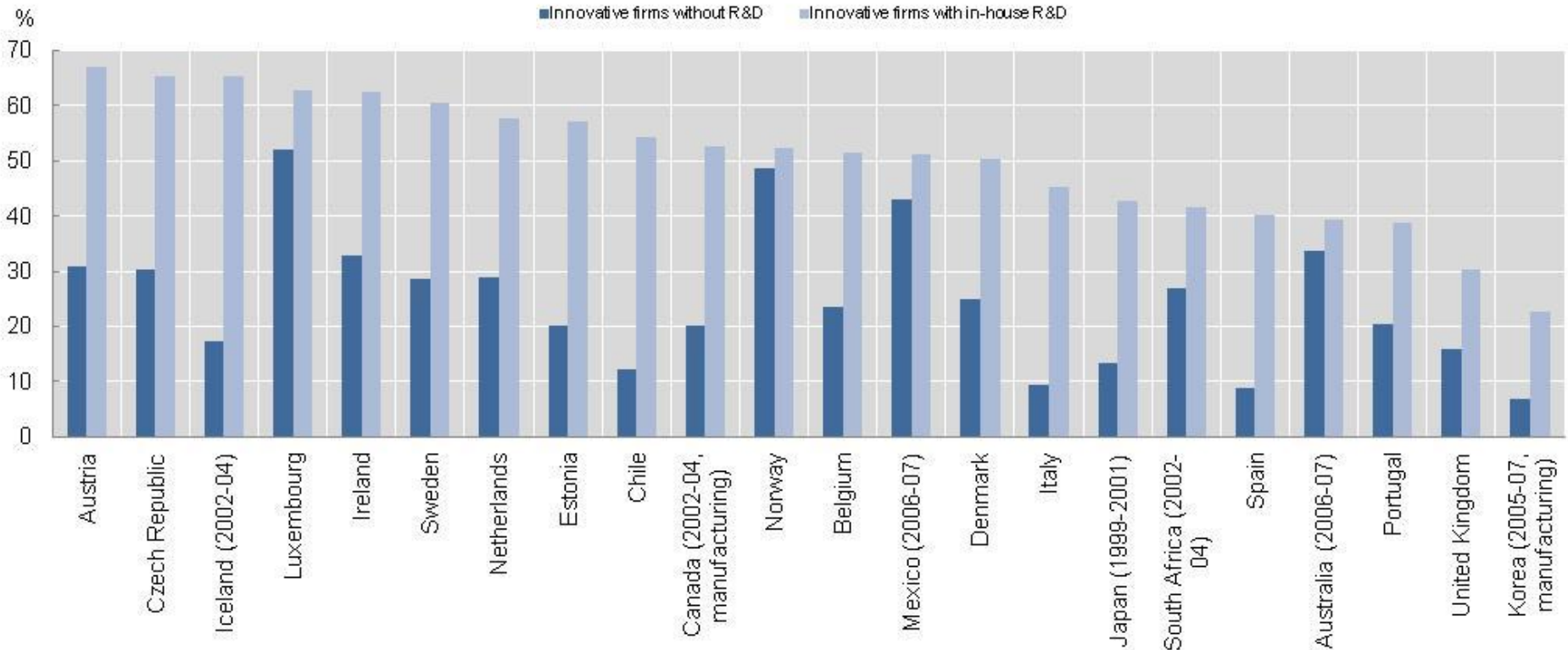


Investing in innovation goes beyond R&D. Investment in intangible assets is rising and taking over investment in physical capital (machinery and equipment).

Firms may introduce new products without engaging in R&D

“New to market” product innovators with and without R&D, 2004-06

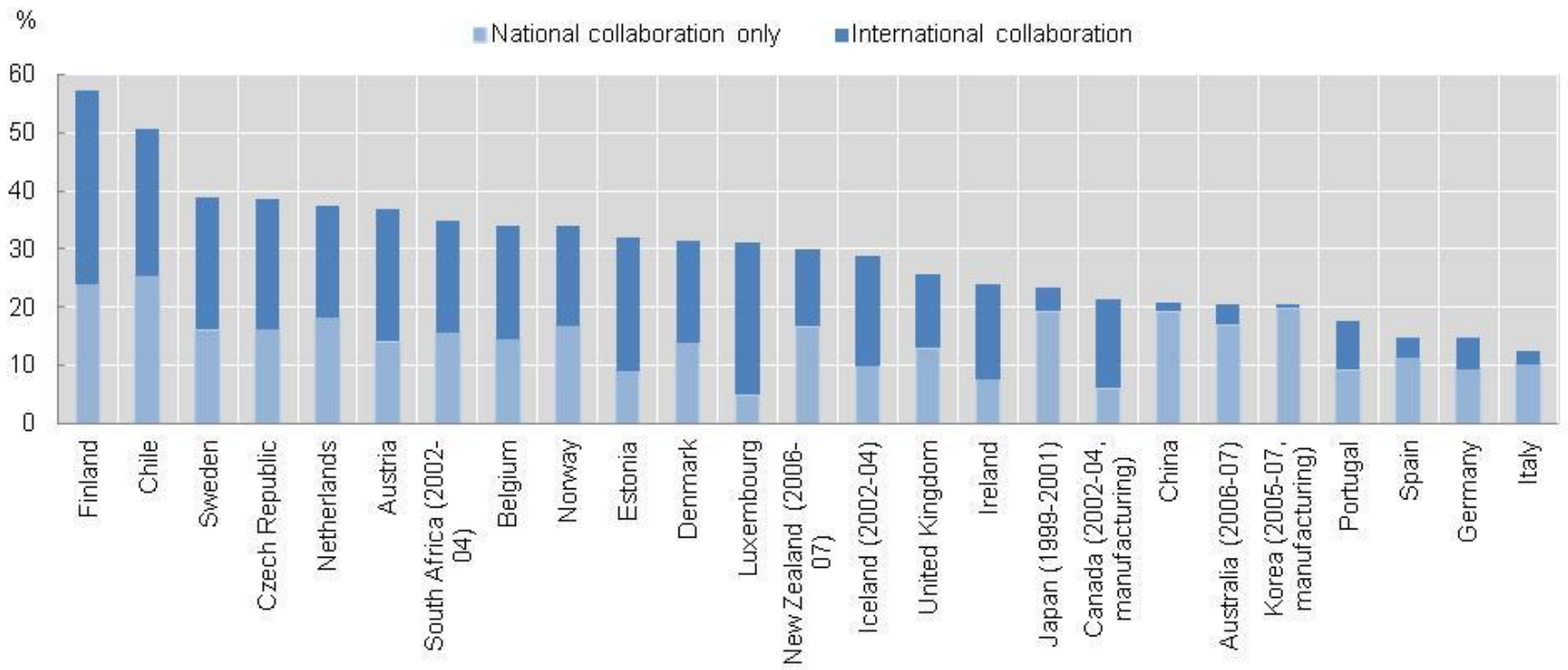
As a percentage of innovators



NEW INDICATORS reveal that in Australia and Norway the propensity to introduce a new product is similar whether or not the firm performs R&D.

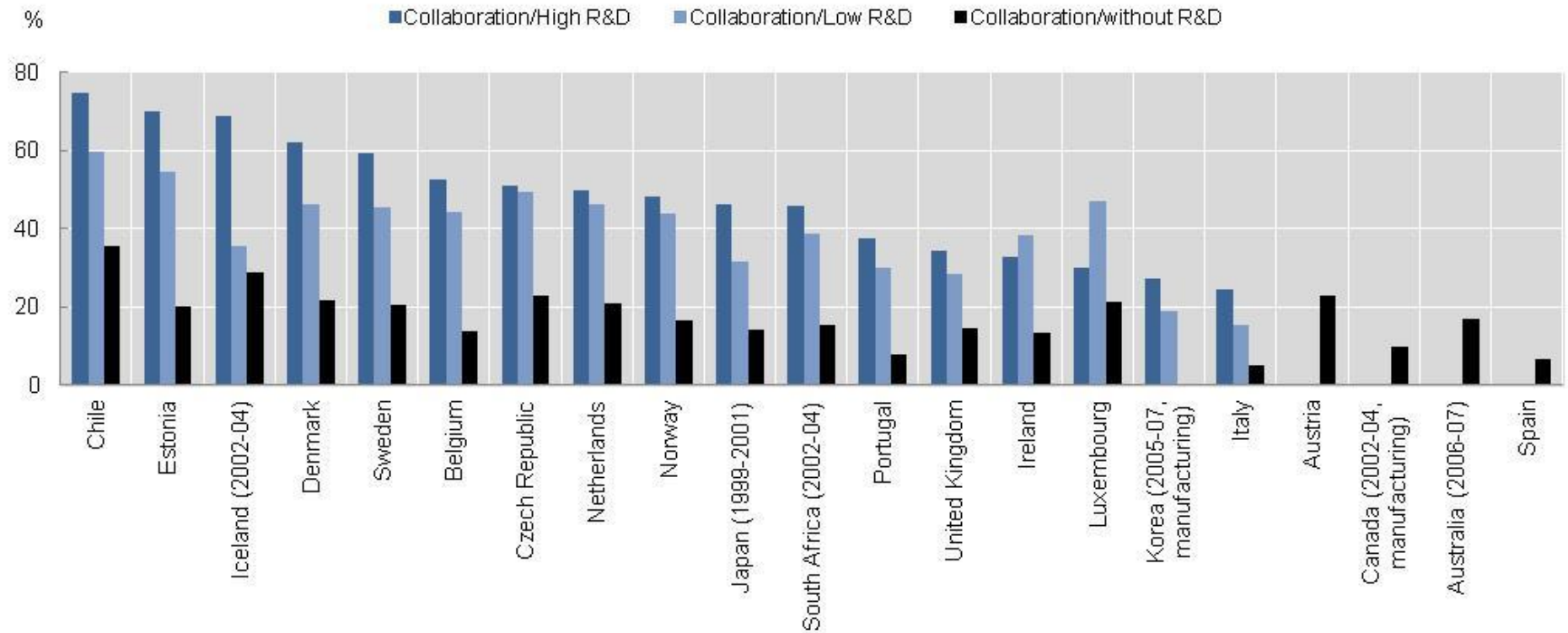
INNOVATION IS ABOUT COLLABORATION

Companies collaborating on innovation, as a percentage of all firms, 2004-2006



COLLABORATION INVOLVES ALL TYPES OF FIRMS

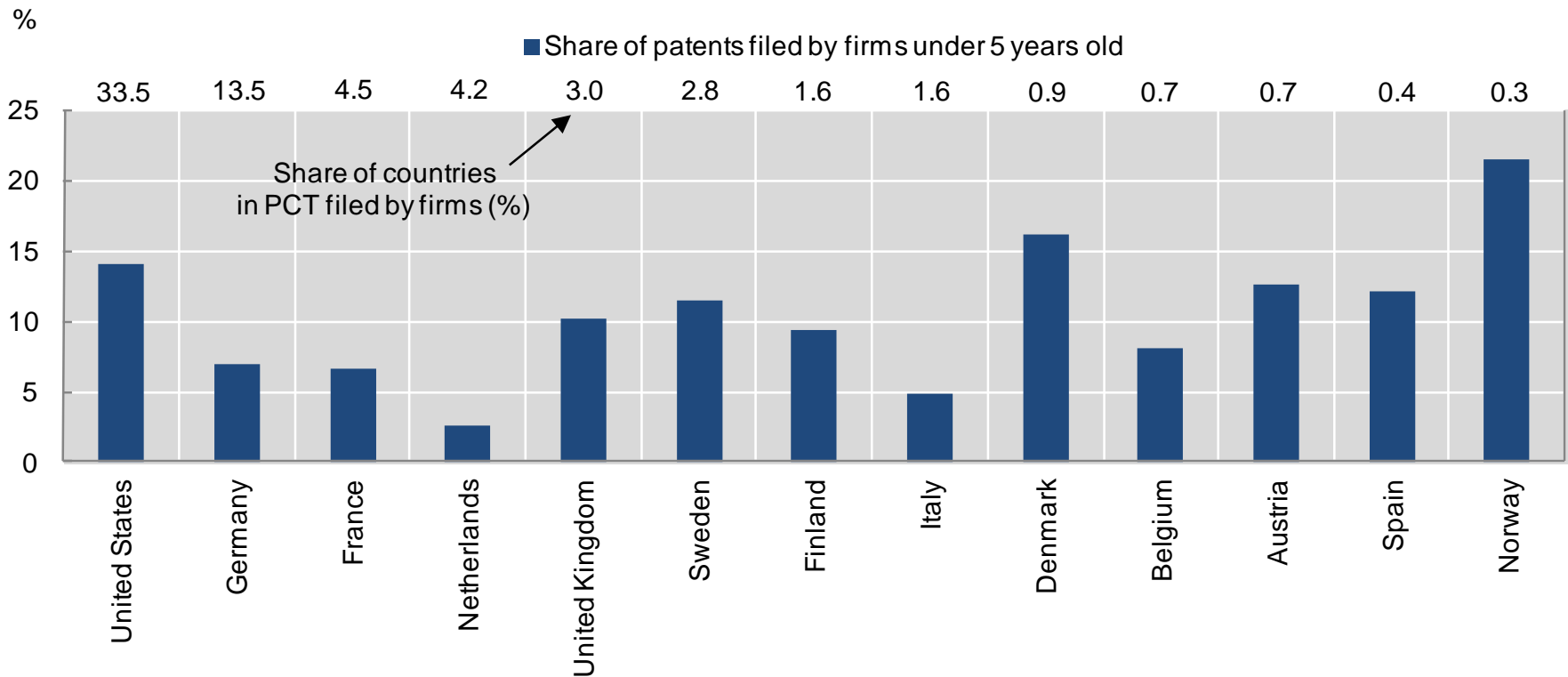
Collaboration on innovation, 2004-06 As a percentage of innovative firms by R&D status



NEW INDICATORS reveal that collaboration is used in innovation whether firms perform a lot of R&D, a little R&D or no R&D at all. Policies that stimulate collaboration and network initiatives will have an impact on the entire spectrum of innovative firms.

Patenting activity of young (<5 years) firms, 2005-07

PCT patent filings by young firms as a percentage of filings by firms in each country



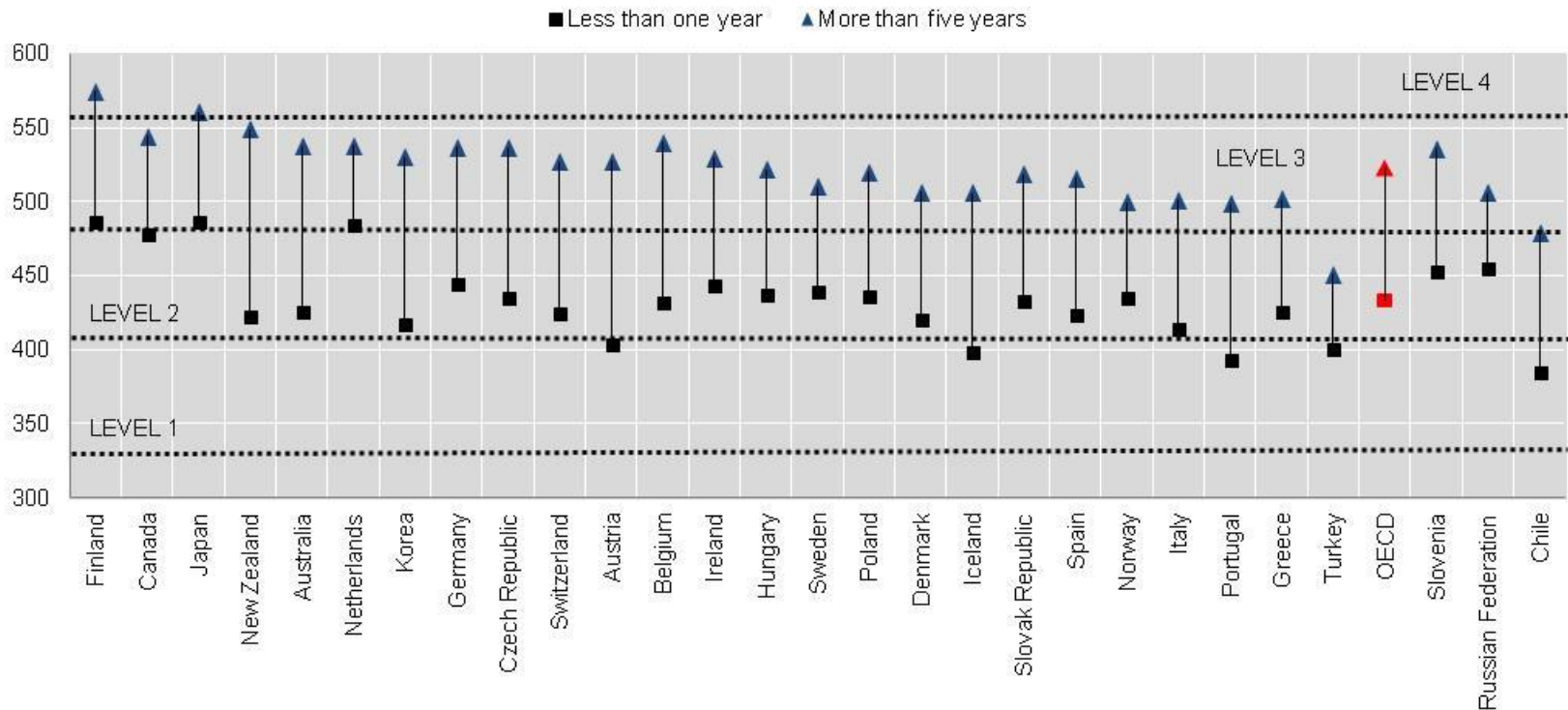
Source: OECD (2010), *Measuring Innovation: A New Perspective*, OECD, Paris, based on OECD HAN Database and ORBIS© Bureau Van Dijk Electronic Publishing.

Note: Data refers to patent applications filed under the Patent Co-operation Treaty (PCT) with a priority in 2005-07. Patent counts are based on the country of residence of the applicants. The share of young firms is derived from the set of patent applicants successfully matched with business register data.

WHAT CAN GOVERNMENTS DO TO UNLEASH INNOVATION?

EDUCATE PEOPLE TO SCIENCE AND TECHNOLOGY FROM A YOUNG AGE

Length of time students have been using a computer and mean PISA science score, 2006

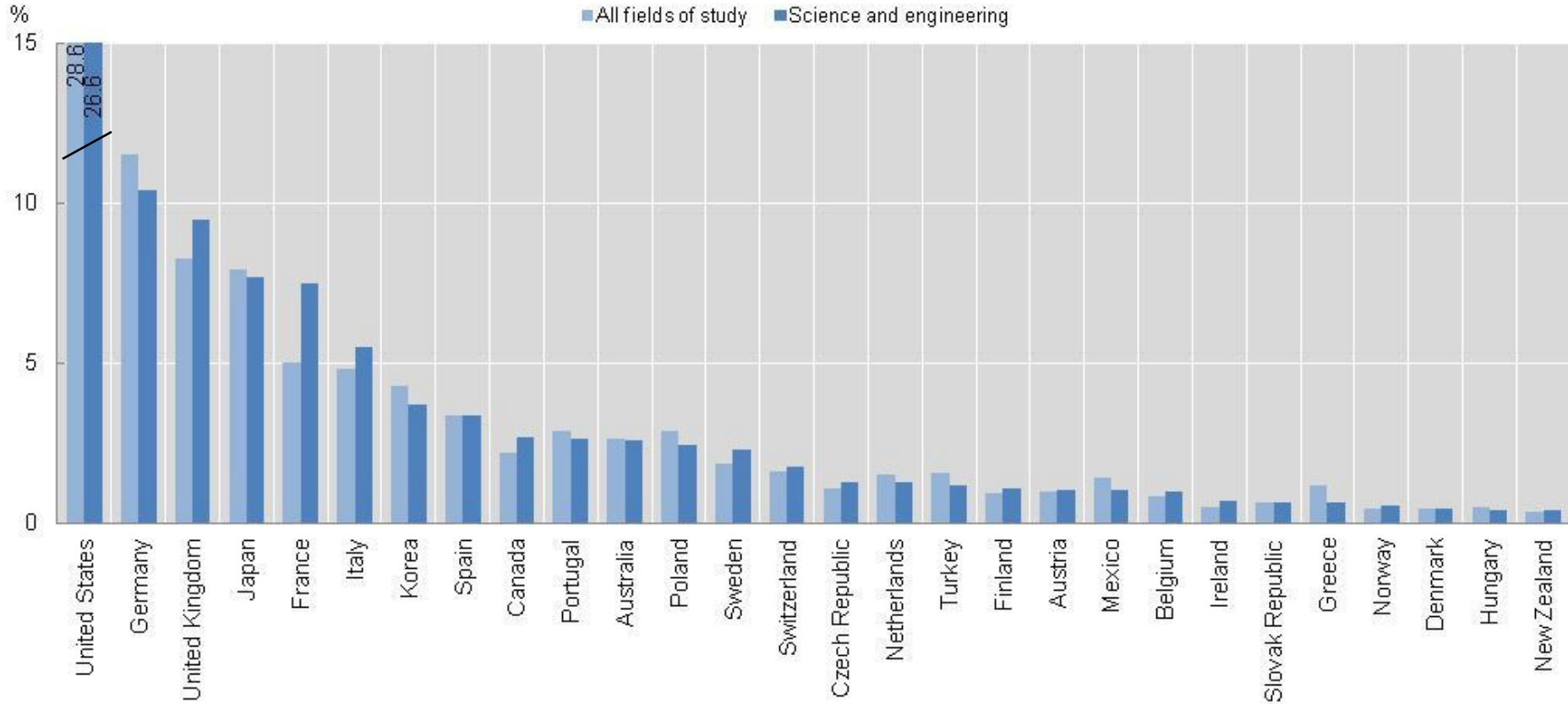


15-year-olds having used computers for less than one year achieve a “level 2” PISA science score

BUT 15-year-olds having used computers for more than 5 years raise their PISA science score to “level 3” or even “level 4” in the case of Finland and Japan

BUILD THE STOCK OF RESEARCHERS

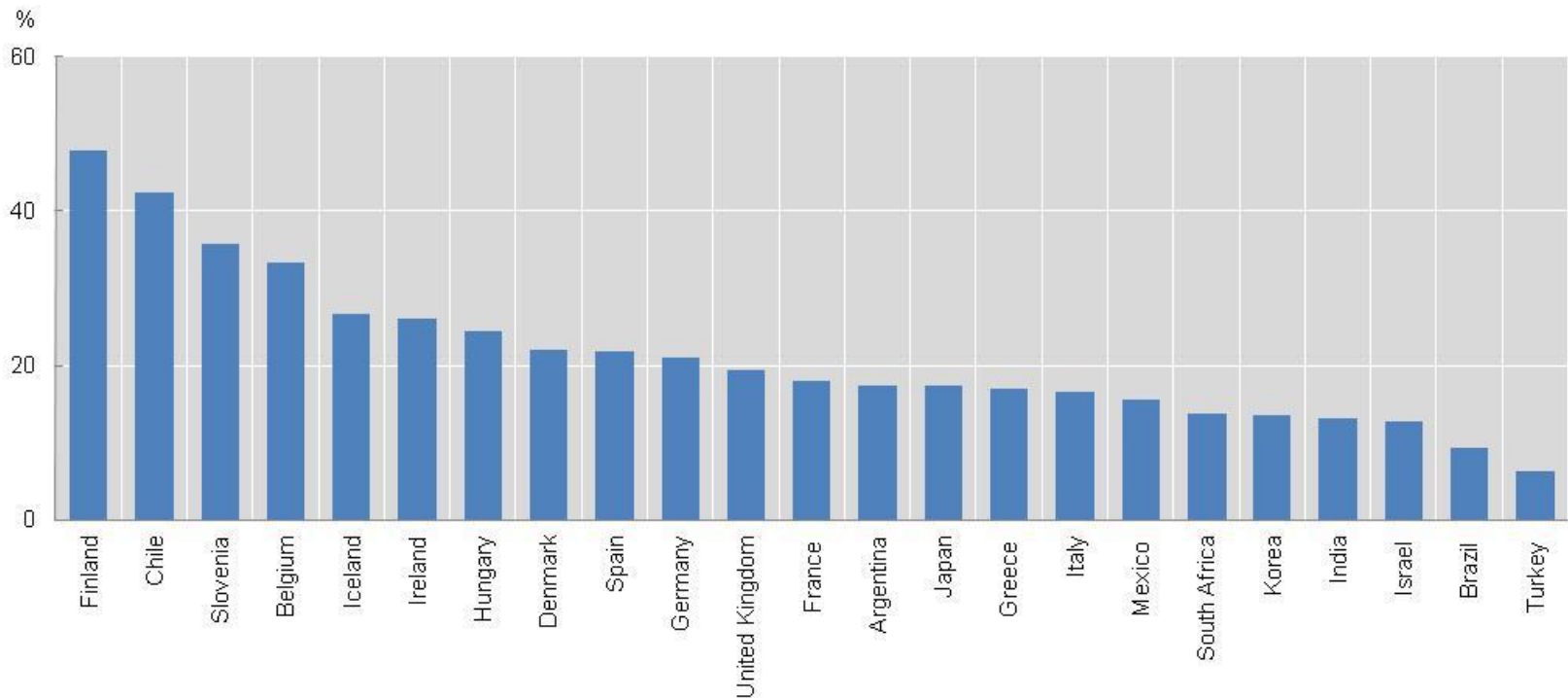
New graduates at doctorate level by country of graduation, % of OECD new total doctorate holders, 2007



Source: OECD (2010), *Measuring Innovation: A New Perspective*, Paris.

TRAIN PEOPLE TO BECOME ENTREPRENEURS

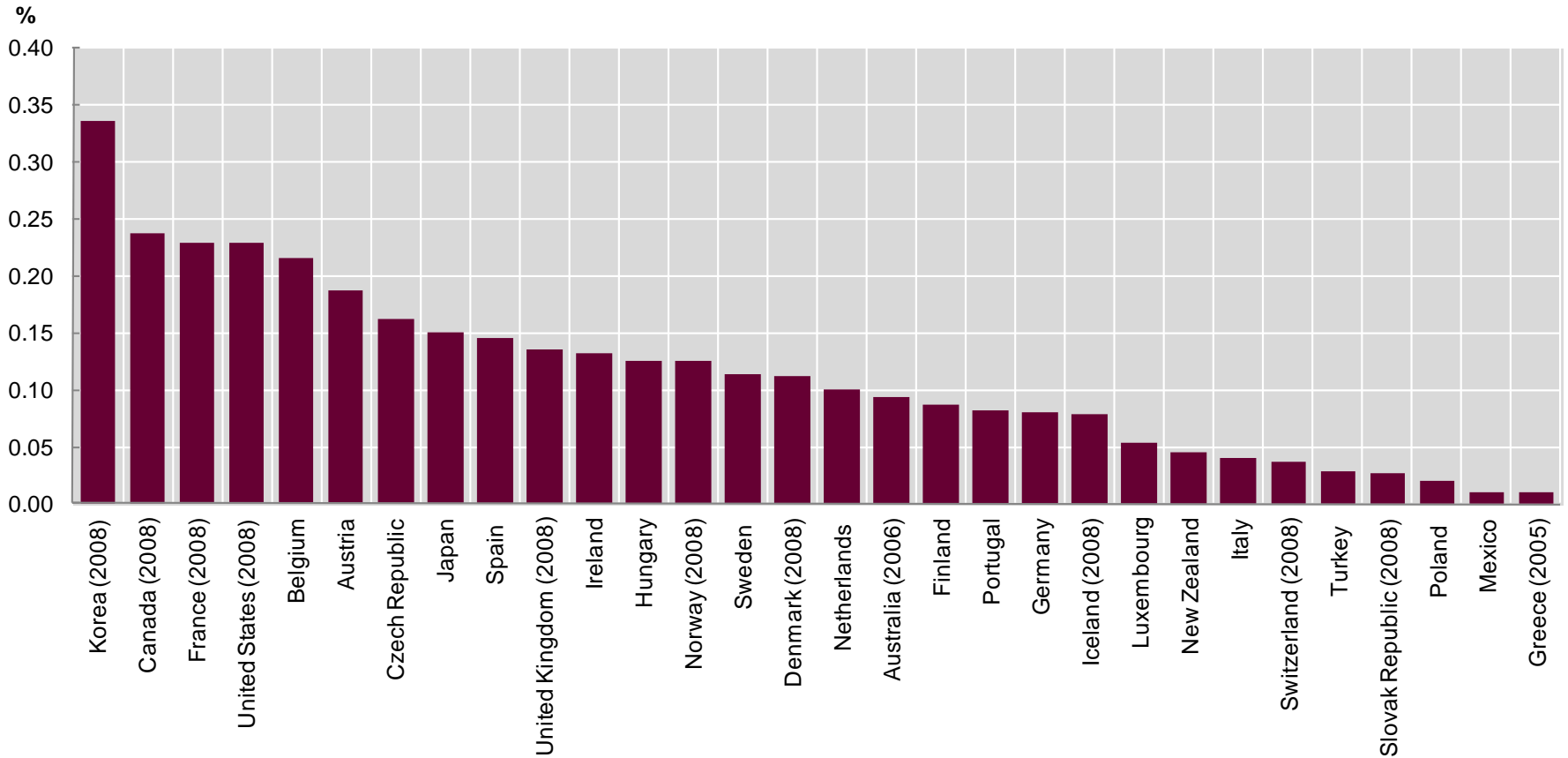
Percentage of the population 18 to 64 years old who received any type of training in starting a business, during or after school, 2008



Entrepreneurship education is critical for raising awareness about starting and growing a business and providing the skills, attitudes and behaviours to do so.

PROVIDE INCENTIVES TO BUSINESS R&D

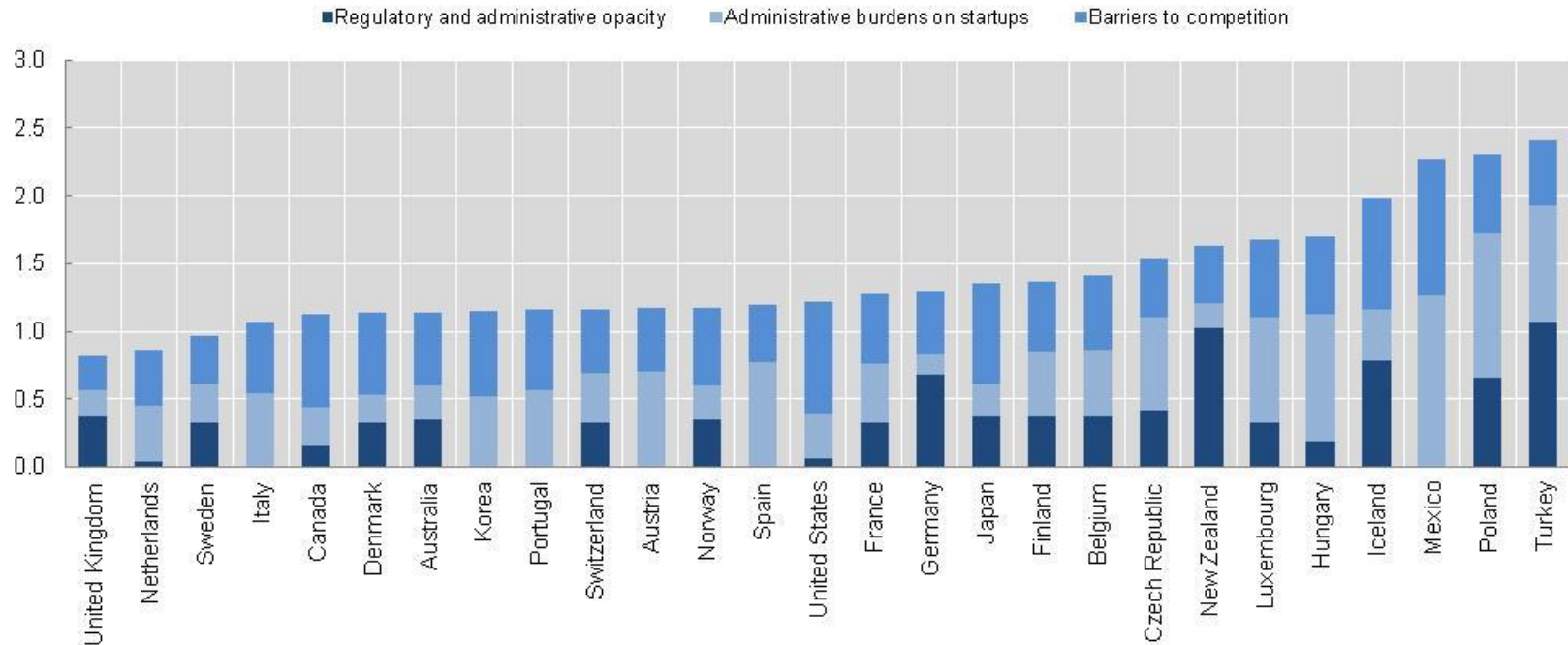
■ Total government support (direct + indirect) to business R&D, % GDP



LOWER BARRIERS TO ENTREPRENEURSHIP

Barriers to entrepreneurship, 2008

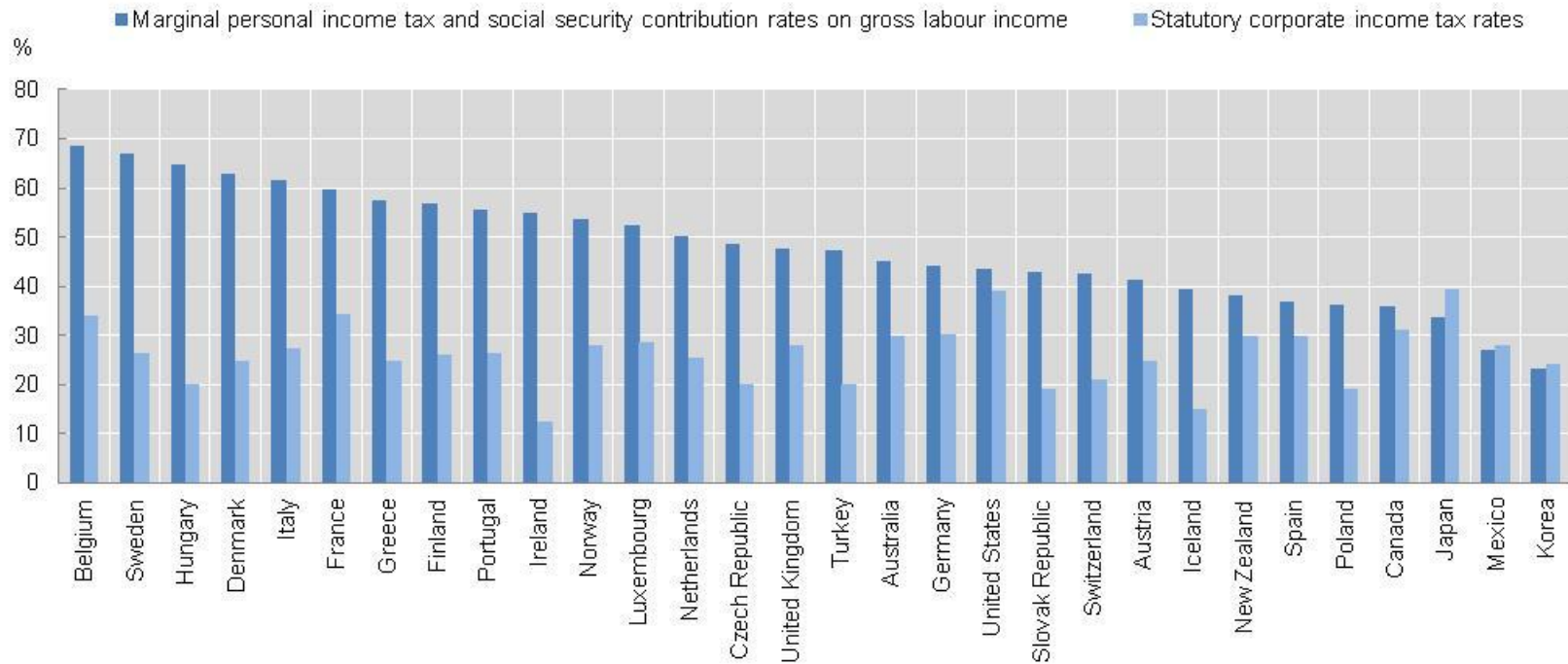
Scale from 0 to 6 from least to most restrictive



A high quality regulatory framework is important to allow businesses to enter the market and grow. Product Market Regulation Indicators are quantitative indicators derived from qualitative information on laws and regulations that may affect competition.

BALANCE TAX INSTRUMENTS NOT TO DISCOURAGE ENTREPRENEURSHIP

Taxation on personal income and corporate income, 2009



Individuals' decisions to start a business are affected by taxes and tax policy.

RECONSIDER THE TAX TREATMENT ON RETURNS FROM INNOVATION

Foreign inventions owned by countries, 2005-07



Many countries with a high share of patents invented by foreign businesses either have large multinational firms that perform R&D abroad...

... or are low-tax countries with no track record of innovation.

WHY BETTER METRICS

- **Explain economic and social impacts of innovation**
- **Guide policy making**
- **Evaluate public policy**

WE OUTLINE A MEASUREMENT AGENDA FOR THE FUTURE

- ❑ 1 - Improve the measurement of broader innovation and its link to macroeconomic performance
- ❑ 2 - Invest in a comprehensive, high-quality data infrastructure for measuring impacts
- ❑ 3 - Recognise the role, and improve the measurement of, innovation in the public sector
- ❑ 4 - Invest in the design of new statistical methods and interdisciplinary approaches to data collection
- ❑ 5 - Promote measurement of innovation for social goals and of social impacts of innovation