TRANSFERABLE SKILLS TRAINING FOR RESEARCHERS - SUPPORTING CAREER DEVELOPMENT

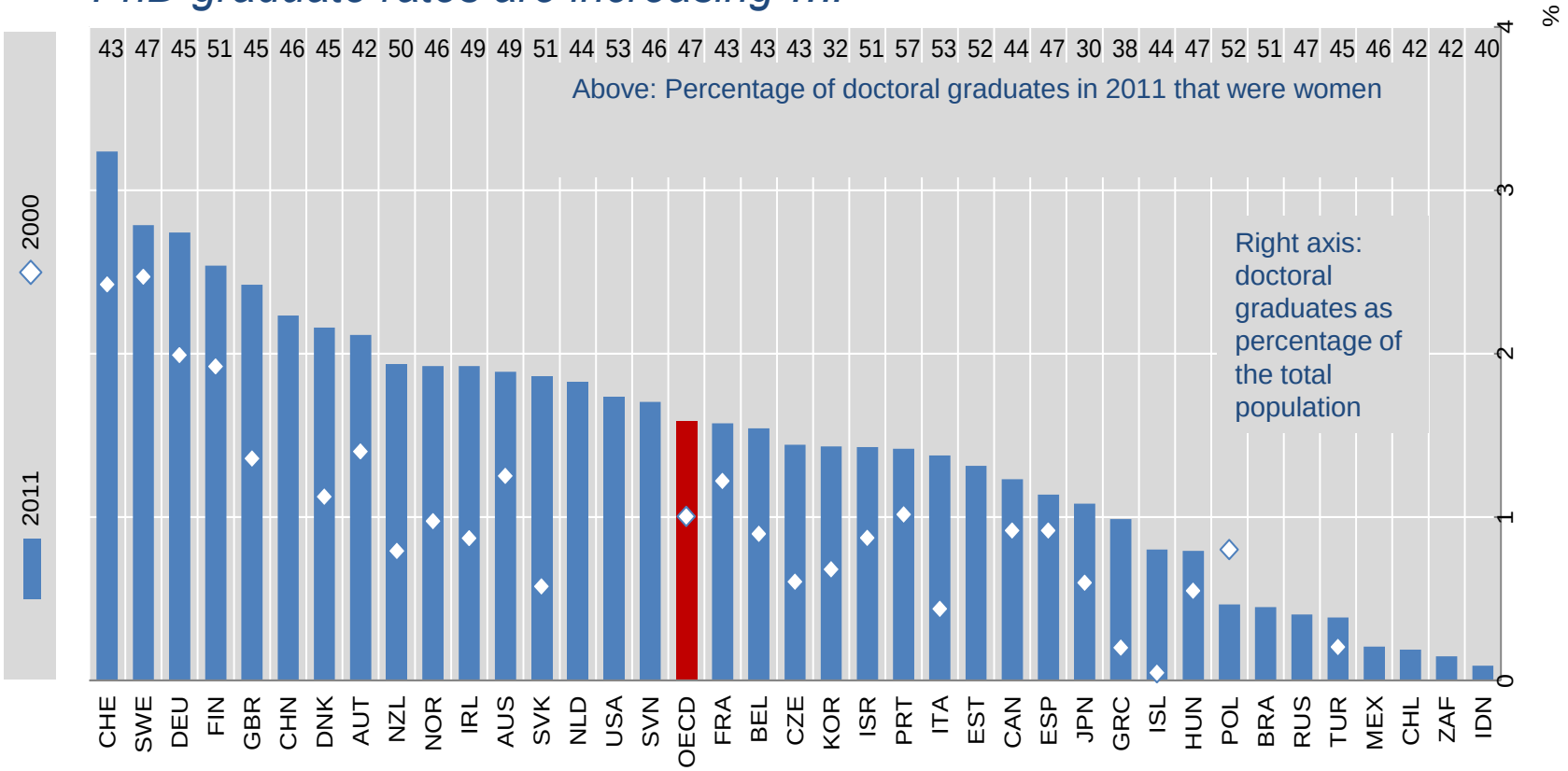
World Science Forum, 24-27 November 2013, Rio

OECD
BETTER POLICIES FOR BETTER LIVES

Graduation rates at doctoral level

2000 and 2011 (as % of total population)

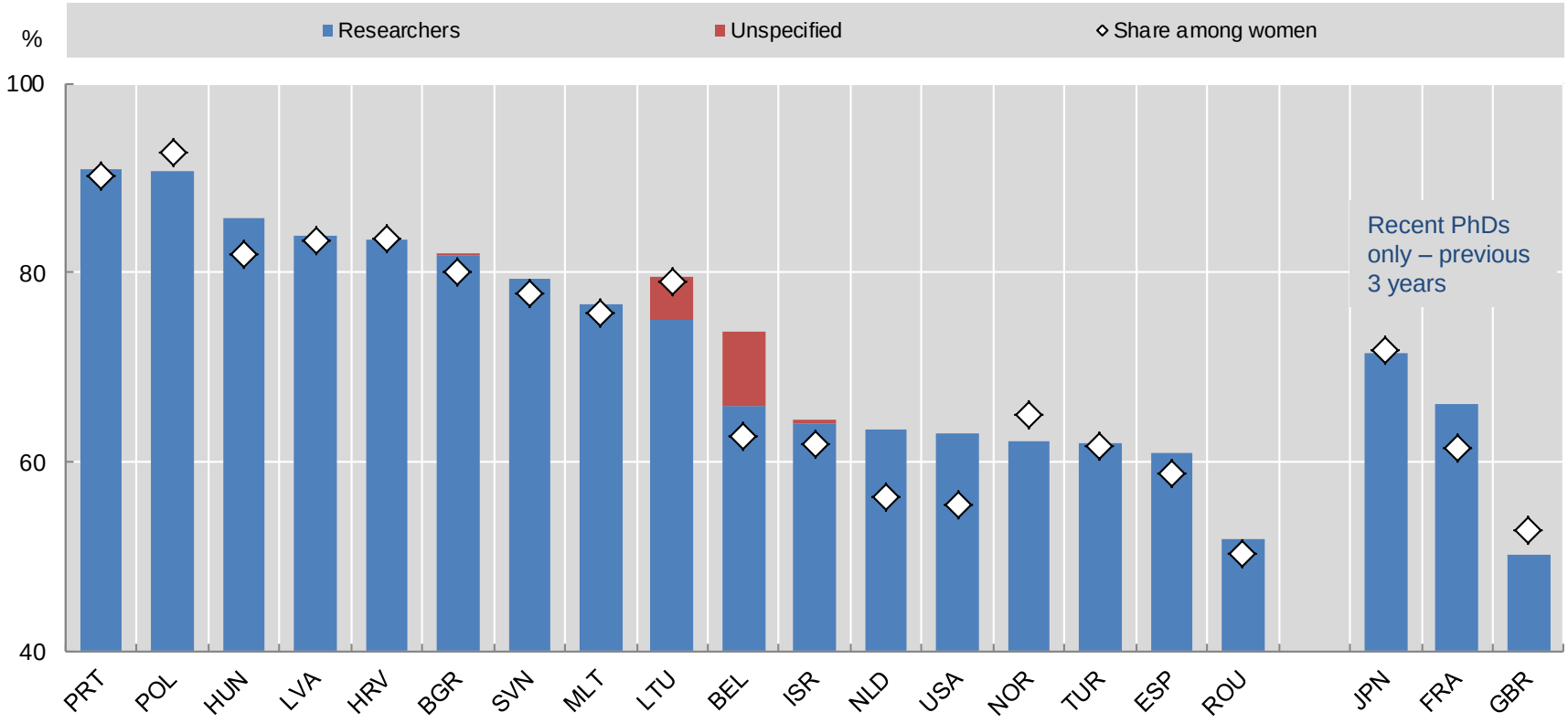
PhD graduate rates are increasing ….



Source: OECD (2013) *OECD Science, Technology and Industry Scoreboard 2013, OECD Publishing*

Doctorate holders working as researchers 2009

As a % of employed doctorate holders

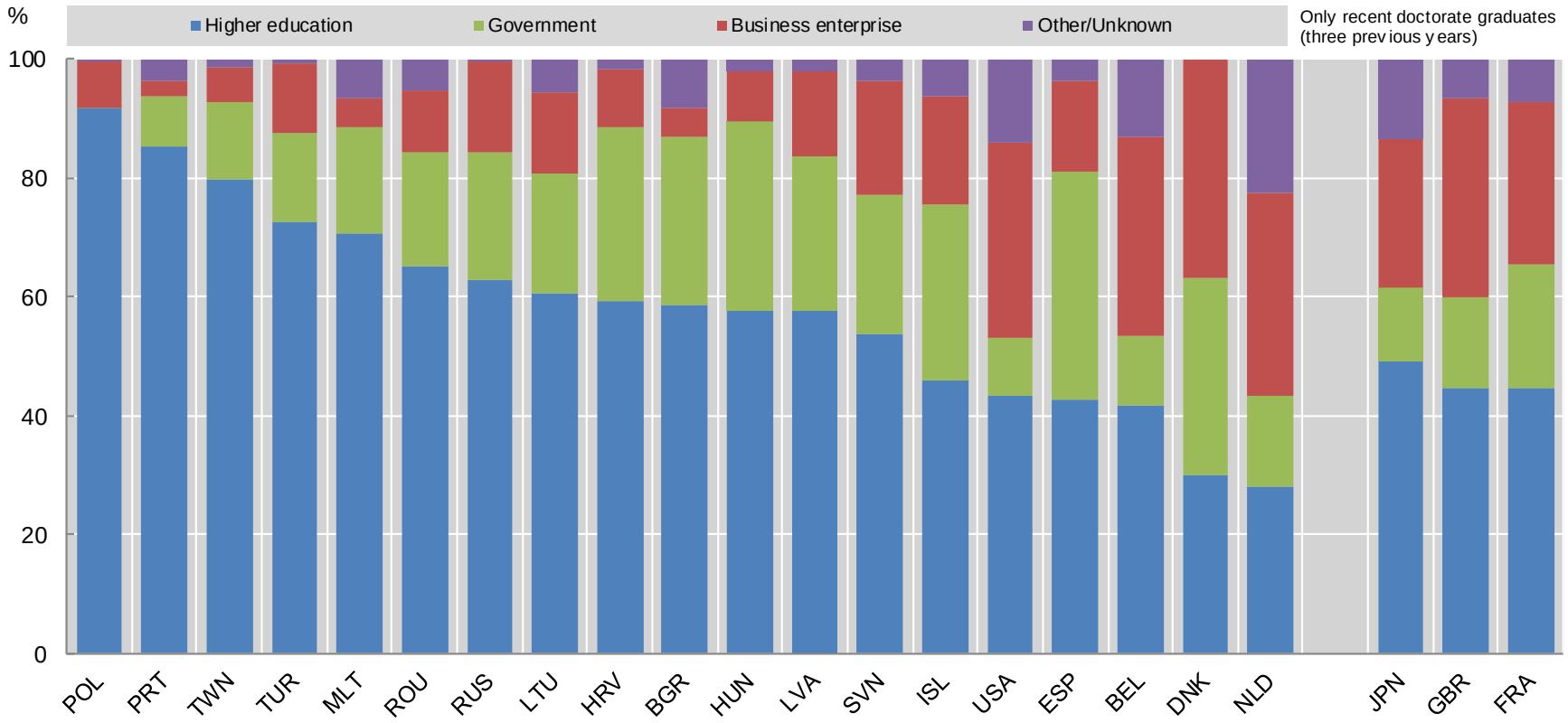


…. with most PhDs working as researchers …….

Source: OECD (2013) *OECD Science, Technology and Industry Scoreboard 2013, OECD Publishing*

Doctorate holders by employment sector 2009

As a % of employed doctorate holders



… in both the public and private sectors.

Source: OECD (2013) *OECD Science, Technology and Industry Scoreboard 2013, OECD Publishing*

Researchers and doctorate holders require a variety of skills

"Transferable skills" - skills learned in one context (e.g. research) that can be useful in another (e.g. future employment in research, business, etc.). They apply in a broad variety of work situations and sectors.

Examples of transferable skills:

- Communication
- Problem-solving
- Team-working and networking
- Business and management know-how

Source: OECD (2012) *Transferable Skills Training for Researchers: Supporting Career Development and Research, OECD Publishing*

Formal “transferable skills” training is one way to achieve these competencies

While researchers acquire some key skills in the course of their studies/work, others may require more systematic and quality-consistent training -

So we looked at this via an OECD study on policies and practices in

- National governments
- National government ministries
- Regional/state-level governments
- Universities
- University departments/faculties
- Research institutions
- Other organisations

Source: OECD (2012) *Transferable Skills Training for Researchers: Supporting Career Development and Research, OECD Publishing*

What do we mean by “transferable skills”? – broad typology

Transferable skill category	Skills included:
Interpersonal skills	* Working with others/teamwork * Mentoring and supervisory skills * Negotiating skills * Networking skills
Organisational skills	* Project and time-management skills * Career planning skills
Research competencies	* Grant application writing skills * Research management and leadership * Knowledge of research methods and technologies beyond the PhD project * Research ethics and integrity
Cognitive abilities	* Creativity and the ability for abstract thought * Problem solving
Communication skills	* Communication/presentation skills, written and oral * Communication/dialogue with non-technical audiences (public engagement) * Teaching skills * Use of science in policy making
Enterprise skills	* Entrepreneurship * Innovation * Commercialisation, patenting and knowledge transfer

Source: ESF (2009), grouped into categories by author.

Source: OECD (2012) *Transferable Skills Training for Researchers: Supporting Career Development and Research, OECD Publishing*

Key Findings

OECD (2012) Transferable Skills Training for Researchers: Supporting Career Development and Research, OECD Publishing
www.oecd.org

Key finding 1: Most training is driven by individual institutions

- **Institutions are the main actors** in terms of transferable skills training, with the **role of government secondary** to that of universities, research institutions and other organisations
- Of those responding, **1/3 of governments have a strategy**, compared to almost **2/3 of universities**

Source: OECD (2012) *Transferable Skills Training for Researchers: Supporting Career Development and Research, OECD Publishing*

Key finding 2: Main focus of transferable skills training

- **Training mostly targets PhD students, post-docs and early-stage researchers not Master's students** (for which few governments, universities, research institutions have explicit strategies or programmes).
- Industrial PhDs, internships and exchanges are the most common forms of workplace experience and **almost 1/3 of universities plan to expand workplace experience** programmes or to make this a more systematic part of their approach
- Respondents also noted **the importance of researcher mobility and collaborative research projects in building skills**

Source: OECD (2012) *Transferable Skills Training for Researchers: Supporting Career Development and Research, OECD Publishing*

Key finding 3: Differences across countries

- Study revealed a significant amount of transferable skills training activity, undertaken predominantly by individual institutions
- In some countries it is relatively new (e.g. Luxembourg), while in others organised activity has taken place for some time (e.g. United Kingdom). Government involvement is high in some countries (e.g. Korea) but not in others (e.g. Germany).
- Also differences according to the context (e.g. technical universities may focus more on academic skills than transferable skills because co-operation with industry may be considered sufficient)

Source: OECD (2012) *Transferable Skills Training for Researchers: Supporting Career Development and Research, OECD Publishing*

Key finding 4: Broad goals of transferable skills training

- Enhancing the employability of researchers in academia
- Preparing researchers for a wider labour market
- Improving research
- Also a number of additional strategic goals which sometimes overlap, e.g. teaching quality, commercialisation and knowledge transfer, international co-operation and a quality research environment

Source: OECD (2012) *Transferable Skills Training for Researchers: Supporting Career Development and Research, OECD Publishing*

Key finding 5 (of 5): Role for government

- While institutions play the primary role in transferable skills training, governments potentially have roles ranging from strategic oversight to funding delivery

- Most initiatives are fairly recent and the vast majority of programmes for transferable skills training have not yet been evaluated

- Difficult to comment on their impact, e.g. the change in skill levels due to the programmes, the subsequent effects, unintended consequences, changes in behaviour etc.

Source: OECD (2012) *Transferable Skills Training for Researchers: Supporting Career Development and Research, OECD Publishing*

Conclusion 1: Policy areas for review

- Interest in taking a more systematic approach to training and to embedding training more thoroughly in existing education and research structures

- Make funding conditional on transferable skills training, notably for funding doctoral studies – a possibility

Source: OECD (2012) *Transferable Skills Training for Researchers: Supporting Career Development and Research, OECD Publishing*

Conclusion 2: Suggestions for policy-makers

- Investigate options for boosting the monitoring and evaluation of transferable skills training
- Explore ways to facilitate dialogue between academia and industry on training needs and opportunities
- Consider ways to encourage provision of industrial PhD options as a complement to formal training courses in universities, as well as opportunities for mobility
- Look at how general policies on collaborative research can be leveraged to support transferrable skills training opportunities for researchers at all stages of their careers

Source: OECD (2012) *Transferable Skills Training for Researchers: Supporting Career Development and Research, OECD Publishing*

Case study 1: Nanotechnology (OECD WPN)

- To identify education policies fostering skills for nano and its convergence with other technologies; establish how these are being implemented; and identify good practice.
- 7 top-level questions to governments:
  - Are the terms 'nano education' and 'nano skills' recognised in your government/country?
  - Is there a national government strategy in your country that has a (or some) focus on nano-education and skills?
  - Within what educational tier are 'nano education and skills' developed in your country?
  - Does industry play a role in developing skills and education?
  - Has an assessment of need for nanotechnology education and skills been made in your country?
  - In your country, what are the challenges associated with the development of appropriate levels of nano education and skills?
  - Have you undertaken any monitoring and/or evaluation of your nanotechnology skills and education policies?

www.oecd.org/sti/nano

Will identify…

- Global (country-specific) approaches and strategies to the development of nanotechnology skills and education;
- The educational tier at which these are encouraged;
- Challenges faced in developing these types of skills; and
- Good practices.

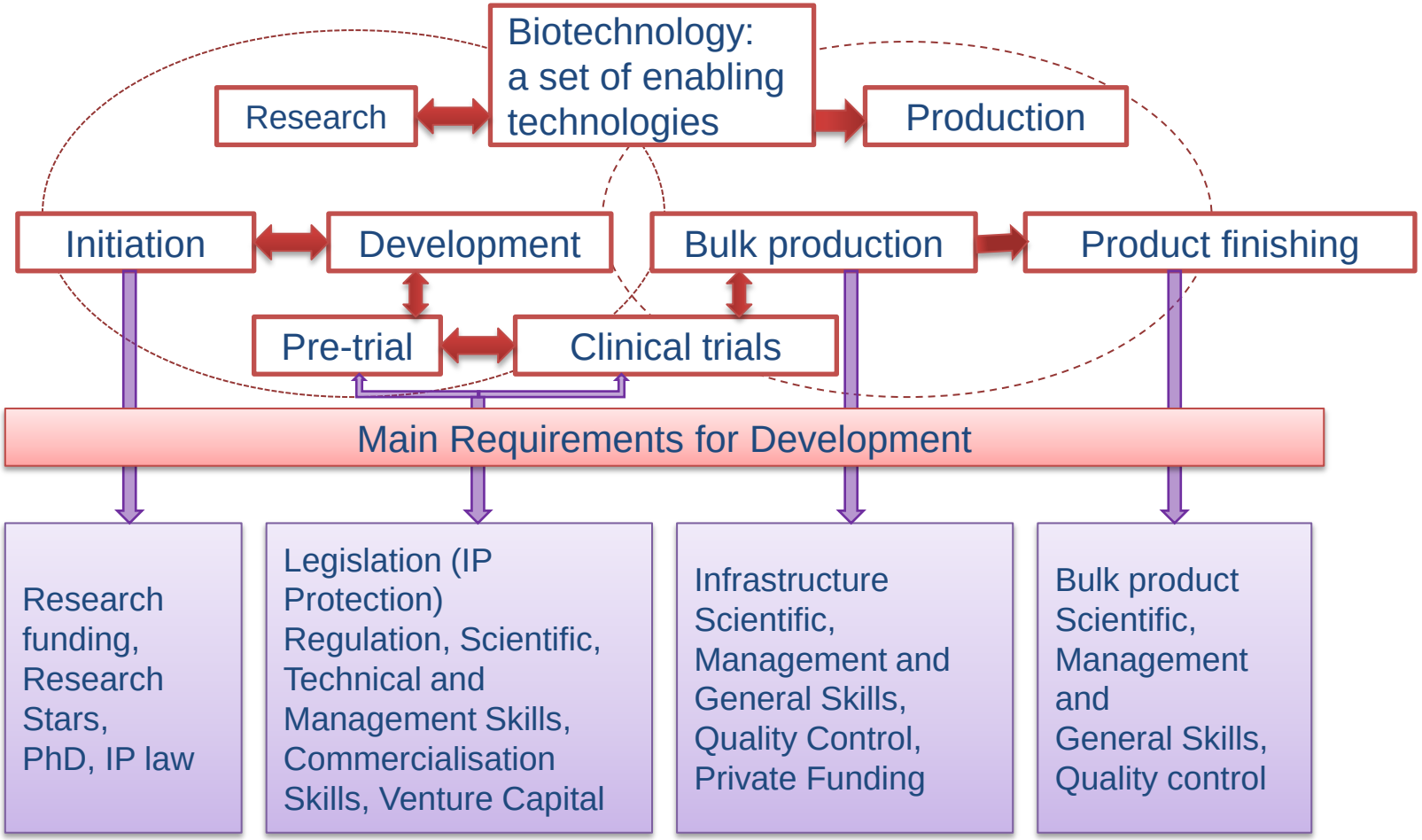
OECD Working Party on Nanotechnology report end 2014

www.oecd.org/sti/nano

Case study 2: Biotechnology (OECD WPB)

Main areas of activity where skills are required….

…….but constantly changing (e.g. synthetic biology, bioeconomy)



Forfas Expert Group on Future Skills Needs (2003). The supply and demand for skills in the biotechnology sector.

www.oecd.org/sti/biotechnology