

University-industry interaction and exploitation of new knowledge created by public R&D organisations: Finnish experience

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* University reform in 2010

- The new university law formally separated the universities from the state (independent legal personalities or foundations).
- Gave universities more power to steer their own activities, to pursue independent human resource policies, and to manage their own finances.
- Strong emphasis on the internationalisation of Finnish science system, f.ex., but no major impact on exploitation and commercialisation issues.

* HEI Invention Law reform in 2007

- Previously researchers owned rights to their inventions
- It seems that the reform has had no real impact on HEI knowledge transfer.

* Independent assessments of both the reforms are under way.

- * HEI Invention Law divides research and rights into three categories:
 - Collaborative research involves at least one party external to the HEI -> HEI can acquire the rights to the invention, but the inventor is entitled to a fair (case-by-case) compensation.
 - In open research, a) when no parties outside HEIs involved and no funding from public funding organizations (Tekes, Academy) received, the inventor owns the rights. b) When public funding is involved, HEI is entitled to have the rights.

- * Most universities have model contracts that usually include at least issues such as the assignment of rights, confidentiality, and the transfer of material.

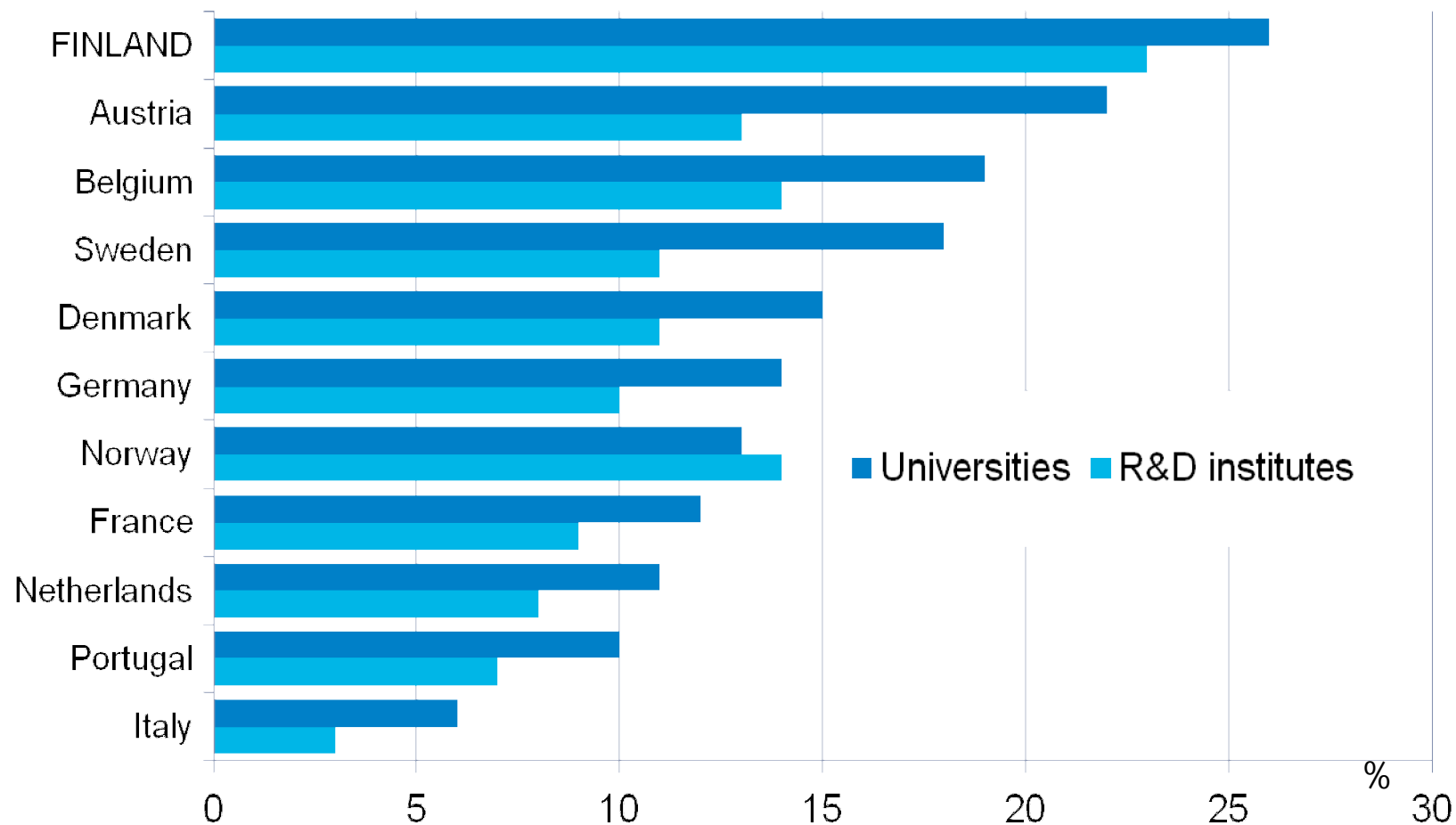
- * All universities and many polytechnics have a research/innovation liaison officer/unit.

- * IPR contracts of HEIs with other parties are negotiated by each HEI's administration, not by individual researchers or projects.

University Knowledge Transfer Practices in Finland

- * Knowledge transfer/innovation support services are lacking resources and commercial competencies
 - Resources only some 6M€ in 2013.
- * The framework conditions do not support efficient knowledge transfer:
 - University funding model emphasises scientific merits and publishing
 - No common metrics to measure impacts of TTOs
 - Much more expertise on commercialisation, business and technologies expertise is needed in all levels.

Finland is the leading country regarding academia-industry RDI cooperation



Share of all innovating companies 2010–2012

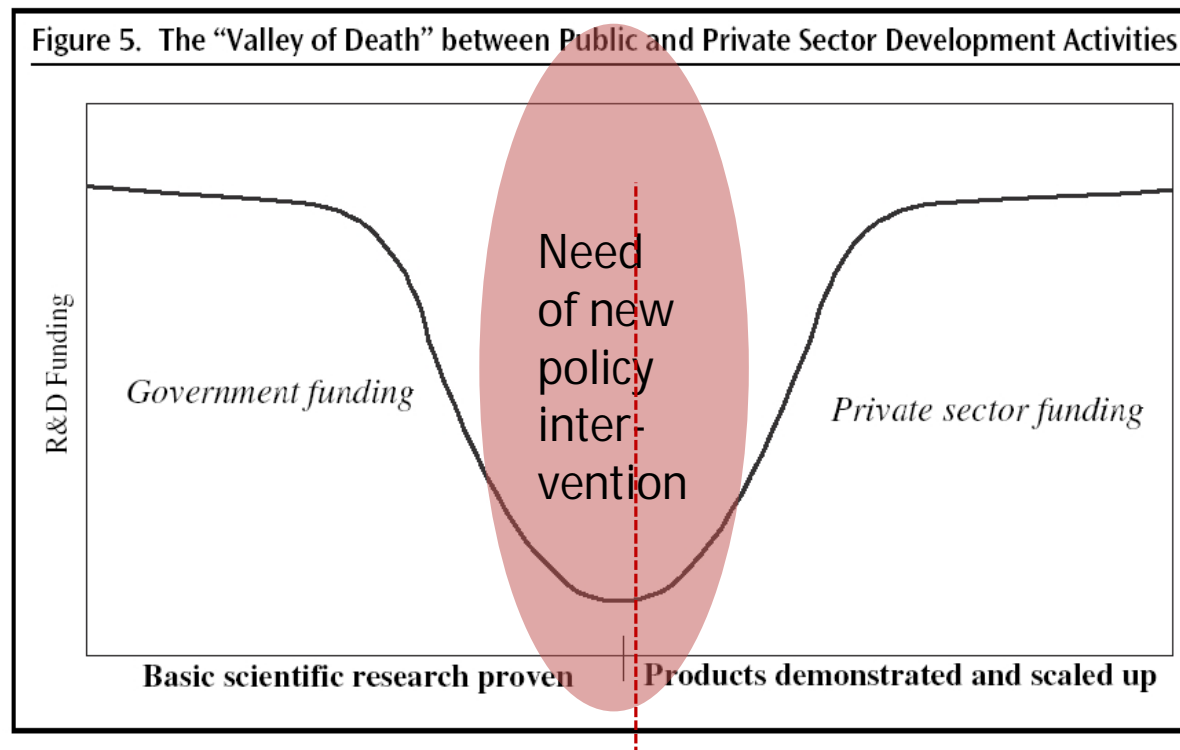
Source: Eurostat, Community Innovation Survey

The share (%) of HEI expenditure on R&D financed by the business enterprise sector in 2013 (in selected OECD countries) and the change in the share (percentage points) from 2007 to 2013 (source: OECD MSTI 2015).

Country	2013	Change 2007-2013 pp
Germany	14,2	-1,3
Korea	12,3	-1,9
Slovenia	11,4	+0,8
Belgium (2010)	10,1	-1,0
Israel (2010)	10,1	+0,7
Switzerland (2010)	9,1	-
Hungary	8,6	-5,1
Canada	8,1	-0,4
Netherlands	7,6	+0,1
EU-15	6,6	-0,2
Spain	6,6	-2,4
OECD - Total	5,9	-0,7
<u>Finland</u>	<u>5,0</u>	<u>-2,0</u>
United States	4,8	-0,7
Estonia	4,4	-1,2
Norway	4,1	+0,1
United Kingdom	4,1	-0,4
Sweden	3,8	-1,1
Denmark	2,7	+0,6
Japan	2,6	-0,4
Ireland	1,6	-0,7

New knowledge and business from research: recent developments

- The major universities have built capabilities finding new potential ventures.
- Tekes' funding allows the universities to demonstrate the idea and find the path for commercialization while executing applied research.
- The focus is now on seed and startup companies with international growth potential; licensing to already existing companies is also possible.



Funding for commercialization of research

TULI programme (2002-2006):

2.5€ million in funding

Reviewed 1000 research based inventions ->

74 licensing agreements and 91 new firms (Hjelt et al 2006)

TULI programme (2007-2012):

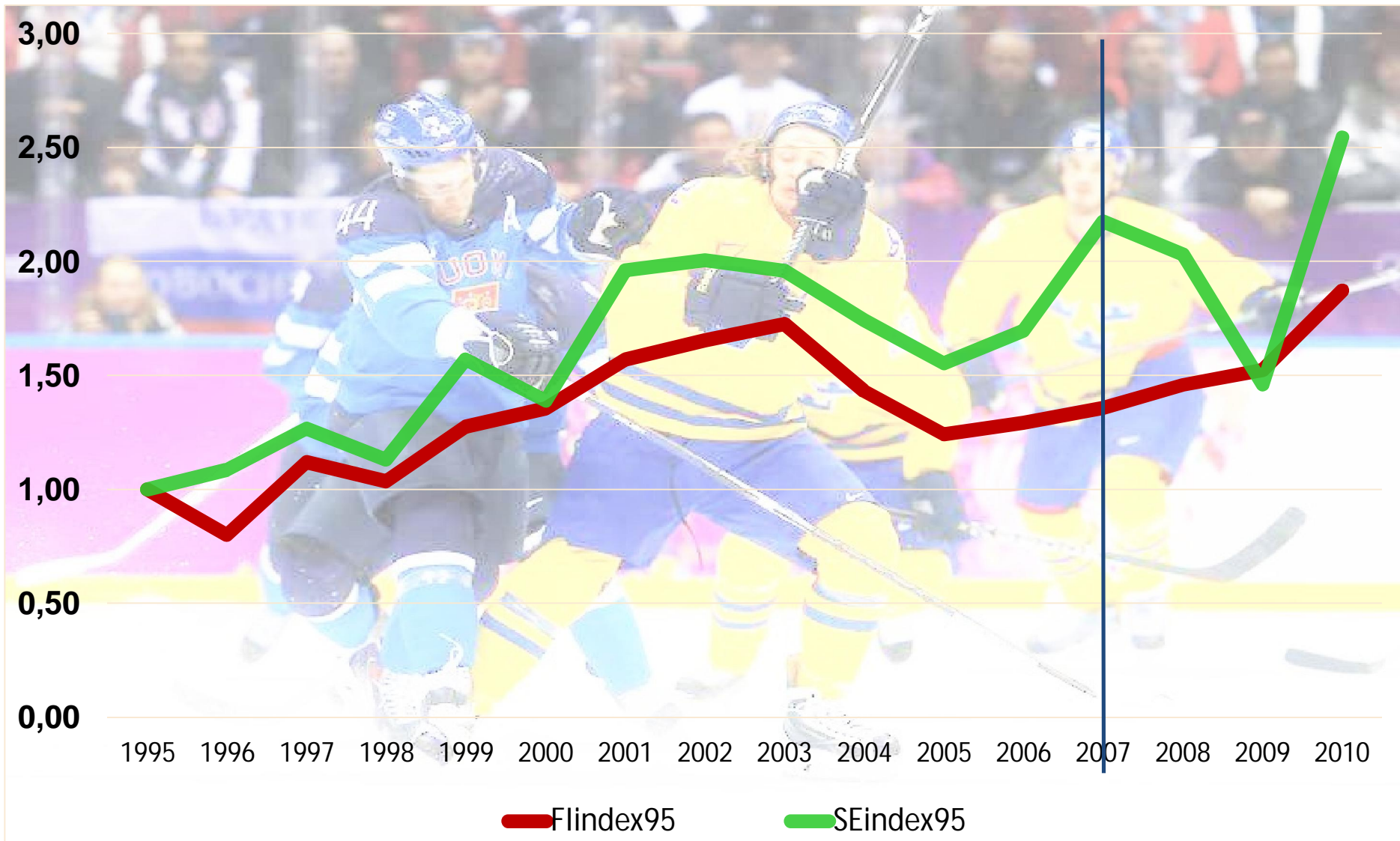
50 € million

Covering all major HEIs and research institutes

3000 projects to commercialize research ->

establishment of some 135 new firms (Ketonen et al 2013)

Sweden vs Finland: university patenting



Preliminary results from the ongoing research project:

Olof Ejermo (Lund University), Olavi Lehtoranta and Hannes Toivanen (VTT)

Some initial conclusions on the reform and patenting

- Number of inventors and patents from Finnish university researchers:
 - Initially seemed to increase after 2007
 - A pre-reform decline (2003-2005) in patenting
- A small decrease in patenting by univ. researchers took place; in 2010, patenting hardly at the same level than in 2003.
- Overall direct effects not particularly large.
- Big increases in public funding to stimulate exploitation and transfer actions might hide a negative efficiency effect.
- In the end, the impacts of patents is the key issues:
 - number of technology-based start-ups
 - impacts on employment and growth.

New growth and enterprises from R&D

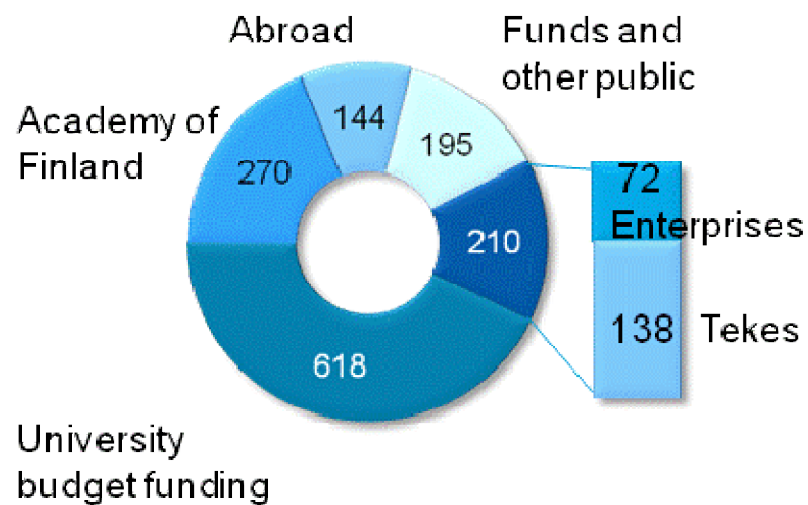
- Universities and research institutes have plenty of unused commercial potential that could be used to spur growth and entrepreneurship.
- The most important channel for commercialising research: joint projects between research organisations and enterprises
- 60–80 new research-based enterprises are born from Finnish universities every year
 - The number of enterprises initiated by university students is on the rise

In 2012- 2014, the MEE has promoted the commercialisation of research ideas through Tekes's TUTL* programme for a total of €63million.

Approximately 1/3 of the TUTL projects have resulted in commercial utilisation and another third looks commercially promising

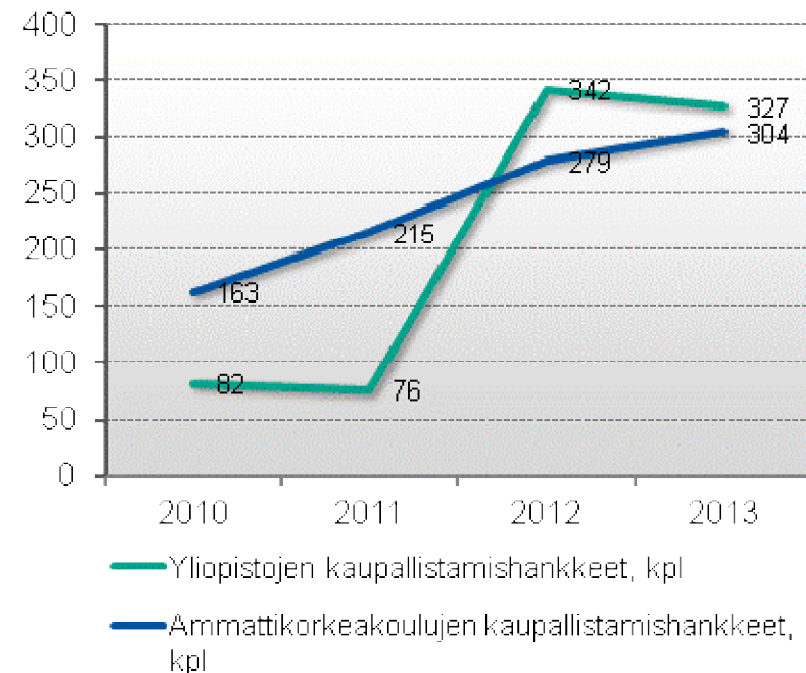
Number of commercialisation projects on the rise

In 2013, HEI R&D expenditure amounted to **€1.44bn**



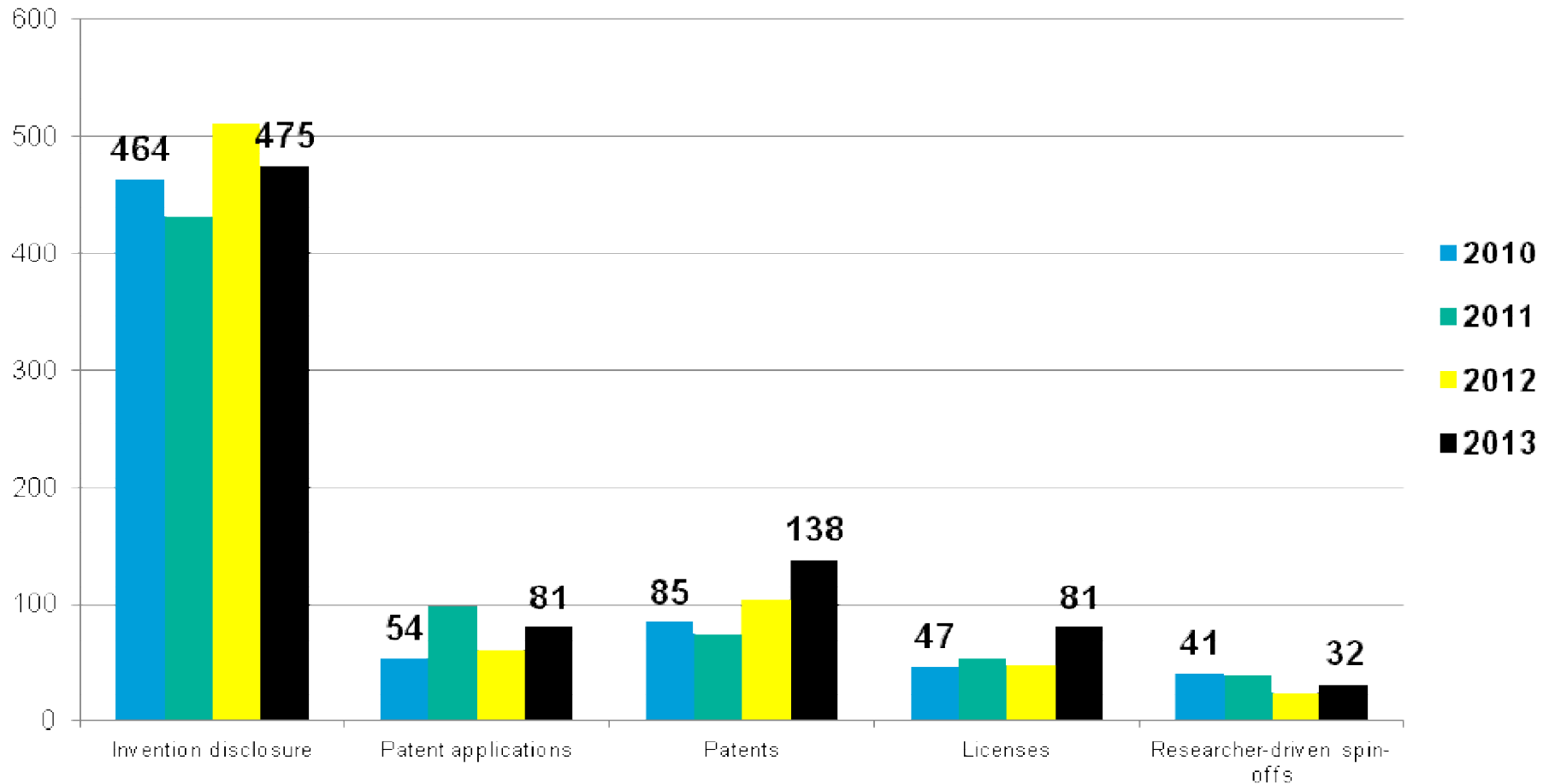
Source: Statistics Finland

Growing interest in commercialising research ideas



Source: MEE survey autumn 2014

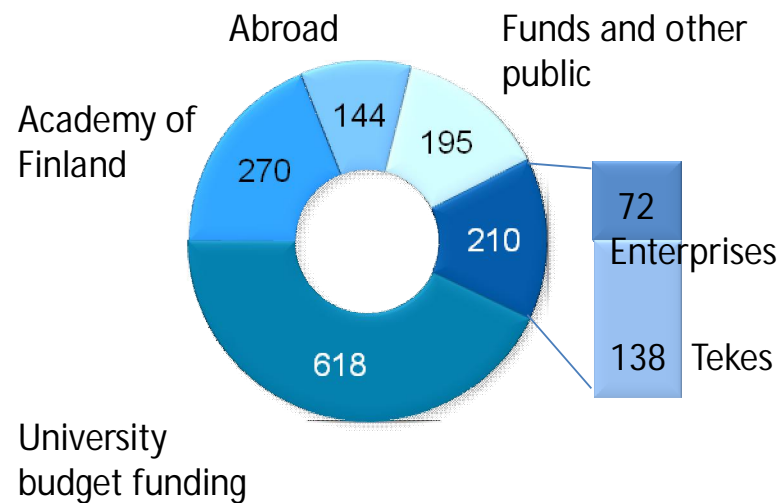
Figures on knowledge transfer in Finnish universities



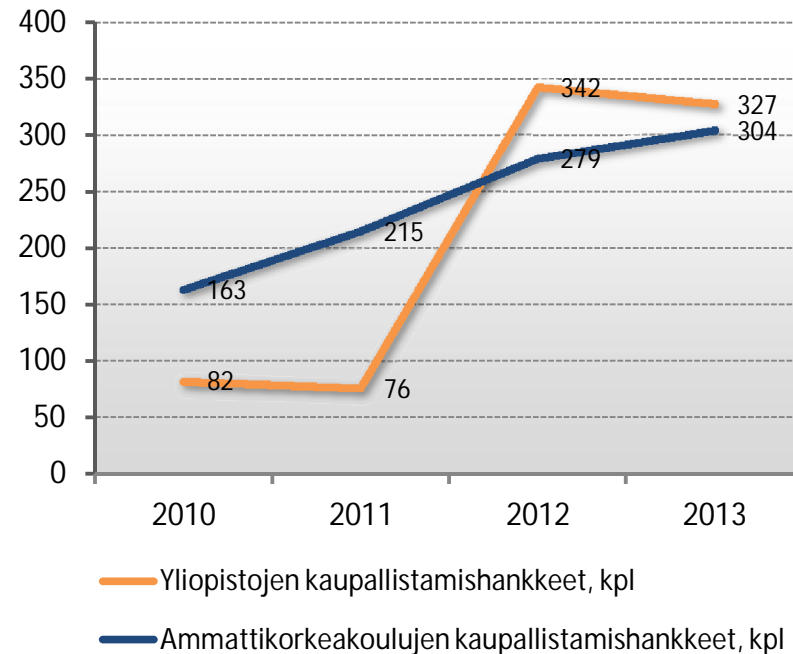
Number of commercialisation projects is on the rise

In 2013, university research and development activities amounted to

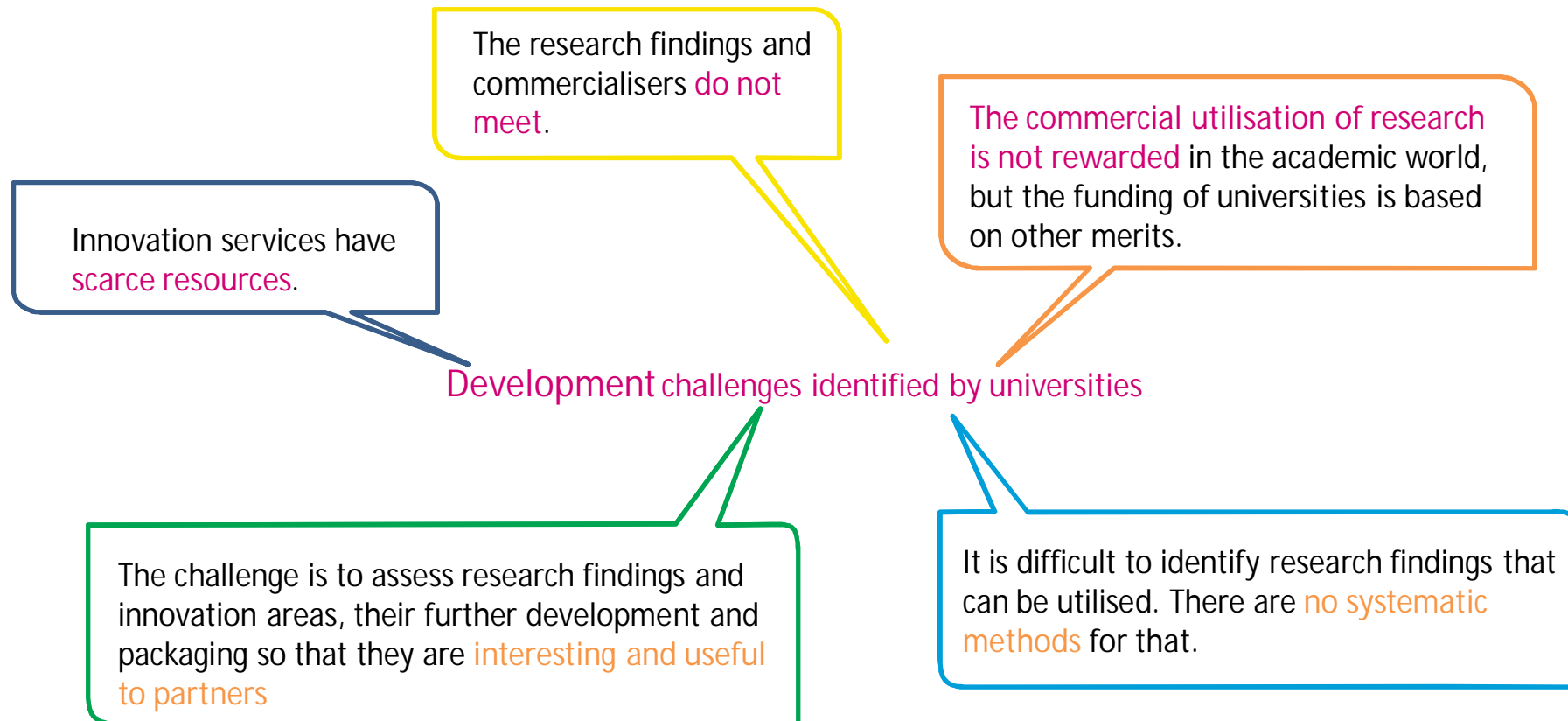
€1.44
billion



Growing interest in commercialising research ideas



Shortcomings in commercialisation: expertise, funding and incentives



Key targets to develop university knowledge transfer in Finland

