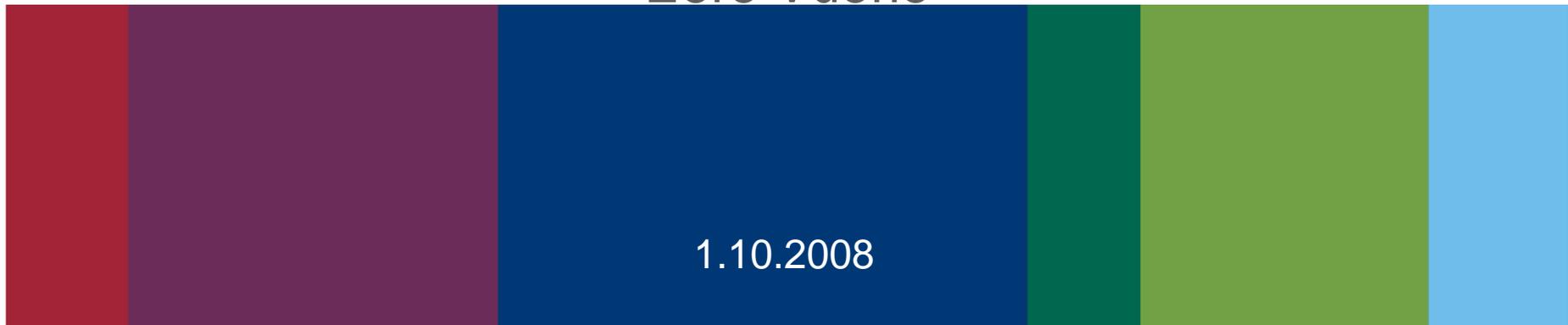




Recent developments in PhD training and research career in Finland

Eero Vuorio



Topics covered

- Recent developments in researcher training and researcher career structure in Finland
 - Doctoral schools
 - Research career system
- Where do the young doctors go?
- Alarming trends
- Recommendations of the working group on research careers (in Finland)
- Future of research careers in Finland and Europe



Recent developments in research researcher training in Finland

1995, Graduate school system (Doctoral school system)

Gradual strengthening of the system has resulted in >2.5-fold increase in the number of doctoral degrees since early 1990's.

Currently 1400-1500 doctorates per year

Since mid-1990's, marked increases in public and private R&D funding (currently appr. 3.5 % of GDP) through competitive funding

-> Overall increases in R&D output and productivity

-> Marked increases in external funding of

Universities, increases in short-term researcher positions



Achievements of the Doctoral School system

- Many of the changes introduced in Finland are in line with the European Charter and Code of Conduct for Recruitment of Researchers in Europe
 - rights and responsibilities of young investigators and supervisors are clearly stated
 - transparent recruitment policies of young researchers
 - doctoral trainees have both a supervisor and a thesis committee (with annual reporting practices)
 - doctoral school researchers are employed by Universities (or Research Institutes) and receive salaries; usually 4-year terms



Achievements of the Doctoral School system (continued)

- stipends/fellowships come with social security and pension scheme (2009 onwards)
 - Since 1992 common national code for responsible conduct of research (good scientific practice; research integrity). Training in the ethical and legal framework for research on human subjects, experimental animals and genetic modification of organisms.
 - Access to international training courses and mid-term laboratory visits
- > the average age of obtaining doctoral degree has been slightly reduced



Beyond doctoral degree

Research career system at the Academy of Finland
(funding through the four Research Councils covering all
scientific fields)

Research careers in the Universities, Research Institutions
and elsewhere

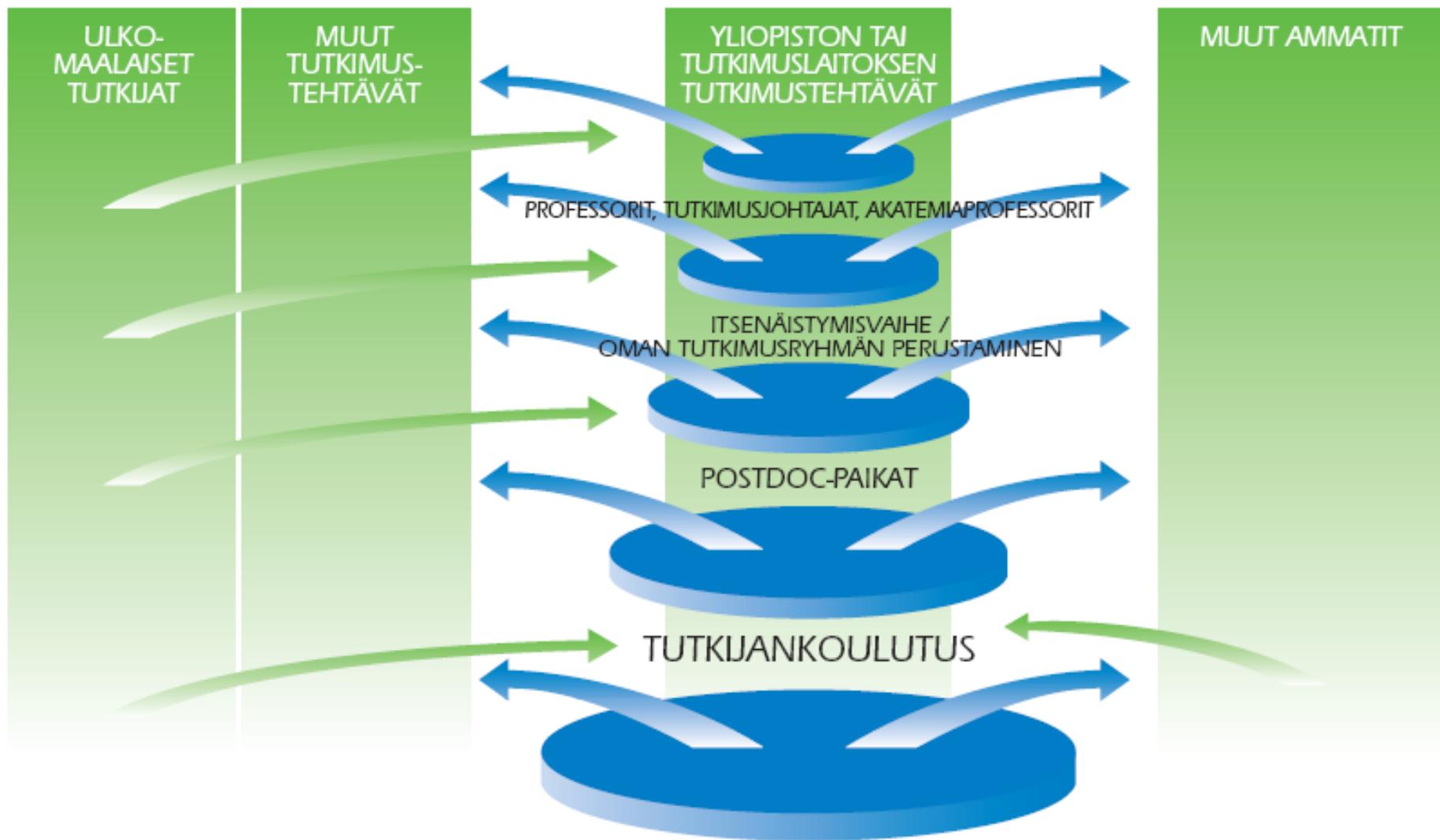


The Academy of Finland

Strengthening of later stages of research career through competitive funding:

- 1999, establishment of a postdoctoral researcher system (through Research Councils of the Academy of Finland) and a support system for postdoctoral training abroad
- Marked increases in competitive funding to later steps of research career (Academy of Finland):
 - Academy Researchers (5-year positions for independent researchers) Includes a reasonable level of research funding.
 - Sabbaticals to professors (senior scientists)
 - Academy Professors (5-year renewable positions) , which includes substantial research funding.
- A majority of these researchers work at Universities





5-30 yrs

Professors
Research directors
Academy
professors

5-35 yrs

Independent
researchers

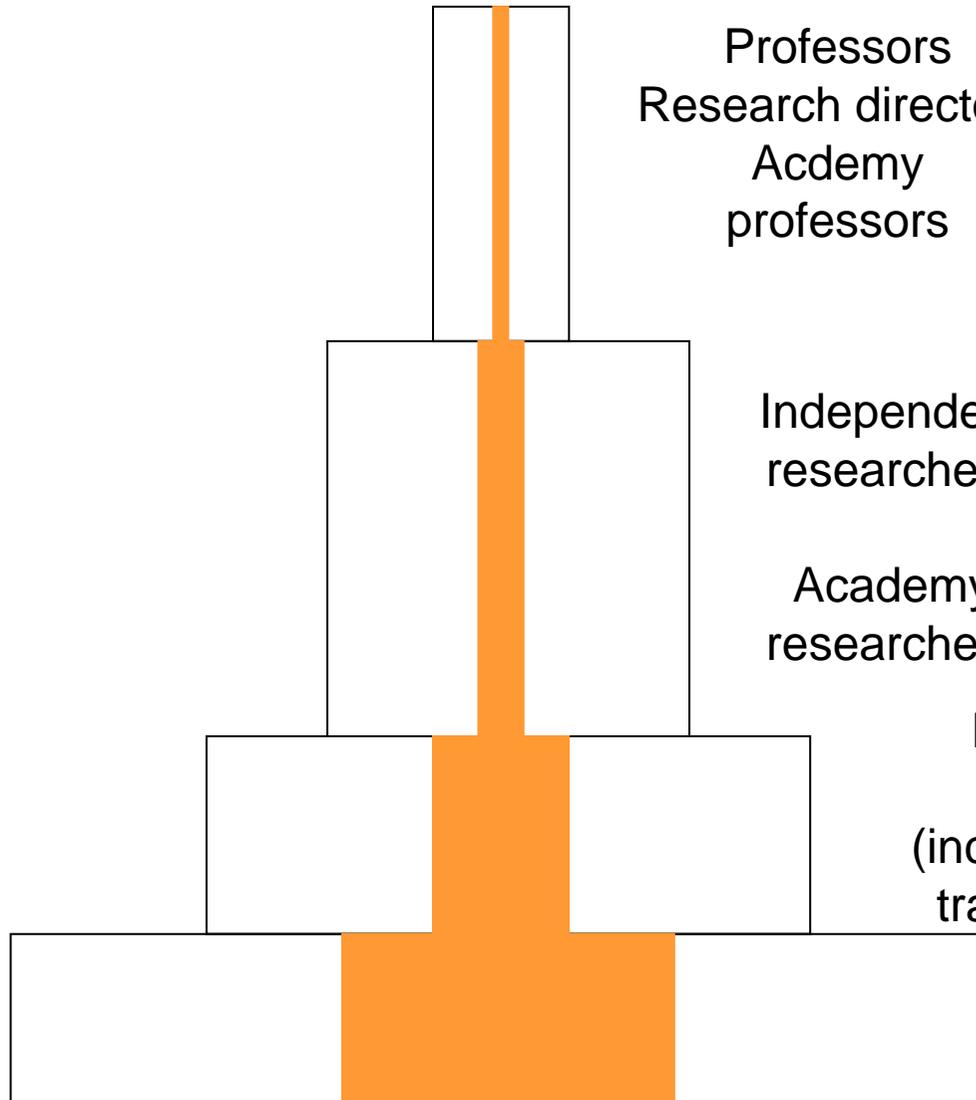
Academy
researchers

3-5 yrs

Postdoctoral
researchers
(including postdoc
training abroad)

4 yrs

Doctoral trainees
(Early stage
researchers)



Research careers in Universities

- In Universities the research career structure is often fragmented and unpredictable. Nearly all positions are teaching positions with variable possibilities for research work (dependent on external funding). Most positions are for 5 years, with an option for renewal, but there is no tenure track system.
- No assistant or associate professorships
- Full professorships



Where do the young doctors go?

An estimate of the future career development of the 1500 doctors receiving their degree annually in Finland.

- appr. 1/3 (500) never get listed as R&D personnel
- appr. 500 continue their career within Universities (includes those receiving funding from the Academy of Finland & Tekes)
- industry, appr. 100
- state research institutes, appr. 100
- administration, appr. 50?
- health care sector, appr. 100
- abroad, appr. 100
- polytechnics, appr. 50?



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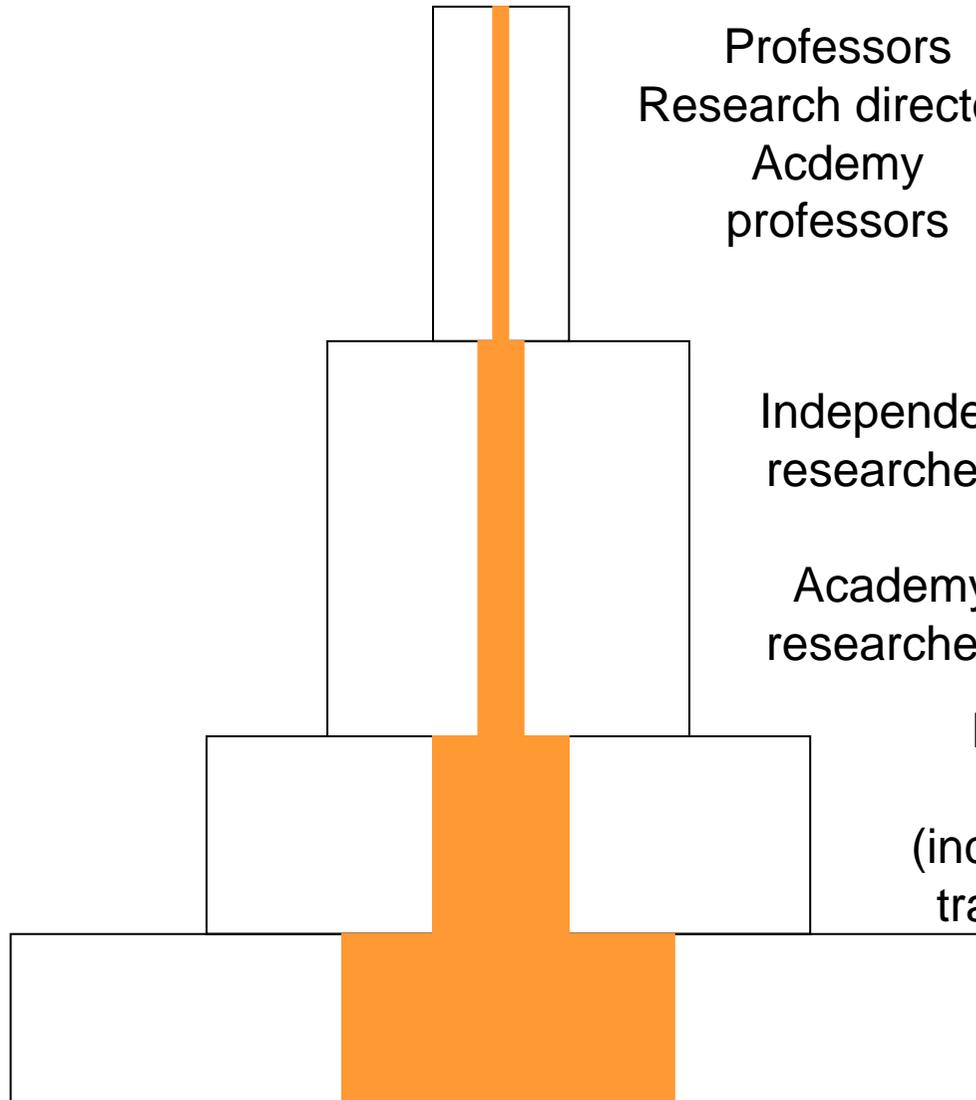
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Alarming trends (mid-2000's)

Universities (and Research Institutes) have not been able to develop their career structure

Declined interest of University graduates to enter research careers (in some fields)

- Low salary level (in comparison to the long working hours)
- Short term contracts
- Insecurity about future careers
- Foundations still award stipends without full social and pension benefits

Declining mobility of young researchers

- Internationally and between industry and academia

Persisting obstacles in women's research career



Finland:

Working group on research careers

- Nominated by the Ministry of Education in Oct 2004
- To draft a proposal for strategic measures to be taken to strengthen the research career system in Finland as a co-ordinated effort of all parties involved,
- to propose measures that will make research career more appealing to the young graduates, particularly women, and
- to increase mobility internationally and between the different sectors (Universities, Research Institutions, enterprises etc.)
- Final report in May 2006



Is the attractiveness of a research career diminishing?
Not really, but there are problems to be solved...

Despite increased volume of the Graduate school system
the numbers of applicants have remained high.

In different surveys young researchers have overall been
quite happy about the nature of their work, the criticism
being directed towards job insecurity and the
unpredictability of the career.

Unemployment rates of doctors are very low in most fields.

Public perception of a researcher as a profession is very
high.



Signs of declining attractiveness of a research career have been observed in most EU and OECD countries

- Changing demographics; smaller cohorts entering higher education
- Increased need for researchers
- Changing values of the younger generation
- An overall decrease in the interest of young university graduates to select a research career in many countries and in some fields (e.g. clinical investigators)



Critical points in the research career

Three stages where a young researchers has to make important decisions:

1. after doctoral dissertation,
2. after foreign (or domestic) postdoctoral training period, and
3. at the time of becoming an independent scientist (establishment of own research group)



Recommendations of the working group on research careers

- The aim is to establish a 4-stage research career system in Finnish Universities (and Research Institutes) with elements of tenure track
- Joint support from public and private sector; Universities, funding bodies, foundations, industry
- Progress evaluated by peer reviewers
 - longer contracts
 - from stipends and fellowships to salaries (and full social security and pension schemes) (c.f. the EC European Charter for Researchers) (EFFECTIVE JAN 2009)
- Increased researcher mobility (internationally & between sectors)
- Extension of transferable skills training to postdoctoral stage



Future of research careers in Finland and Europe

- To increase job security and to strengthen the research careers of women, in particular, a shift from stipends to salaries (to full social and pension benefits) is needed.
- To increase mobility, the researcher must be able to transfer his/her pension benefits within the EU.
- The European Charter for Researchers has been largely implemented in Finland. It should be expanded to include e.g.
 - an ethical code of conduct for researchers in Europe
 - guidelines for responsible conduct of research (research integrity) and for investigating misconduct and fraud in science



Future of research careers in Finland and Europe (2)

- harmonization of, and adequate training in the ethical and legal framework regulating research on humans and on experimental animals as well as research employing genetically modified organisms
- A researcher is one of the most international professions – they go where their needs are best fulfilled. To maintain the best talent in Europe (and to recruit them from abroad) we have to create an environment which is competitive in respect to career perspectives and living conditions, but also in respect to research funding and top-of-the-line facilities (research infrastructures).
- In Finland: the new Universities Act

