

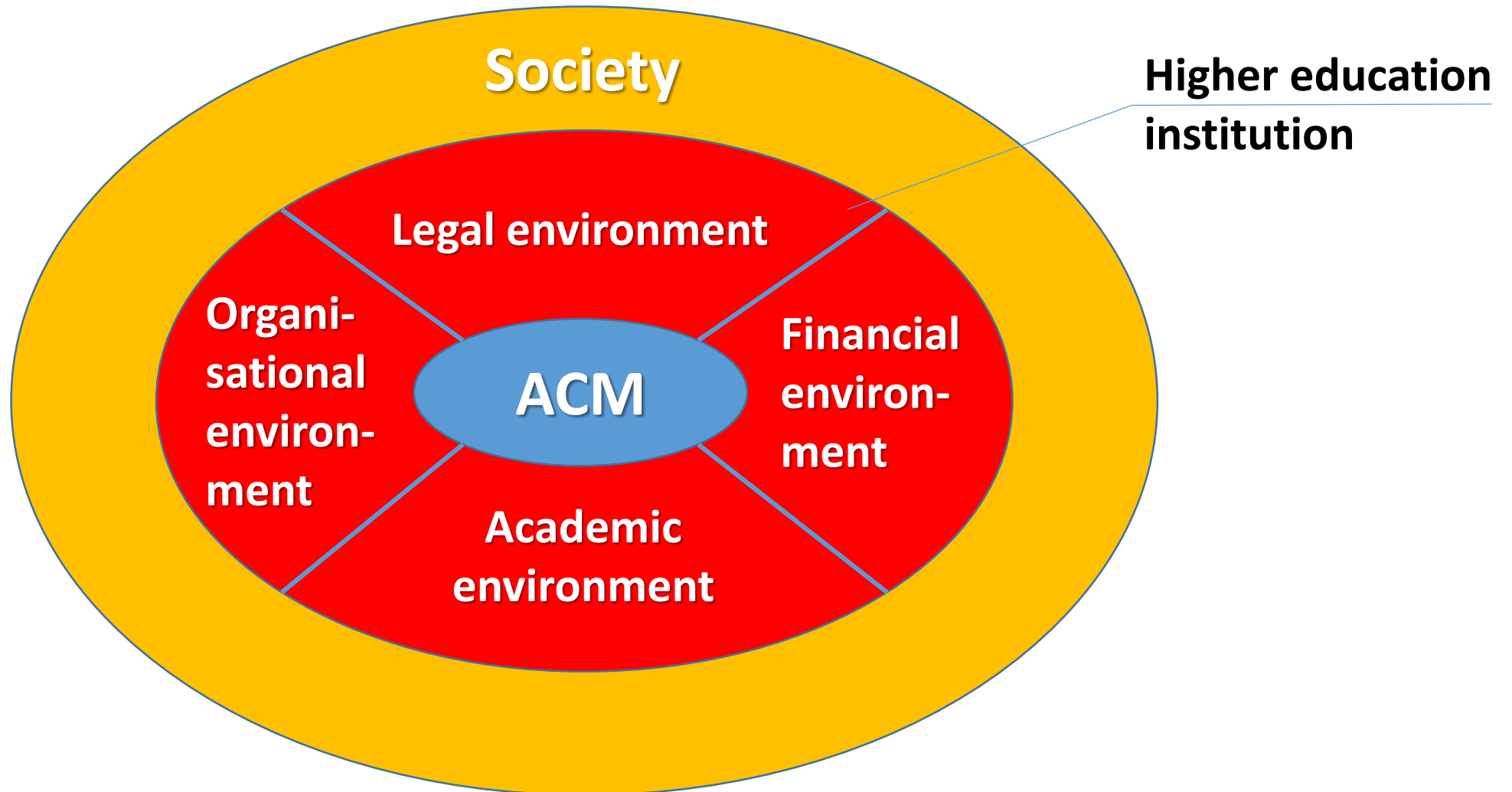
# Academic career model (ACM) – system theoretic approach

Olav Aarna

# Academic career model (1)

- Academic career model (ACM) **describes recruitment, promotion and retention of academic staff** at higher education institutions (HEIs)
- Conceptually **ACM can be considered as an active** (involving elements (actors) with independent aims), **dynamic** (has „memory“), **open system** (exchanges information, money, mass, energy, ... with its environment) **embedded into an environment consisting of four subsystems**
- ACM can be described on two levels:
  - HEI level
  - State level, defining general framework (legal, financial) for the HEI level
- We are more interested in **ACM as a subsystem of HEI**, therefore the state level of ACM will be merged with HEI level ACM

# Academic career model (2)



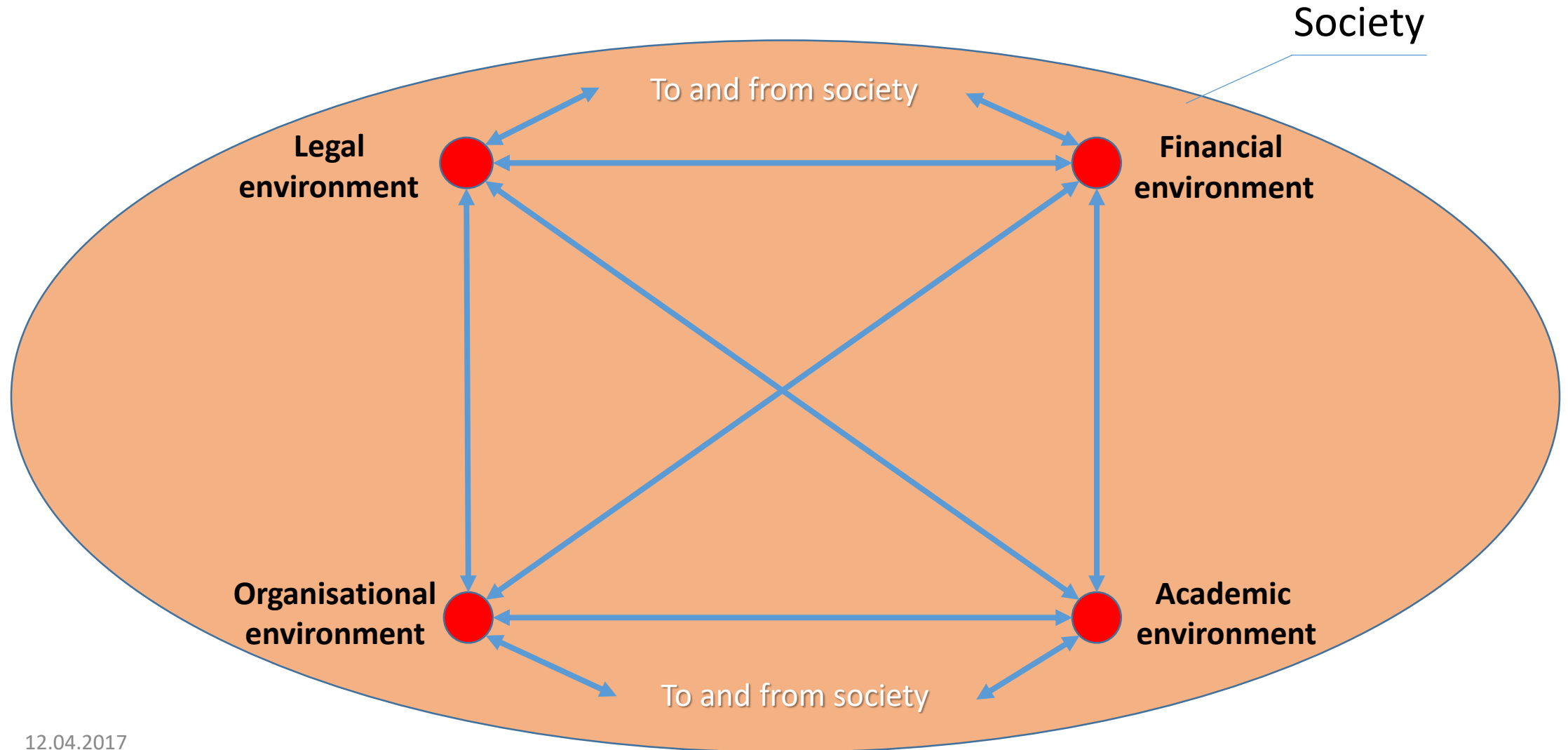
# ACM as a system

- **Two subsets of elements:**
  - Institutions (in a wide sense of this social sciences concept)
  - Persons
- **Institutions:**
  - Types (taxonomy) of academic positions
  - Qualification requirements for academic positions
  - Academic career tracks
  - The system for remuneration of academic staff, incl. decision making bodies
  - The system for filling academic positions, incl. decision making bodies
  - The system for assessment and appraisal of academic staff, incl. decision making bodies
  - The system for retention from academic positions, incl. decision making bodies
  - ...
- **Persons:**
  - Entrants to the track (recruitment)
  - Persons on the track (assessment, appraisal, promotion, retention)
  - Leavers of the track (retention)

# Environment for the ACM (1)

- **Outer layer** – tripartite model of society:
  - Public sector
  - Private sector
  - Non-governmental (third) sector
- **Inner layer** – higher education institution (HEI) as a direct environment for the ACM:
  - Legal environment (framework)
  - Organisational environment, incl. organisational and quality culture
  - Financial environment, incl. remuneration of personnel
  - Academic environment, incl. academic culture

# Environment for the ACM (2)



# Legal environment of ACM

- International conventions, e.g. Lisbon convention on academic recognition
- National higher education (and research) legislation
- HEI internal regulations for recruitment, promotion and retention of academic staff
- ...

# Organisational environment of ACM

- Academic structure of HEI
- Management structure of HEI
- Composition and election of decision making bodies
- ...



# Financial environment of ACM

- Channels of financing HEI
- Models of applying for funding from different channels of financing
- Personnel remuneration regulation(s)
- ...

# Academic environment of ACM

- Academic values and traditions
- Membership of HEI (who are considered to be members of HEI, e.g. Are students and alumni considered to be members of a HEI)
- Code(s) of academic ethics (for academic staff and students)
- Professional associations
- ...

# Social Cognitive Career Theory (SCCT) (1)

Estonian  
Business  
School



- Robert W. Lent, Steven D. Brown, Gail Hackett (2002) In: *Career Choice and Development*, Fourth Edition, Editors: Duane Brown and Associates, by John Wiley & Sons, Inc.
- Focus on **cognitive variables** and processes that govern career behaviour
- Quiet **cognitive revolution** – important trend toward viewing people as active agents in or shapers of their career development
- **People construct their own career** outcomes; their beliefs (e.g., about themselves, their environments, and possible career paths) play key roles in this process
- Culture, gender, genetic endowment, socio-structural considerations, and disability or health status operate in tandem with people's cognitions, affecting the nature and range of their career possibilities
- Career development from a social cognitive perspective traces complex connections between persons and their career related contexts, between cognitive and interpersonal factors, between self-directed and externally imposed influences on career behaviour
- SCCT has been inspired and **influenced by** a number of key developments **in vocational psychology, other psychological and counselling domains, and the cognitive sciences**
- SCCT highlights the **interplay of social cognitive variables** (such as self-efficacy) **with other key person, contextual, and experiential-learning factors**, such as gender, culture, support systems, and barriers

# Social Cognitive Career Theory (SCCT) (2)

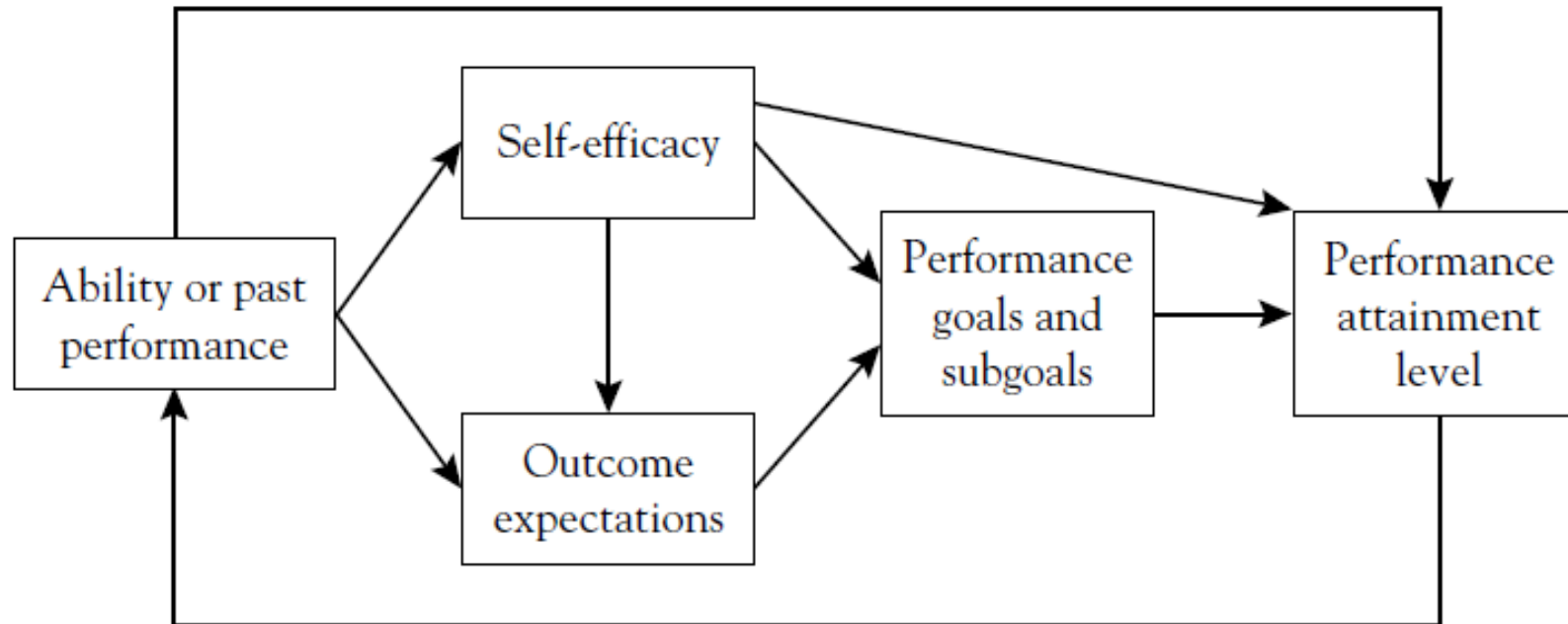
- **SCCT is linked to** two branches of career inquiry that have evolved from Albert Bandura's general framework (1986): Krumboltz's **social learning theory of career decision making**, and the application of the **self-efficacy construct** to career development
- **Vocational outcomes are determined by the transactions occurring between persons and their environments** (Osipow, 1990)
- SCCT highlights **dynamic and situation-specific features of the self-system**
- SCCT subscribes to Bandura's **triadic-reciprocal, fully bidirectional, model of causality**:
  - **Personal attributes**, such as internal cognitive and affective states, and physical characteristics
  - External **environmental factors**
  - **Overt behaviour** (as distinct from internal and physical qualities of the person)
- Within this triadic system, **people become both "products and producers of their environment"**, with the potential for self-regulation
- SCCT incorporates **three central variables** from general social cognitive theory:
  - **self-efficacy**
  - **outcome expectations**
  - **personal goals**
- These three variables represent **key mechanisms** by which people are able to **exercise personal agency**

# Social Cognitive Career Theory (SCCT) (3)

- **Self-efficacy** involves a **dynamic set of self-beliefs** that are specific to particular performance domains and that interact in a complex way with other person, behaviour, and environmental factors
- Self-efficacy beliefs are acquired and modified via four primary sources of information (or types of learning experience):
  - personal performance accomplishments
  - vicarious learning
  - social persuasion
  - physiological and affective states
- SCCT framework organizes career-related interest, choice, and performance into three interlocking models
- **Interests** are a **joint function of self-efficacy beliefs and outcome expectations**; people express interest in certain career and academic pursuits if they think they can perform well in them and if, at the same time, they think that pursuing these careers will lead to outcomes they desire
- **Aptitudes and past experiences** are related to interests primarily through their impact on persons' developing self-efficacy beliefs and outcome expectations
- SCCT's model of career choice holds that interests are typically related to the choices that people make and to the actions they take to implement their choices

# Model of task performance

FIGURE 7.3. Model of Task Performance



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# Social Cognitive Career Theory (SCCT) (4)

- Figure 7.3 depicts a **feedback loop between performance attainments and subsequent behaviour**
- Success experiences promote development of abilities and, in turn, self-efficacy and outcome expectations within a dynamic cycle
- Self-efficacy is seen as a co-determinant of performance, not as a substitute for objectively assessed abilities
- Self-efficacy beliefs affect how effectively people deploy their talents, helping to explain why individuals with the same basic capabilities can produce performances of vastly differing quality
- In challenging situations, competent performance requires both basic capabilities and a strong sense of personal efficacy
- Interest and choice models involve *choice-content goals* (e.g. the type of career field to pursue), the performance model emphasizes *performance goals*
- SCCT views occupational and academic performance (and persistence) as being affected in important ways by ability, self-efficacy, outcome expectations, and performance goals
- Self-efficacy plays an especially important role in determining how people employ their abilities

# Career choices in academia (1)

- Jürgen Janger, Klaus Nowotny (2013) Career choices in academia. *WWWforEurope Working Paper no 36* [www.foreurope.eu](http://www.foreurope.eu)
- There is a substantial international mobility of highly talented researchers, but also that this mobility is asymmetrically directed towards prestigious U. S. universities
- This holds for many regions of the world, not only developing countries but also Europe
- Not being able to retain or attract significant numbers of highly talented researchers reduces Europe's ability to deal with the „grand challenges“ of our time such as climate change, resource scarcity and population ageing
- There has been little systematic research on the academic labour market and on **what makes researchers choose one job over another in cross-country settings**, leading to any asymmetric job flows
- **International survey of more than 10,000 early and later stage researchers** for an experimental stated choice approach
- A range of hypothetical jobs in academia has been constructed and respondents choose among randomly allocated job offers
- From the chosen jobs, probabilities of job choice can be estimated given specific job characteristics, and hence draw conclusions on **which job feature sets researchers deem to be particularly attractive**



# Career choices in academia (2)

- Main results for both early and later stage researchers are that the **remuneration component of jobs matters** (salaries, health care and pension provisions), along with the **quality of peers**, the **availability of grants** and the **balance between teaching and research tasks**
- The quality of life in the country of the proposed job must not be worse than in the current country of residence, however **higher quality of life does not act as an attractor**
- As regards **early stage researchers see particularly attractive** systems of higher education which provide jobs featuring **early career perspectives, early research and financial autonomy based on research performance only**
- **Later stage researchers prefer jobs** where their line of inquiry is **not bound to the research of previous job- or chair-holders**, speaking in **favour of departmental organisation** rather than chair-based systems
- In addition, they **favour jobs providing university internal funding** to cover their research needs, **supportive administration units** and **public pay schemes including a performance element**
- Such jobs are overall **more likely to be found in the departments of U. S. American research universities with their „tenure-track“ model** providing early independence and career perspectives for early stage researchers
- The results are not only relevant for career structures of continental European higher education systems but also for American research universities, as the tenure track-model tends to become the „alternative“ career path, meaning that tenure-track positions are increasingly becoming the minority among new job openings in academia

# Career choices in academia (3)

- The decision to become an academic researcher may be influenced by **economic determinants**, the ease of switching between academia and industry, at least for disciplines where there are also strong private sector research activities
- In the U. S., the supply of academic researchers is responsive to demand signals, i.e. that occupational choice reacts to relative earnings, job prospects in terms of job availability, the amount of stipends available and to total time required for training
- In countries where it is **easy to switch from academia to industry**, either as an employee or as an entrepreneur, and where industry uses a lot of tertiary trained researchers, there is a large market for scientists and engineers
- Non-economic intrinsic motivations to become an academic researcher relate to the **satisfaction researchers derive from the activity of research** – the joy of puzzle-solving, curiosity-driven discovery of knowledge and freedom to do science
- To some extent, researchers are willing to „pay" for the privilege of being able to do science in terms of foregone salary
- **Relative earnings play a smaller role for academic researchers than for other professions**, while still being relevant for job choice
- Scientists who manage an early track record of scientific findings, publishing as quickly as possible, may benefit from cumulative advantages in obtaining funding for research projects

# Career choices in academia (4)

- **In Europe**, people who have made the decision to engage in research, additionally have **job choices between different national higher education system**
- This is motivated by two features of the European academic labour market:
  - fragmented national researcher labour markets inhibit an integrated European Research Area and lead to thin labour markets, which make effective job matching more difficult (heterogeneous career structures at the level of national higher education systems and recruitment procedures prevent further integration of European national academic labour markets)
  - asymmetric flow of highly skilled European workers and researchers to the U. S.
- Students go for their PhD to the U. S. or come for postdoc positions and then stay in the U. S. because they find attractive jobs (approximately 70%)
- Foreign-born scientists (not only from Europe) contribute disproportionately to U. S. science and innovation performance, which attests to their quality
- International mobility or migration decisions can be seen as a result of **weighing benefits against costs**:
  - perceived benefits of entering an academic career abroad are related on the one hand to the low quality of the higher education system at home, no job openings, low salaries (push factors)
  - Attractive academic labour market, high quality peers, career prospects, differential earnings, etc. in the destination country (pull factors)

# Academic careers – a cross-country perspective

- Jürgen Janger, Anna Strauss, David F.J. Campbell (2013) Academic careers – a cross-country perspective. *WWWforEurope Working Paper No.37*  
[www.foreurope.eu](http://www.foreurope.eu)
- Early and later stage researchers (ESR and LSR):
  - **ESR correspond to** researchers in the career stages R1 (**PhD-students**) and R2 (**PhD-holders, post-docs**) as defined by the European Commission, featuring little autonomy in what they are doing
  - **LSR correspond to** researchers in the career stages R3 (e.g., **associate professors** in the US) and R4 (**full professors, leading researchers**) who have developed research autonomy and are established researchers
- Higher education systems need to be able to **offer attractive ESR jobs with** career perspectives and research as well as financial autonomy, in brief early independence with a **career path purely dependent on research performance**
- In terms of financial autonomy, **ESR prefer jobs where they can obtain funding by the university** without strings attached to jobs where they have to negotiate funding with their chair-holder and where they to write a proposal for obtaining university funding

# Academic careers – a cross-country perspective

- Both **ESR and LSR jobs require a fair sharing between teaching and research** to be attractive; the results of the experiment suggest a weekly total of 10 hours teaching for ESR, which is lower than the teaching load for LSR
- ESR are mostly evaluated against their research performance, so that they focus more on research tasks at the beginning of their career
- **ESR and LSR want attractive grants systems and cooperation with high-quality peers**, the quality of life in the country of the chosen job must not be worse than in the current country of residence
- Attractive **LSR jobs have a higher material component**, salaries matter more, which does not mean that salaries do not matter for ESR
- LSR prefer pay schemes which complement public schemes with a performance element
- LSR prefer to be able to fund their research out of university-internal sources and to spend little time on administrative tasks
- **LSR also like jobs where it is easy to set up new lines of research**; this is more difficult when they have to follow up on previous research by the chair-holder they are intended to replace

# Improving the attractiveness of academic careers (1)

- Attempts at improving career attractiveness should be undertaken:
  - from the perspective of the status quo in a country, i.e. building upon the strengths while addressing weaknesses
  - attempts should not be made for isolated areas only
- Funding & salaries:
  - amount of spending per student on tertiary education
  - availability of grants
- PhD-studies – accepting the PhD as the final training stage of academics, enabling them for independence, would make the “habilitation” redundant
- Departmental research organisation would make it easier:
  - to have a larger share of independent academics of the same rank in one operating unit
  - improving career prospects of academics
  - more research and financial autonomy
  - improving job attractiveness

# Improving the attractiveness of academic careers (2)

- The **tenure track-model is very attractive** in that it combines:
  - a very clear career perspective already from the position of a fixed-term researcher
  - clear criteria for promotion to a tenured position, in the shape of scientific productivity only
- The **probability of getting tenure** and the path to the top of the career ladder **matter a lot to job choice of academics**
- The **“up or out” characteristics of this model make it more fair** to young academics because they know at an early stage whether a career in academia is possible or not
- A thorny issue is **safeguarding the compatibility of high shares of tenured academics with incentives for life-cycle research productivity**

**Thank you!**