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Universität
Hannover

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COLLABORATIVE KNOWLEDGE PRODUCTION – A FOCUS ON INTERNATIONAL RESEARCH TEAMS

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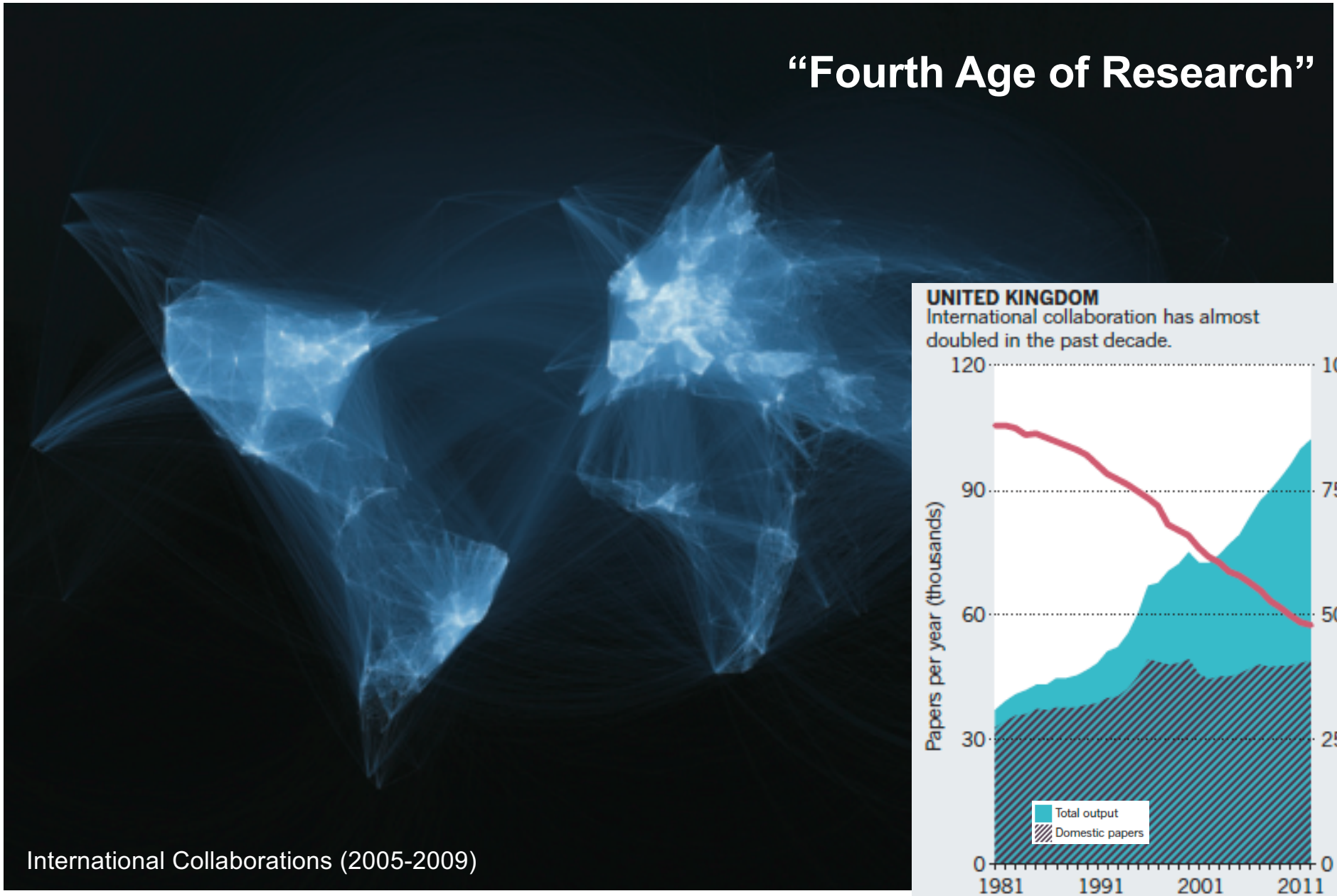
“Fourth Age of Research”



International Collaborations (2005-2009)

Source: Adams, J. (2012). Collaborations: The Rise of Research Networks. Nature, 490(7420), 335–336.

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International Co-Authorship

Science Citation Index 1973

Earth/Space Science = 4,45%

Physics = 4,23%

Mathematics = 3,75%

Chemistry = 2,03%

Biology = 1,68%

Science Citation Index 2009

Earth/Space Science = 49,18%

Physics = 26,01%

Mathematics = 25,56%

Chemistry = 17,79%

Biology = 21,17%

Psychology = 15,1%

Social Sciences and Humanities = from 3,65% in 2000 to 9,3% in 2009

Frame, J. D., & Carpenter, M. P. (1979). International Research Collaboration. Social Studies of Science, 9(4), 481–497.

Gazni, A., Sugimoto, C. R., & Didegah, F. (2012). Mapping World Scientific Collaboration: Authors, Institutions, and Countries. Journal of the American Society for Information Science and Technology, 63(2), 323–335.

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Collaborative Comparative Research in Higher Education Research

Bibliometric study with 3600 data sets (journal articles) → 24% of articles international co-authored

Qualitative Study with 202 data sets (journal articles) → 36% of articles internationally collaborative

Kosmützky, A.. 2016. The Precision and Rigor of International Comparative Studies in Higher Education. In Theory and Method in Higher Education, Hrsg. J. Huisman und M. Tight, 199–221. Bingley: Emerald; Kosmützky, A., und G. Krücken. 2014. Growth or steady state? A Bibliometric Focus on International Comparative Higher Education

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Survey Data on International Collaboration

- Social sciences and humanities = 62,5%
- life sciences and medicine = 64.8%
- Physics and mathematics = 74.7%
- Engineering = 60.0% (Kwiek 2015)

Language of Publications in Higher Education Research in German Database : 86% German,14% English+
Hertwig (2014)

Kwiek, M. (2015). The Internationalization of Research in Europe: A Quantitative Study of 11 National Systems From a Micro-Level Perspective. *Journal of Studies in International Education*, *19*(4), 341–359; Hertwig, Alex. (2014). “Hochschulforschung in Deutschland. Eine Analyse Der Forschungsmethoden Und Des Publikationsverhaltens.” INCHER Working Paper. Kassel: INCHER.

Push/Pull-Tendencies -- Endogenous/Exogenous Reasons

- Ongoing **disciplinary specialization** and **increasingly complex research problems** → scientists need international collaborators to exchange ideas and methods they do not find in their national communities
- **High costs** for instruments, experiments and laboratory devices → in some areas research can not be carried out otherwise
- **Increasing the visibility and impact** and reputation of own academic work
- Formation and expansion of **academic networks** → increasing reputation, access of additional funding sources
- **Access to** a broader range of **data** → exploration of international/ global problems
- **Cost-effective and fast worldwide travel** opportunities → enable data collection and personal contact with international collaborators
- **Information and communication technologies** (ICT) → enable rapid knowledge circulation, the global exchange of local data and ideas, and global networking
- **Science policy focus on large societal problems** (e.g. environment, energy, economics, etc.)
- Supra-national **funding schemes** (e.g., EU-Framework Programs), **national funding schemes** have opened up for international collaborations
- The more-the-better science policy syndrome

DFG-Funded Collaborative Research Projects*

	2011	2012	2013	2014	2015	2016	2017	Total
Total number of newly funded projects	289	226	207	312	273	309	304	**1.920**
Projects with international collaboration partners	36	26	34	67	74	81	81	**399**
Relative share of collaborative projects	**12%**	**12%**	**16%**	**21%**	**27%**	**26%**	**27%**	**21%**

***Social and Behavioral Sciences**

- Educational research
- Social Sciences (including Sociological Theory, Empirical Social Research, Communication Studies, Political Science)
- Psychology
- Economics
- Law

International collaborative project = primary employment affiliation in academic institutions in at least two different countries

Collaborative Research Projects

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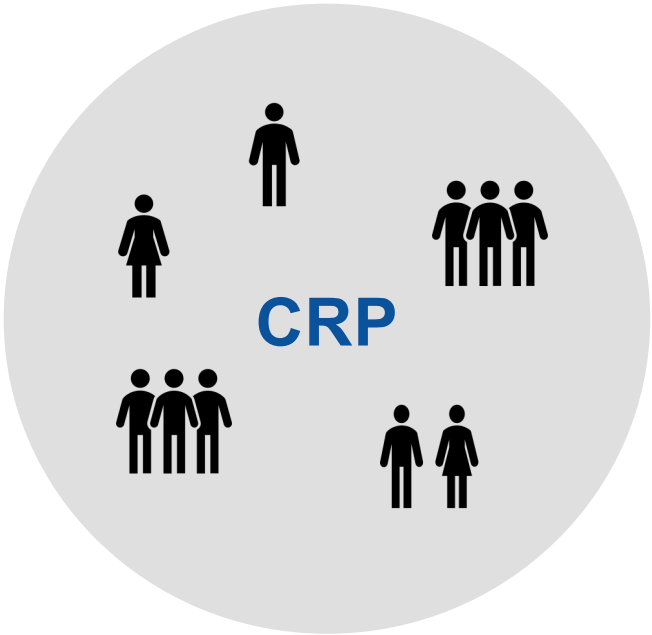
Collaborative Research Projects

Temporary social processes, in which researchers bring together their complementing skills and expertise with the goal to produce new knowledge



- Autonomous, self-governing: based on mutual interests, motivations and goals
- Functionally interdepend
- Highly dynamic with instable membership and borders (multiple commitments of researchers)
- Stabilized by project funding

Purpose + goal-oriented interest groups & temporary form of organization

(Team-Task-Context)

Katz & Martin, 1997; Anderson & Steneck, 2011; Lewis et al., 2012; Bozeman et al., 2013; Jeong et al., 2014; Kosmützky, 2018
Lundin & Söderholm, 1995; Bakker, 2010; Burke & Morley, 2016; Besio et al., 2016; Bakker, 2010; Kuster et al. 2011; Wenger et al., 2002; Gläser, 2006/2012

‘Who is in charge?’

‘Who will do the work?’

‚How will we work together?‘

‘How will work be divided and knowledge integrated?’

‘Who gets credit for the outcomes of the collaboration?‘

...

CRPs as Temporal Organizations

Team
• Team Composition and Dynamics (incl. Trust, Motivation) • Project and Publication Language(s) • Intercultural Differences/ Congruence (incl. Intellectual and Academic Styles) • Research Coordination and Management (incl. Leadership) • Communication Management and Exchange; Technological Support for Communication and Collaboration
Task & Time
• Character and Complexity of Research • Division of Labour and Form of Collaboration • Publication and Dissemination Strategies • Research Capacity
Context
• Research Integrity and Ethics • Budget/Funding • Legal Aspects • Institutional and National Modes of Research Governance and Measurement of Success • Promotion of Early Career Researchers

International collaborative:

- **geographical distance**
- **cultural distance**
- **cognitive distance**
- **institutional distance**

Collaborative Research Team Composition

Example

FINLAND
Full Professor
Postdoc
Postdoc

450.000,- €;
3 years

JAPAN
Associate Professor

Eventually:
no funding

GERMANY
Full Professor
Postdoc
Student
Student

200.000,- €;
2 years

USA
Full Professor
Assistant Professor
Assistant Professor
Assistant Professor
PhD
PhD

750.000 USD;
3 years

UK
Full Professor
Full Professor
Senior Lecturer
PhD (Associate)

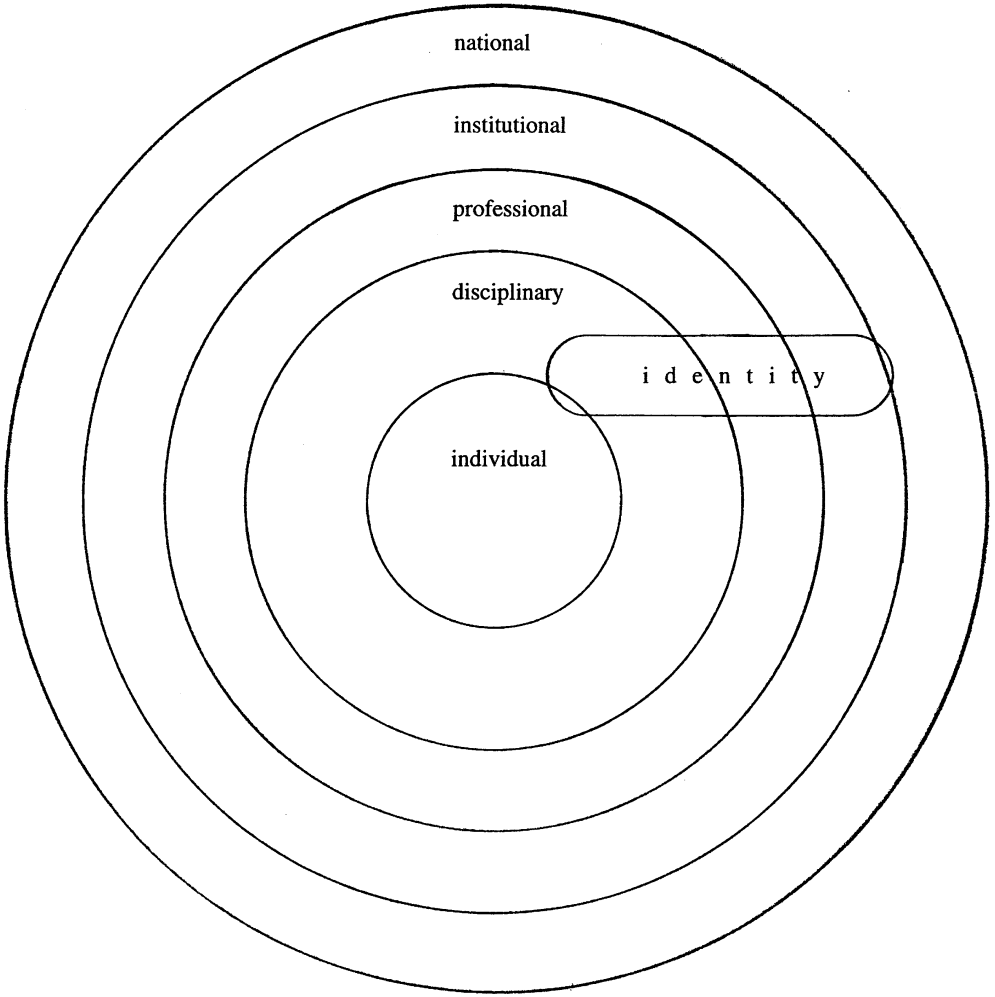
310.000 £;
3 years

PORTUGAL
Postdoc
Postdoc

100.000 €;
2 years

Professor Post-Doc PhD-Student Student

Dimensions of Academic Identities (Välimaa, 1998)



→ (Academic) identities as constant negotiations are never permanently settled or fixed, but are fluid processes that involve not only 'becoming' but also 'unbecoming'

Mead tradition (1934) → identity formation as interactive processes of self-description and self-understanding between an individual and various significant others: "who am I", "where do I belong"

Also: Clark 1970; Tierney, 1991; Tierney and Rhoades 1993; Taylor, 1999; Leibowitz et al., 2013

A Researcher‘s “Backpack” in ICRPs

Academic Context

Local and National Context

Disciplinary Context

Organizational Context

Age

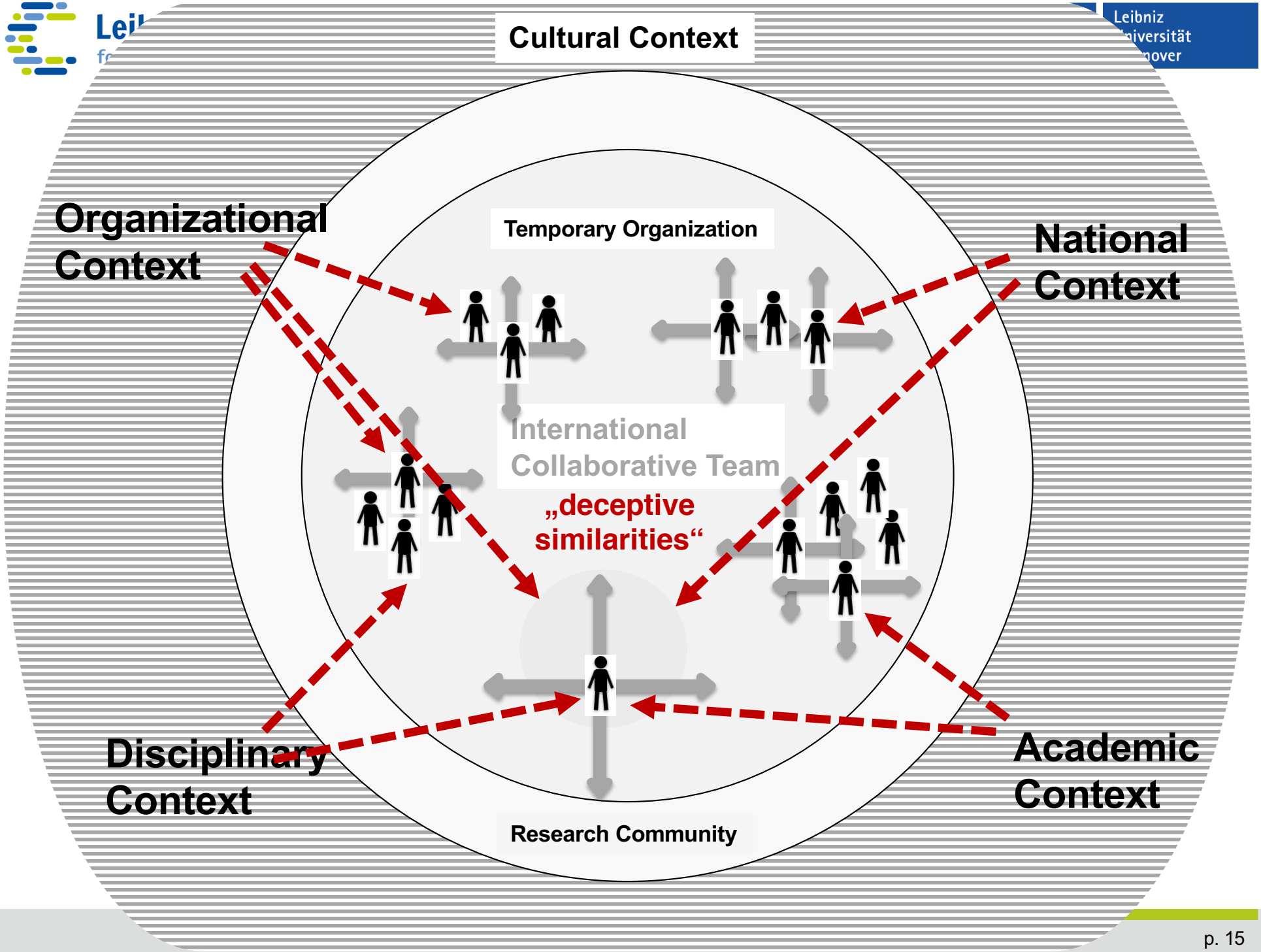
Gender

Personality traits

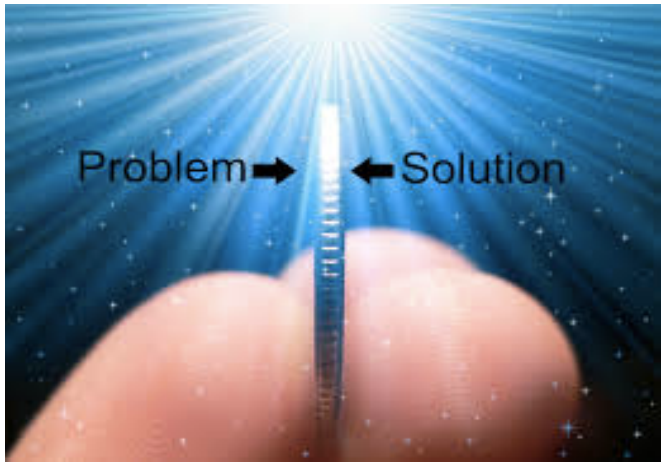
Career stage & status

Form of employment

Galtung, 1982; Pinch, 1990; Tennom, 1995; Turati et al., 1998; Sorensen, 2003; Thomas, 2005; Goddard et al., 2006; Hantrais, 2009; Anderson & Steneck, 2011; Okamoto, 2015/2016; Buengeler & Hartog, 2015


Cultural Context
Organizational Context
Temporary Organization
National Context
International Collaborative Team
„deceptive similarities“
Disciplinary Context
Academic Context
Research Community

Comparative Collaborative Team Research = Two-sided Medal



SOLUTION: Multiperspectivity and detailed contextual knowledge of the diverse team members make rigorous comparative research possible.

PROBLEM: the (cultural, academic, methodical, disciplinary, contextual) team diversity increases social complexity and makes it more difficult to achieve methodological precision.

→ International collaboration = source of "better solutions" to challenges occurring in comparative research **+** source of "amplified complications"

→ methodological and social challenges are intertwined in comparative collaborative research to a great extent

“Collaborations shape the object of comparison just as the object shapes collaboration”

(Deville et al. 2016, 33)

→ How do we “calibrate the comparator”

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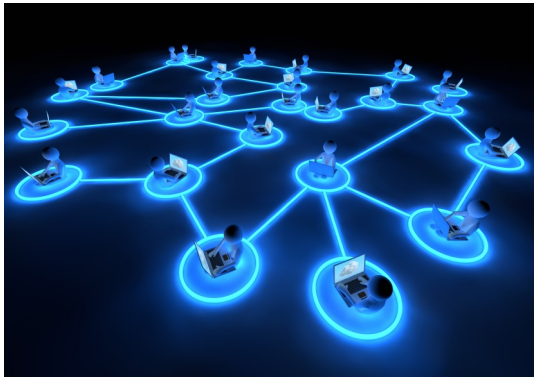
Praise of

Collaboratories

(Finhold & Olson 1997)



Criticism of

Collaborationism

(Shrum 2010)

Finholt, T. A., & Olson, G. M. (1997). From Laboratories to Collaboratories: A New Organizational Form for Scientific Collaboration. Psychological Science, 8(1), 28–36. Shrum, W. (2010). Collaborationism. In J. N. Parker, N. Vermeulen, & B. Penders (Eds.), Collaboration in the New Life Sciences (pp. 247–258). Farnham: Ashgate.

Thanks you for your attention !