Key Methodological Issues of Tracer Studies

Plenary Presentation

International Conference: "Experiences with Link and Match in Higher Education. Results of Tracer Studies Worldwide" (EXLIMA)

Bali, Indonesia, 22-23 October 2012

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INCHER-KASSEL
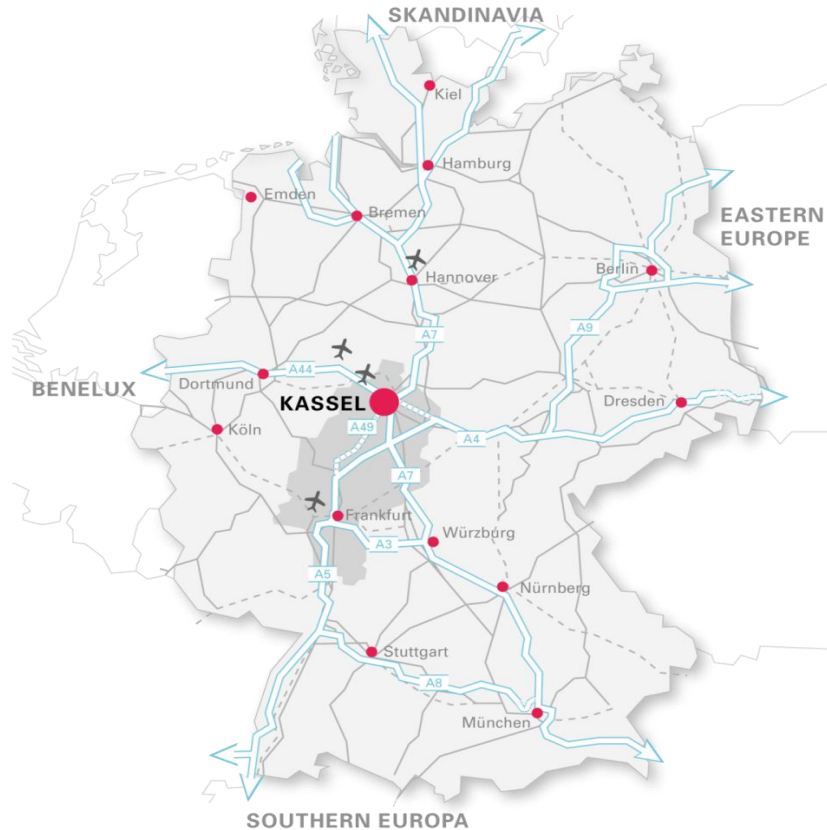Internationales Zentrum
für Hochschulforschung Kassel

Outline

1. Objectives and Content of the Questionnaire
2. Time and Timing
3. Data Quality

4. Conclusions

University City Kassel:
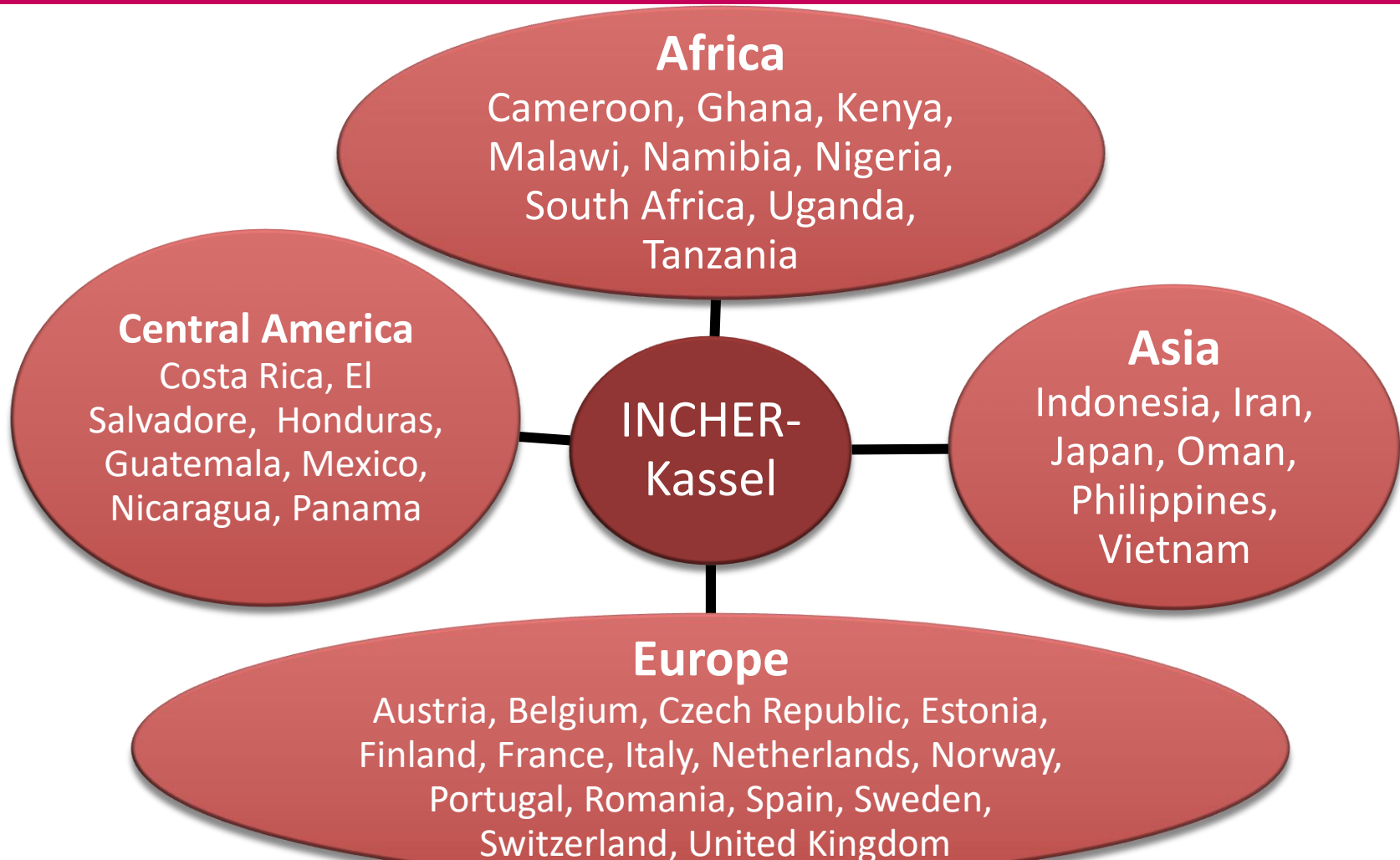# in the Heart of Germany, in the State of Hesse

- Located in the center of Germany and Europe

- Unique unity of urban culture and landscape

- City of the documenta

- Parks and recreational areas

- Center for industry, services and civil administration of nothern Hesse

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- Name: International Centre of Higher Education Research (INCHER-Kassel)
- Research Centre of the University of Kassel (part of the university) since more than than 30 years
- About 20-30 researchers
- About 15 doctoral students
- Research focus: Higher education and work; HE systems and structures; (international) graduate surveys (CHEERS; REFLEX; PROFLEX; HEGESCO)
- Graduate Survey Cooperation Project (KOAB) – yearly surveys in cooperation with about 70 universities
(2012/2013: about 70,000 questionnaires will be collected)
- International network of graduate surveys (INGRADNET)

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International Tracer Study Cooperation

Africa
Cameroon, Ghana, Kenya, Malawi, Namibia, Nigeria, South Africa, Uganda, Tanzania

Central America
Costa Rica, El Salvadore, Honduras, Guatemala, Mexico, Nicaragua, Panama

INCHER-Kassel

Asia
Indonesia, Iran, Japan, Oman, Philippines, Vietnam

Europe
Austria, Belgium, Czech Republic, Estonia, Finland, France, Italy, Netherlands, Norway, Portugal, Romania, Spain, Sweden, Switzerland, United Kingdom

1. Objectives of Tracer Studies and Content of the Questionnaire

- Similar terms
  - Graduate survey (40,700 Google hits)
  - Tracer study (98,000 Google hits)
  - Alumni research (U.S.; 99,000 hits)
  - Follow-up study (graduates) (179.000 hits)
  - Graduate career tracking (Hungary; 6 hits)
- Target population
  - Graduates of an institution of higher education (regardless the kind of degree)
  - Surveyed after graduation

Objectives of Institutional Graduate Surveys (Tracer Studies)

1. To get valuable **information** for the **development** of the university
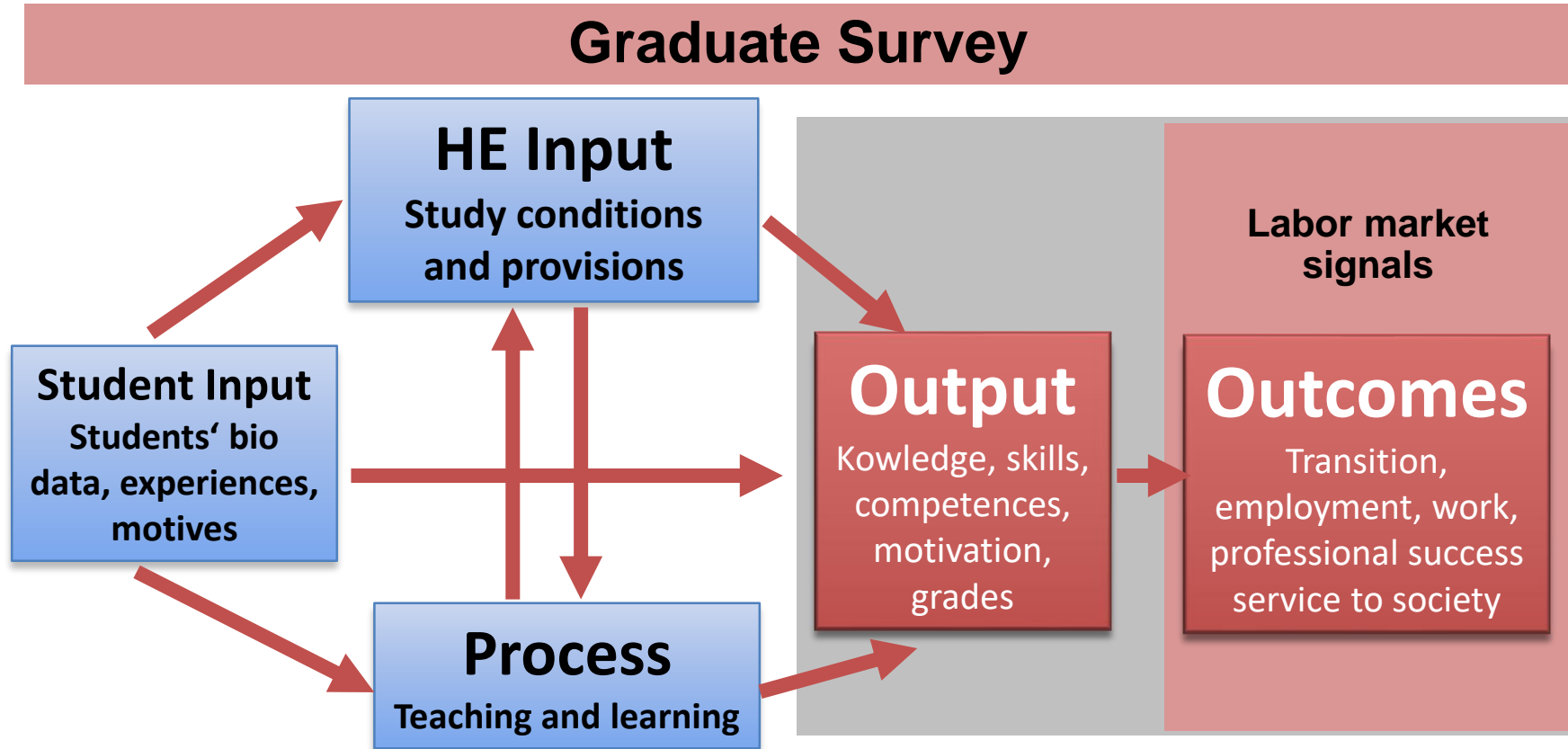
2. To evaluate the **relevance** of higher education
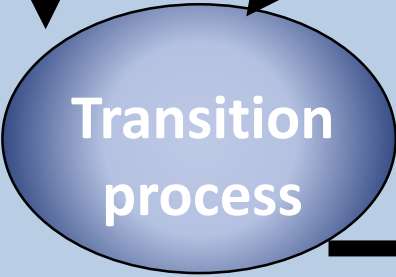
Data from graduates

3. To contribute to the accreditation process

4. To **inform** students, parents, lecturers and administrators
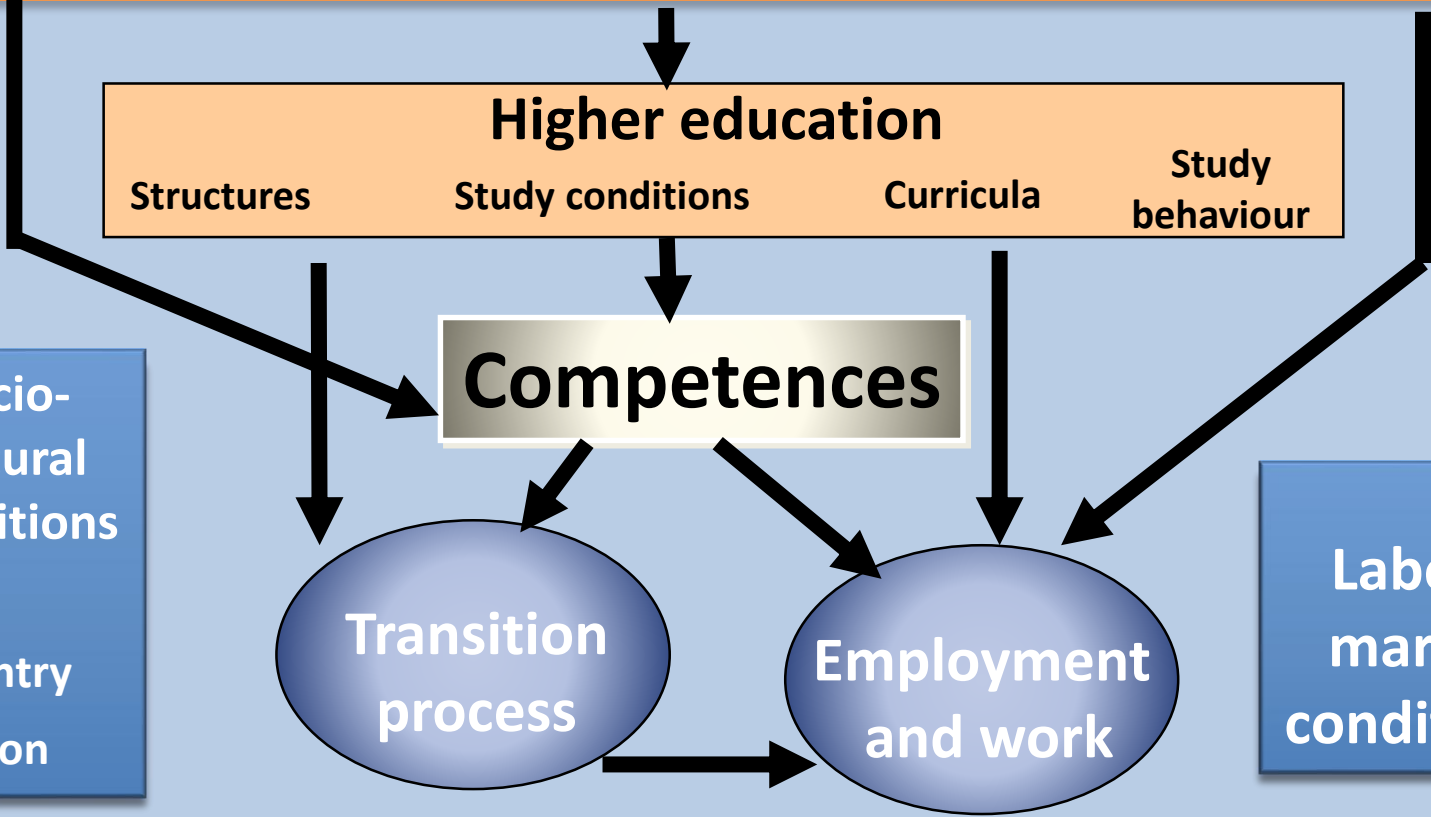
Conceptual Framework for Graduate Surveys

Graduate Survey

HE Input
Study conditions and provisions

Labor market signals

Student Input
Students' bio data, experiences, motives

Output
Kowledge, skills, competences, motivation, grades

Outcomes
Transition, employment, work, professional success service to society

Process
Teaching and learning

Context: Labour market – region – country; socio-economic development and personal development

Socio-biographic background

Parents' education

Gender

Motives and abilities

Prior education

Higher education

Structures

Study conditions

Curricula

Study behaviour

Competences

Socio-cultural conditions

Country

Region

Transition process

Employment and work

Labour market conditions

Knowledge society

Globalisation, internationalisation

Life course

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- **Objective indicators**
  - Short search duration
  - Employed or further study
  - High income
  - Appropriate position regarding level of education (job title; ISCO)
  - Work tasks closely related to field of study (description of work tasks)

- **Subjective indicators**
  - Perceived links of kind of job and own level of education
  - Perceived high use of competences
  - Perceived high status (income, career perspectives)
  - Perceived high work autonomy
  - Perceived high job satisfaction

Multi-dimensional concept

Traditional and New Type of Graduate Surveys

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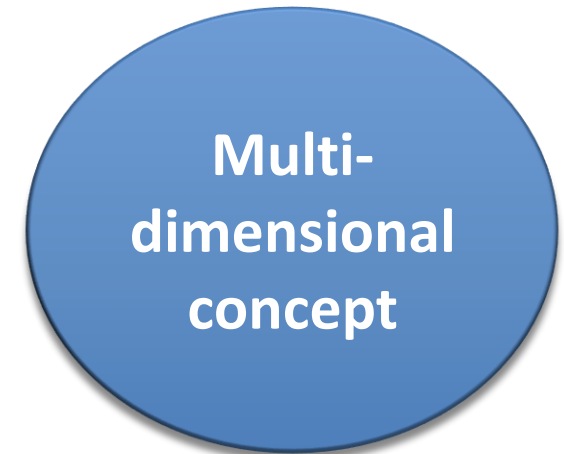
- Traditional type – representative sample survey to inform the Ministry of HE and other key stakeholders
  - Since more than 30 years
  - France, Germany, Italy, Norway, Switzerland
  - **Irrelevant for individual institution**
- New type – institutional graduate surveys (all graduates from one institution of higher education)
  - (France), Germany, Hungary, Italy, (Indonesia), Netherlands, Romania
  - Combination of a National Monitor and a feedback instrument for HE institutions
  - **Relevant for individual institutions (reports for individual institutions, study program level breakdown of results)**

Scope of Graduate Tracer Studies and Target Population

A. Country
(national tracer study)

Country A

B. Institution

University A

University B

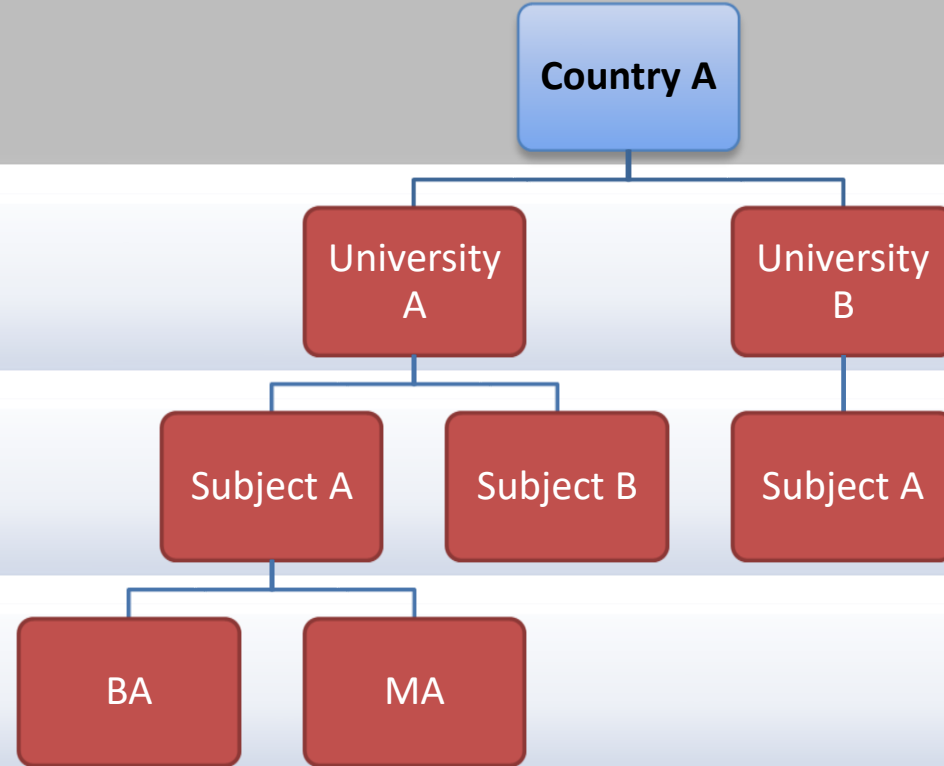**C. Subject/Faculty**

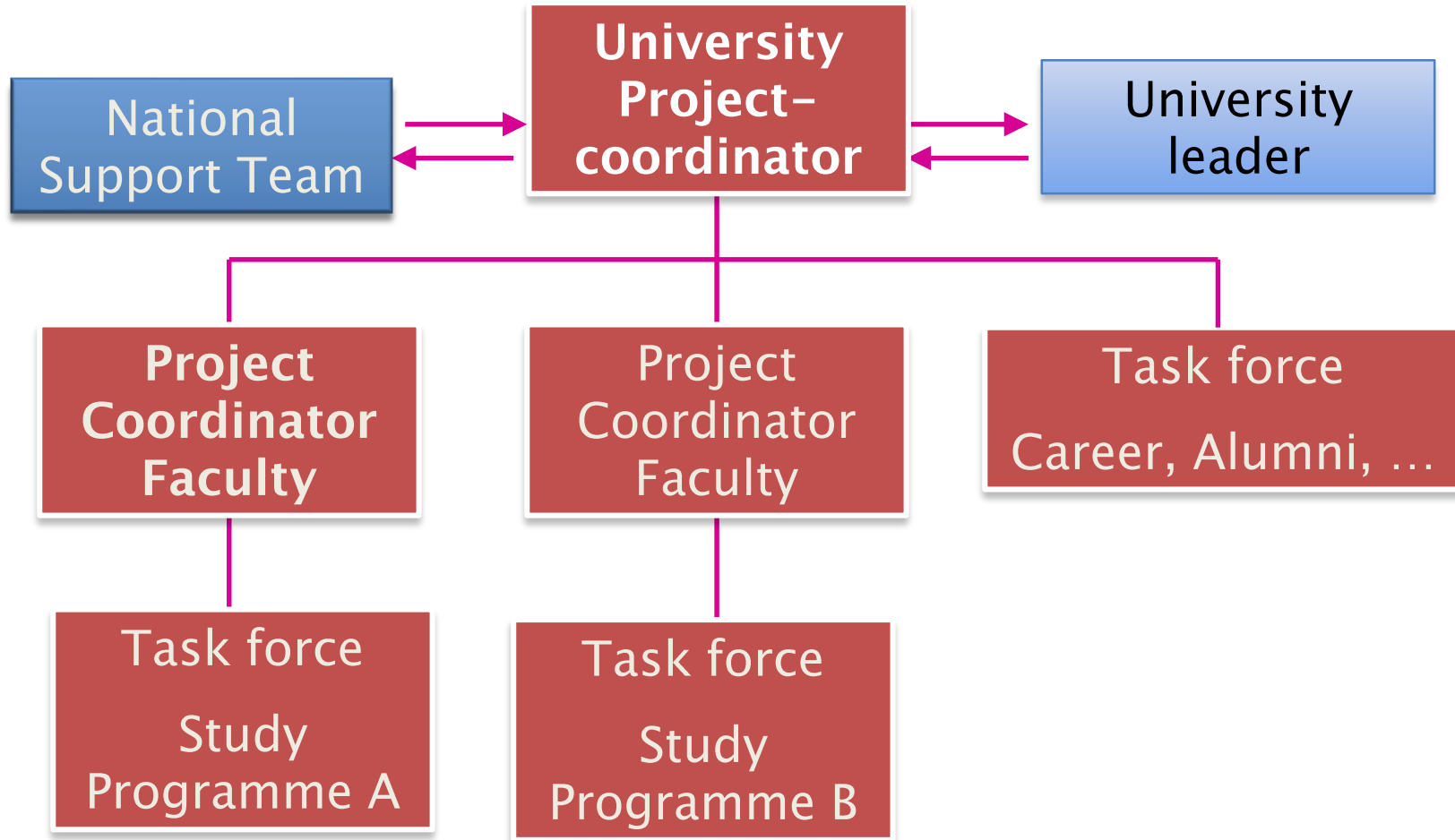Subject A

Subject B

Subject A

D. Study program

BA

MA

The Dilemma of the Level of Institutional Tracer Studies

- The lower the level, the more relevant for curriculum improvement is the study
- The lower the level, the less professional is the study?
- Costs increase dramatically
  - Central level: one research team for the whole university (e.g. 2 persons)
  - Faculty level: one research team for each faculty (e.g. 2 persons X 10 faculties = 20 persons)
  - Study program: one research team for each study program (e.g. 2 persons X 10 faculties X 10 study programs = 200 persons)

Example: Organisation of the University Tracer Study

National Support Team → **University Project-coordinator** → **University leader**

- **Project Coordinator Faculty**
  - Task force — Study Programme A
- **Project Coordinator Faculty**
  - Task force — Study Programme B
- **Task force** — Career, Alumni, …

Complex Approach of Institutional Questionnaires
Every Univeristy Has an Own Questionnaire (Romania, Germany)

Structure of the questionnaire
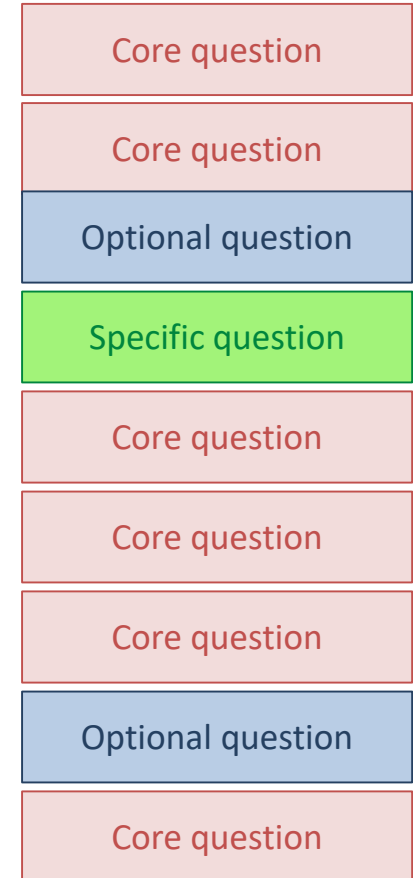
1. **Core questions**
   (have to be fixed for the whole project,
   contained in all versions of the questionnaire,
   warranted / guarantees comparability for institutions and
   national monitoring)

2. **Optional questions**
   (should be fixed for the whole project,
   institution decide the use in its questionnaire,
   give comparability only for institutions which using it, but
   no national monitoring)

3. **Specific / individual questions**
   (institutions are completely free for the content, no
   comparision possible, except some institutions using the
   same specific / individual questions, the layout have to fit the
   other quest.)

Core question
Core question
Optional question
Specific question
Core question
Core question
Core question
Optional question
Core question

Questionnaire Development

- Adaptation of the basic questionnaire
  - Adaptation for institutions
  - Adaption for domains
  - Adaptation for study programmes
- Possible new modules
  - For subject groups (like engineers, teachers)
  - International and regional mobility
  - Self-employment („job creators"?)
  - Work motivation

Myth: The Length of a Questionnaire is the Main Factor for the Response Rate
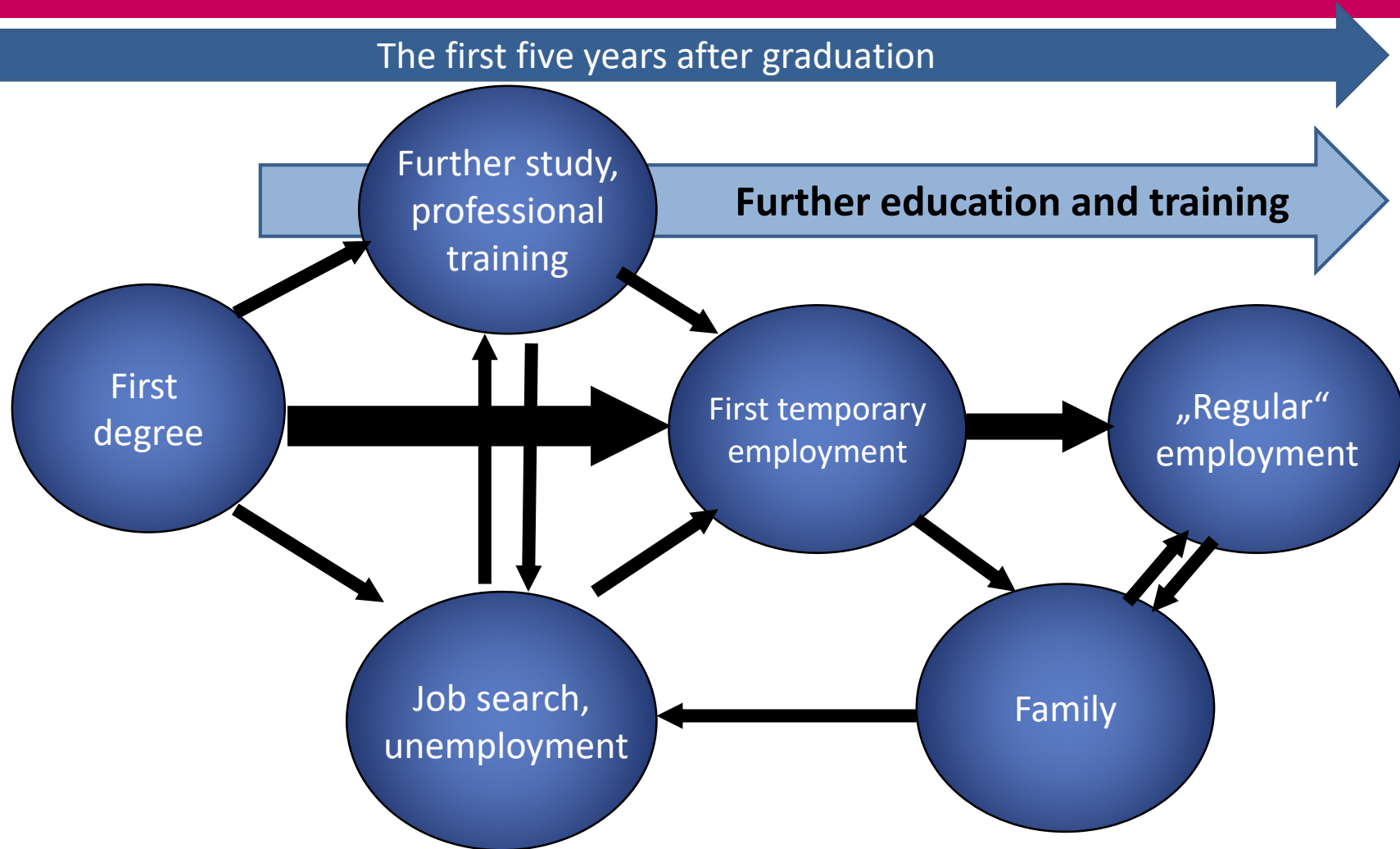
- *Wrong assumption*: the longer the questionnaire the less the response rate
  - Experiences: in Germany no relation between number of pages (range 20 to 40) and return rate
- *Response rate depends mainly on the efforts of the university* (number of contacts, quality of addresses)
- The longer the questionnaire, the more research questions can be answered → more relevant
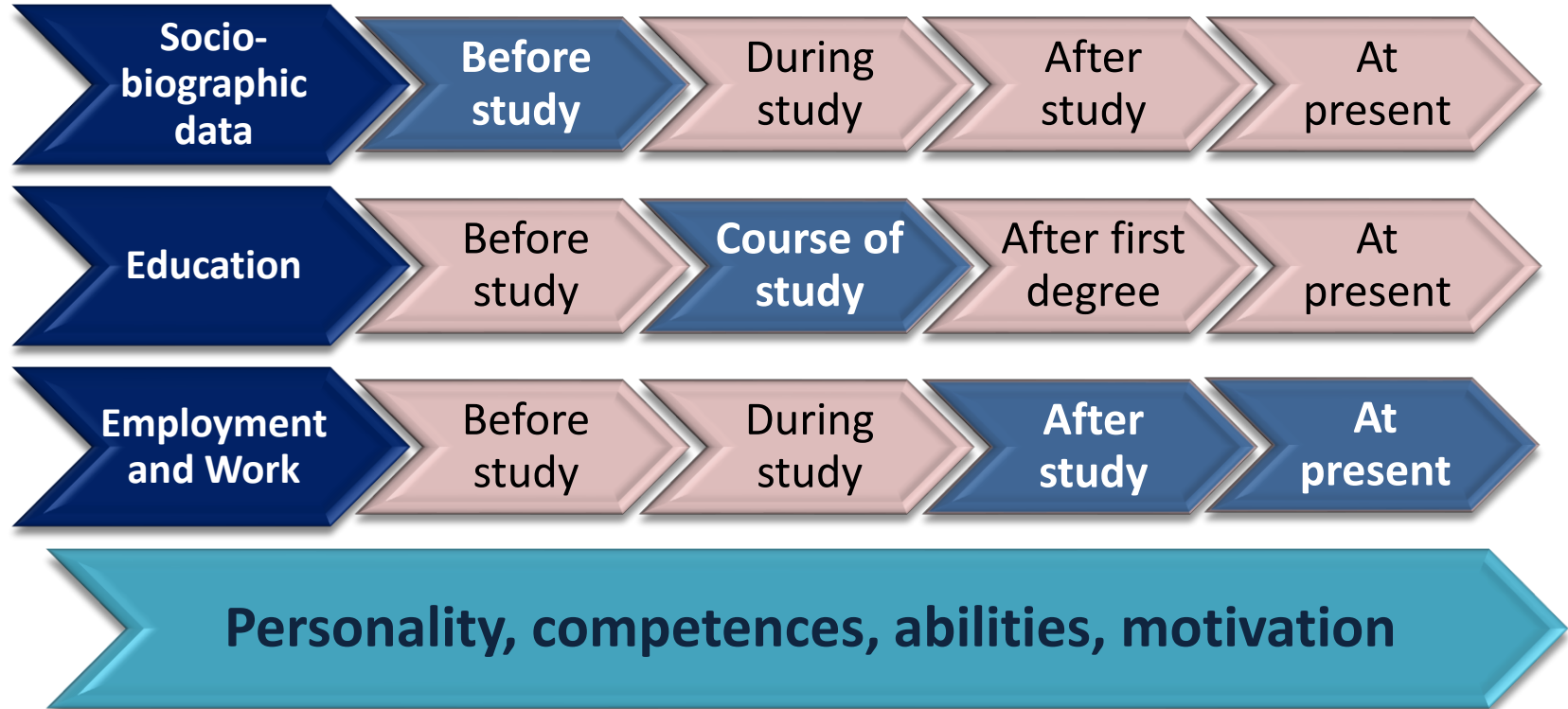
2. The Challenge of Time and Timing

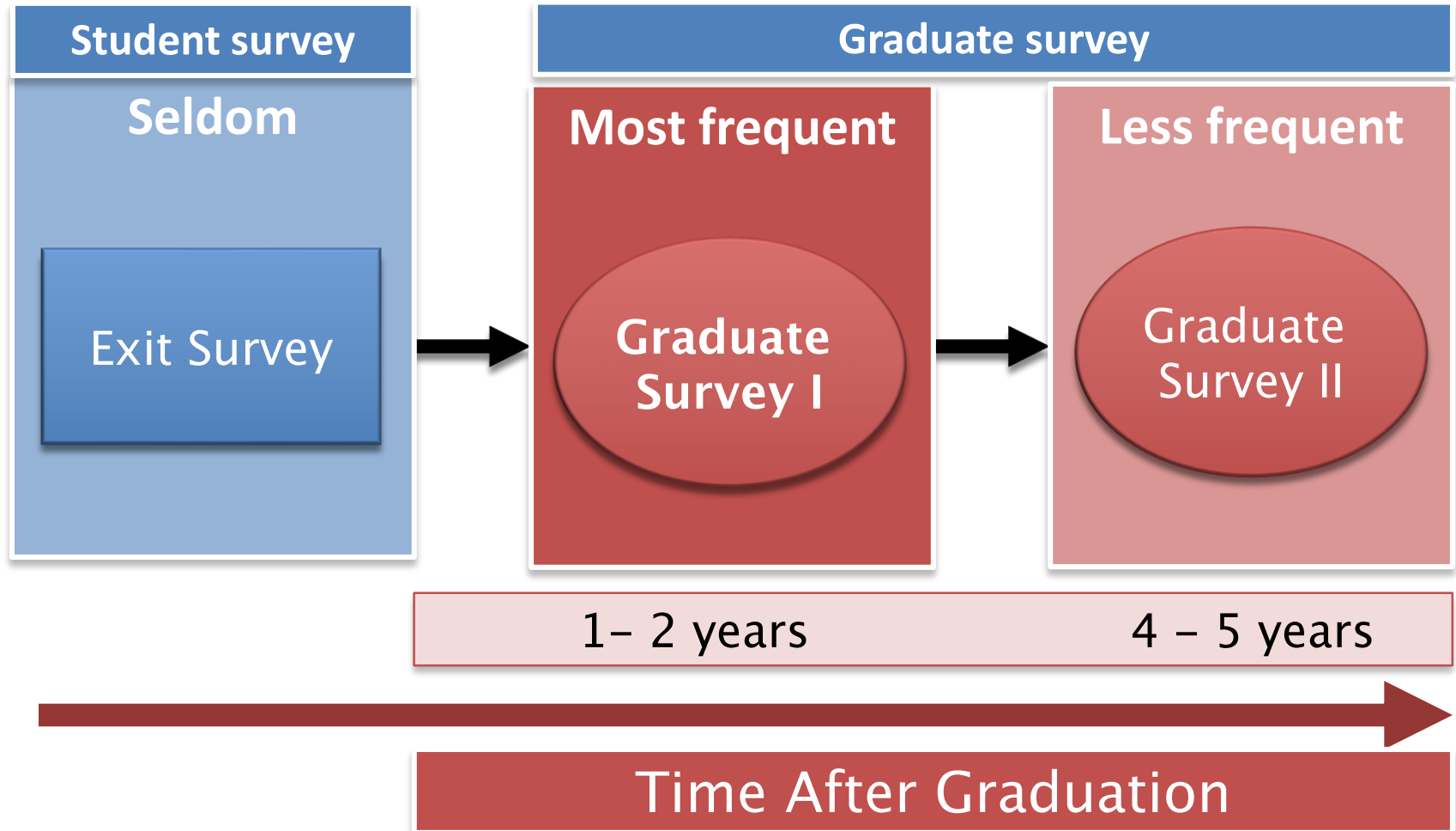## What is the best time to conduct the survey?
What is the time related focus?

Example: The Complexity of Transition

The first five years after graduation

Further education and training

Further study, professional training

First degree

First temporary employment

„Regular" employment

Job search, unemployment

Family

Time Relation of Key Questionnaire Topics

Socio-biographic data	**Before study**	During study	After study	At present
Education	Before study	**Course of study**	After first degree	At present
Employment and Work	Before study	During study	**After study**	**At present**

Personality, competences, abilities, motivation

Optimal Design of Graduate Surveys

Student survey	Graduate survey	
Seldom	**Most frequent**	**Less frequent**
Exit Survey	**Graduate Survey I**	Graduate Survey II

1– 2 years   4 – 5 years

Time After Graduation

- What is a panel survey?
  - The same graduate is asked at different time points questions. The relationship of the answers can be analyzed.
- Real individual change or trend?
- What is the target population? Old addresses?
- Retrospective design
- Specific topics - be more specific
- Heterogenity of professional development can be covered

Cross Sectional Graduate Survey at one Time Point

Graduate survey 5 years after graduation

Content of the questionnaire: about 300 to 600 variables

A. Socio-demographic information
B. Course of study
C. Competences at time of graduation

D. Transition to employment and further education
E. Employment and work requirements in the first job

F. Professional success
G. Work tasks and competences
H. Context factors
I. Recommendation sfor impovements in study program

Time After Graduation

Survey at Three Time Points (Panel)

Panel design: only 100 variables in one survey

Student survey	Graduate survey 1	Graduate survey 2
A. Socio-demographic information B. Course of study C. Competences at time of graduation	D. Transition to employment and further education E. Employment and work requirements in the first job	F. Professional success G. Work tasks and competences H. Context factors I. Recommendations for improvements in study program

1– 2 years   4 – 5 years

Time After Graduation

- Each questionnaire has a specific focus/research questions → better quality

- The questionnaires can be shorter → better quality

- Outputs (e.g. competences) can be best measured at the end of study
  → much better quality

- Adresses for further contacts can be collected at the end of study = preparation of the first graduate survey
  → cost reduction + → better quality

- Panel mortality → possible selection bias and only a few cases could be left

- Long term commitment of the university – planning of human resources for about 6 – 8 years

- Higher requirements for the professional competences of the researchers → much more demanding (database management and statistical analysis)

Examples of Different Tracer Study Approaches

- Simple Approach (seldom)
  - United Kingdom: First destination survey
    (six months after; focus only on employment status at one
    time point; one page length)

- Complex Approach (frequent)
  - E. g. France, Germany, Italy, Netherlands, Norway, Switzerland
    (one to two years after graduation; panel study about 3 to 5
    years after graduation; competencies, work requirements,
    mobility, competences, retrospective study assessment; 10 to
   30 pages length)

4. Data Quality

- **Does the respondent belongs to the target population?**

- Are the answers serious?

- Do we find indicators of cheating?

- How shall we define and handle incomplete questionnaires (drop-outs)?

- **Data editing**
- Coding
- Plausibility check
- Detection and corrections of data errors
- Differentiation of missing values (e.g. filter, item non-response, drop-out)
- Incomplete data
- Drop-out analysis
- Imputation of missing data
- **Data analysis and reporting**

Example: Response Rate of the KOAB Survey 2009, by Higher Education Institution (%)

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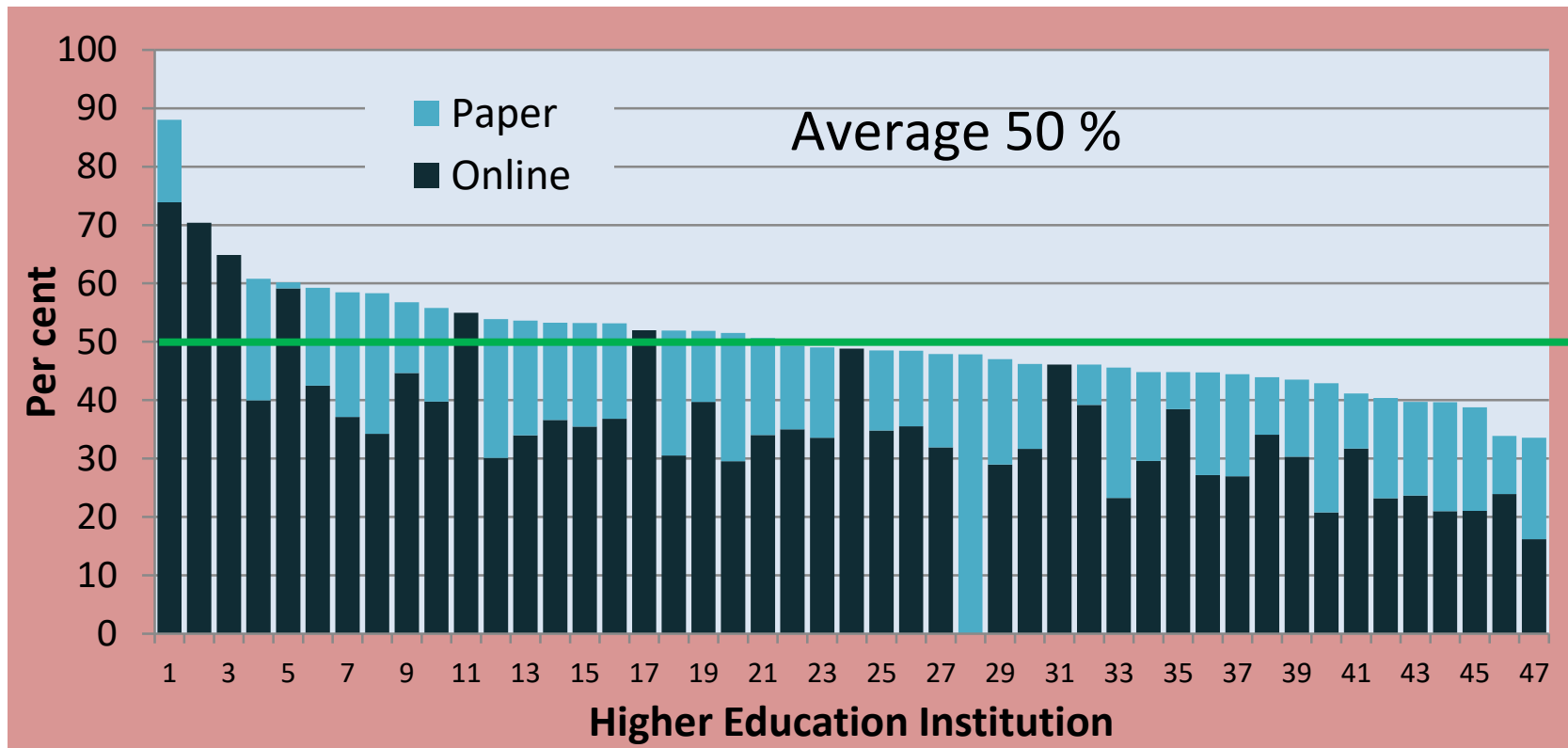
Source: INCHER, KOAB Absolventenbefragung 2009 Cohort 2007

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- What are responses?
- The lurker
- Drop-outs
- Target population
- Net and gross response rate
- What is the target population?
- How to get a feedback about delivered invitations?
- How to handle the drop-out problem?

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- Questionnaire development (used sources, pretest)
- Programming of the online questionnaire (software, testing)
- Availability and quality of addresses (methods used to update addresses)
- Documentation of procedures
  - Methods and procedures of data protection
  - Process of data collection (dates of delivery)
  - Rules and actions in data editing

Conclusions

Lessons Learned

- *High response rates* are possible to achieve in almost all countries
- *High quality of the dat*a is a pre-requisite of the relevance of the findings for research and institutional development
- Availability and quality of addresses (methods used to update addresses) seems not to be not the a real problem
- Documentation of survey procedures and data editing is necessary – culture of critique
- An excellent tracer study needs substantial support (including training for the researchers)

- How can Institutional Tracer Studies deliver relevant data to substitute a separate National Tracer Study?
- How to ensure comparability of Institutional Tracer Studies?
- Who collects the data and is responsible for data quality?
- How can we build a system of Tracer Studies which is flexible and relevant for the universities and for HE researchers (and the Ministry of Higher Education) at the same time?
- How can we exchange systematically our experiences to improve the future Tracer Studies (a learning culture)

Vielen Dank für Ihre Aufmerksamkeit

Thank you very much for your attention

Terima Kasih!