

# Key Methodological Issues of Tracer Studies – Challenges for a Guide on Tracer Studies

Presentation at the Validation Seminar on Methodological Guides for Skills Anticipation and Matching -  
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# Outline

1. Background of the Guide
2. Concept of the Guide
3. Challenges of Objectives
4. Challenges of Timing
5. Challenges of Data Analysis and Interpretation
6. Conclusions



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- 30 years of experiences as researcher at the International Centre of Higher Education Research (INCHER-Kassel); research centre of the University of Kassel (part of the university) with about 20-30 researchers.
- 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)
- Training of Tracer Study researchers from Africa, Asia, Europe and Latin America
- International network of graduate surveys (INGRADNET)

# University Kassel: in the Heart of Germany



- Located in the center of Germany and Europe

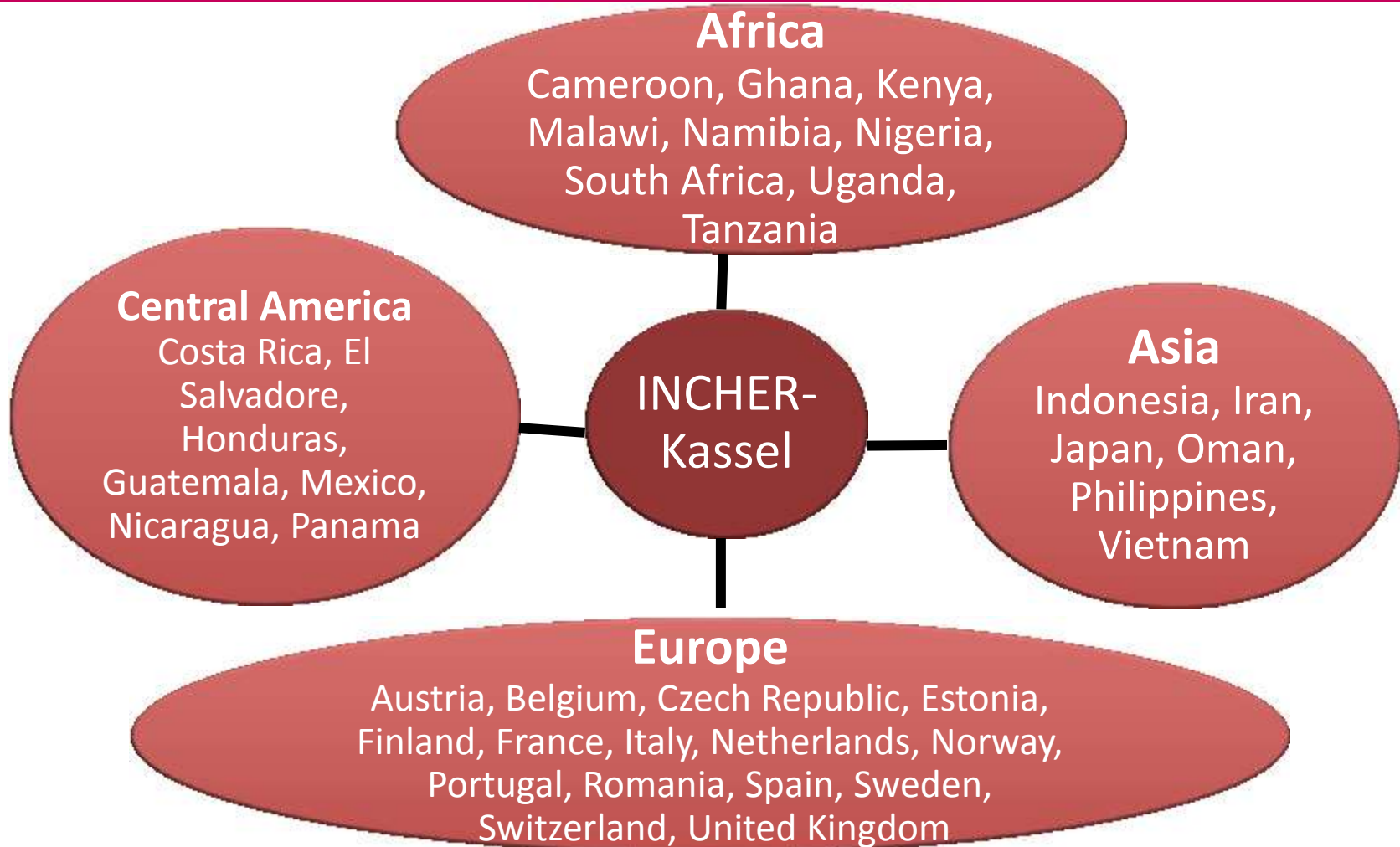
- Unique unity of urban culture and landscape

- City of the documenta

- Parks and recreational areas

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

# Background: International Tracer Study Cooperation



- Schomburg, Harald: *Handbook for Graduate Tracer Studies*. Kassel: University of Kassel, Centre for Research on Higher Education and Work, 2003 (mimeo). [[http://www.uni-kassel.de/wz1/proj/edwork/mat/handbook\\_v2.pdf](http://www.uni-kassel.de/wz1/proj/edwork/mat/handbook_v2.pdf)]
- Schomburg, Harald: *Manual para Estudios de Seguimiento de Graduados Universitarios*. Kassel: Wissenschaftliches Zentrum für Berufs- und Hochschulforschung, Universität Kassel, 2004 (mimeo).
- Schomburg, Harald: *Standard Instrument for Graduate and Employer Surveys*. Kassel und Eschborn: Wissenschaftliches Zentrum für Berufs- und Hochschulforschung, Universität Gesamthochschule Kassel und Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH 1995.

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# The Audience of the Tracer Study Guide

- Mainly people from educational institutions who are going to organize and implement tracer studies at their own institution (Institutional Tracer Studies)
- *Users from various categories, notably:*
  - Policy and decision makers (national, regional, sector levels) seeking to obtain information and data to inform decision making;
  - Research centres and experts networks involved/engaged in carrying out tracer studies for clients;
  - Associations and networks with interest on evidence offered by tracer studies.

# Objectives of the Guide on Tracer Studies

- Institutional Tracer Studies: *capacity building* to enable VET/HE institutions to learn from the labour market experiences of their graduates
- *Methodological competencies* of staff engaged with Tracer Studies
- *Practical advise* and examples: sample questionnaires and many recommendations „how to do“
- Meaningful practical conclusions requires *high quality of data*
- *Long term perspective*: regular tracer studies

# What the Users can Learn

- How to plan and design a Tracer Study,
- How to formulate the research questions/objectives,
- How to develop the questionnaires,
- How to collect and update the addresses of former students,
- How to organize the data collection,
- How to analyse the data and interpret the results.

# The Traditional Approach: Tracer Studies Conducted by Consultants

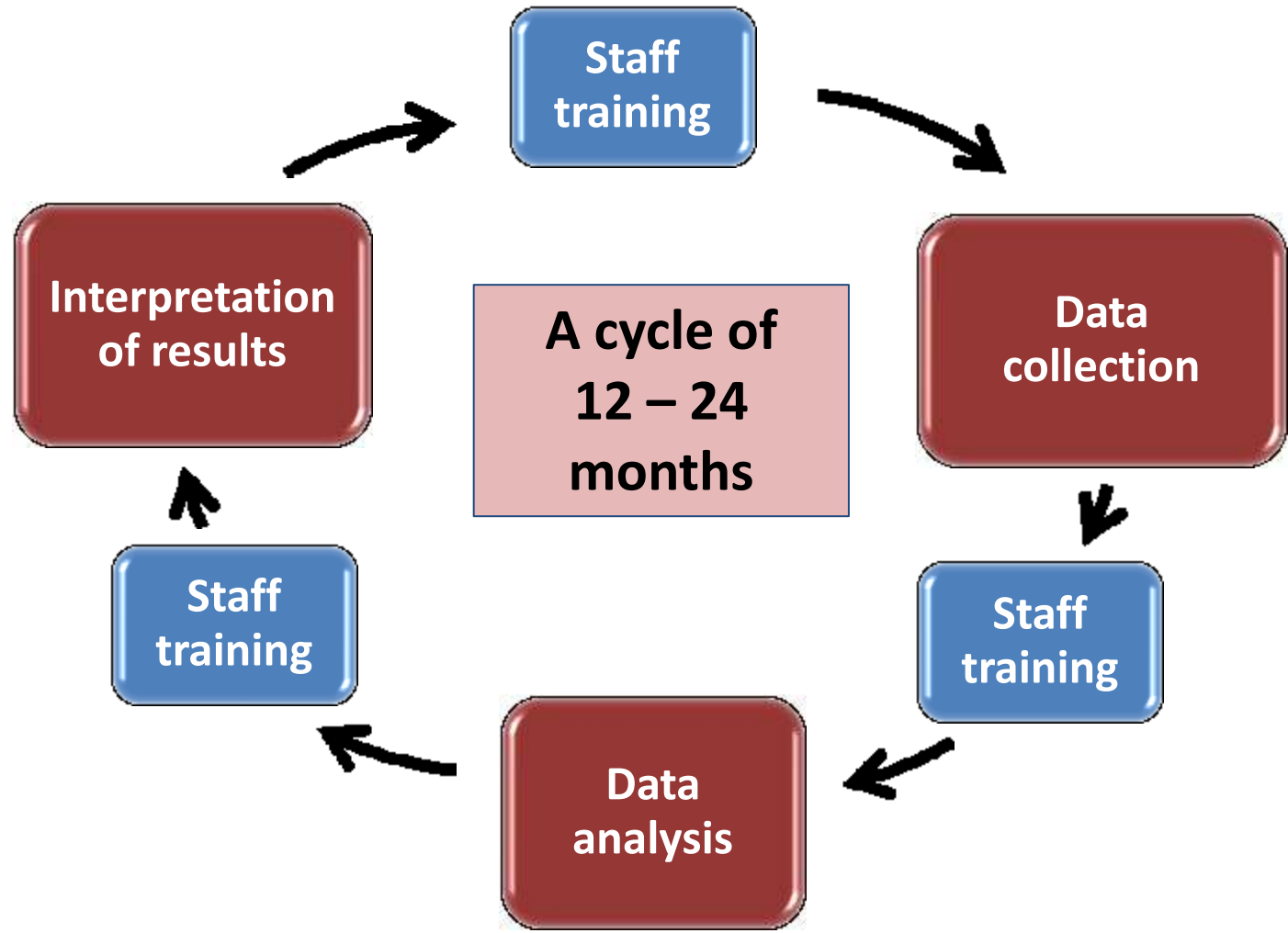
## ● Advantages

- High professional expertise in conducting surveys
- High accountability – easy going for donor agencies

## ● Disadvantages

- Low quality of results: Consultants do not have the necessary context knowledge for a meaningful interpretation of the results
- The specific needs of individual institutions and study programmes/training courses are ignored
- Low sustainability: No capacity building at the VET/HE institution
- Relative high costs

# The New Approach: Capacity Building for a Learning Organisation



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# What are (Graduate) Tracer Studies?

## ● Similar terms

- Graduate survey
- Tracer study
- Alumni research
- Follow-up study (graduates)
- Graduate career tracking

## ● Target population

- Graduates of an institution of education (regardless the kind of degree)
- Surveyed after graduation

# Objectives of Institutional Tracer Studies

1. Development of the VET/HE institution (e.g. curriculum)

2. To evaluate the relevance of VET/HE (assessment)

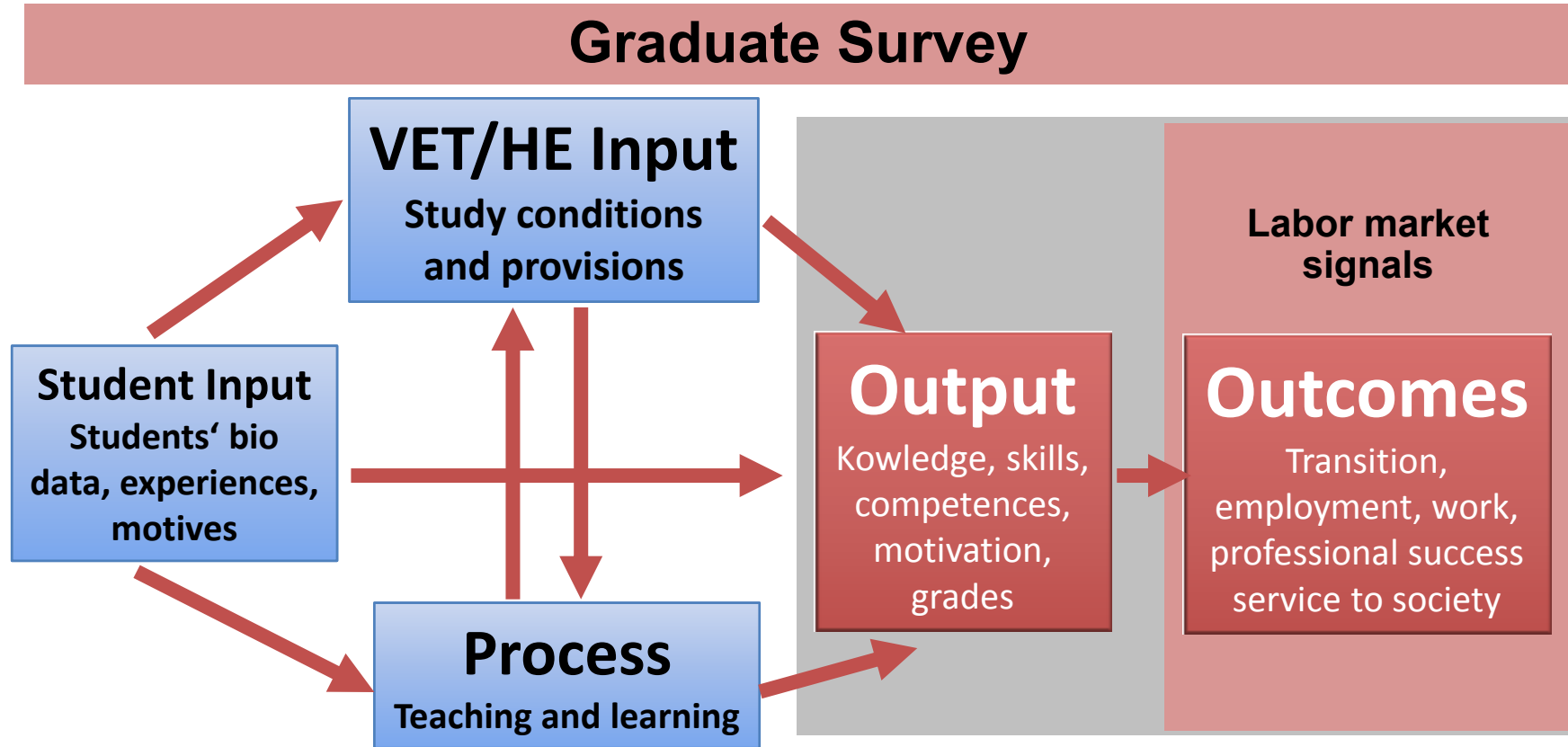
Data from graduates

3. To contribute to the accreditation process (accountability)

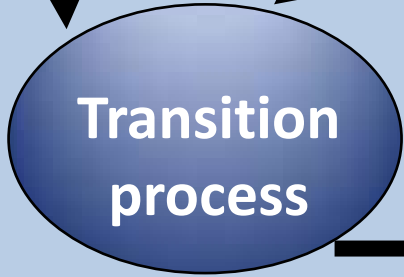
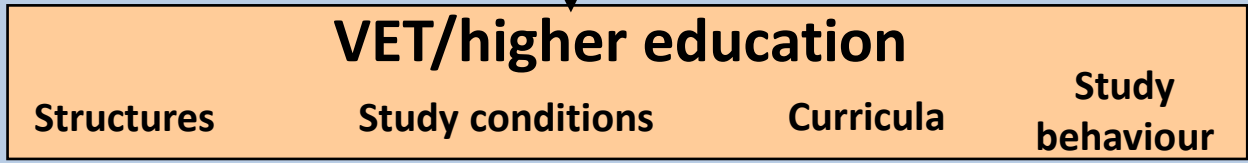
4. To inform students, parents, lecturers and administrators



# Conceptual Framework for Graduate Surveys



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



**Knowledge society**

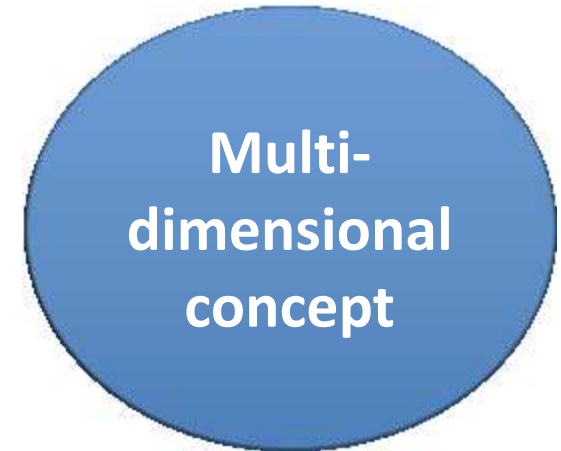
**Globalisation, internationalisation**

**Life course**

# Indicators of Professional Success – Labor Market Signals – Employment Outcomes

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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



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

# Scope of Graduate Tracer Studies and Target Population

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**A. Country**  
(national tracer study)

Country A

**B. Institution**

Institution A

Institution B

**C. Subject**

Subject A

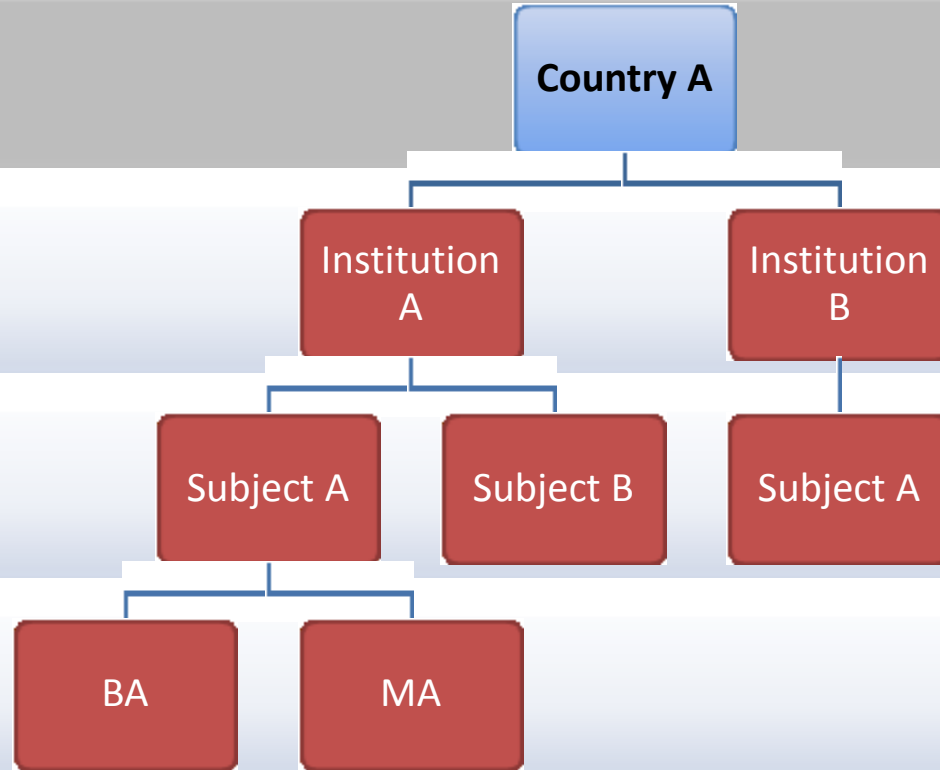
Subject B

Subject A

**D. Degree level**

BA

MA



# Complex Approach of Institutional Questionnaires

Every VET/HE institution Has an Own Questionnaire (Romania, Germany)

## Structure of the questionnaire

### 1. Core questions

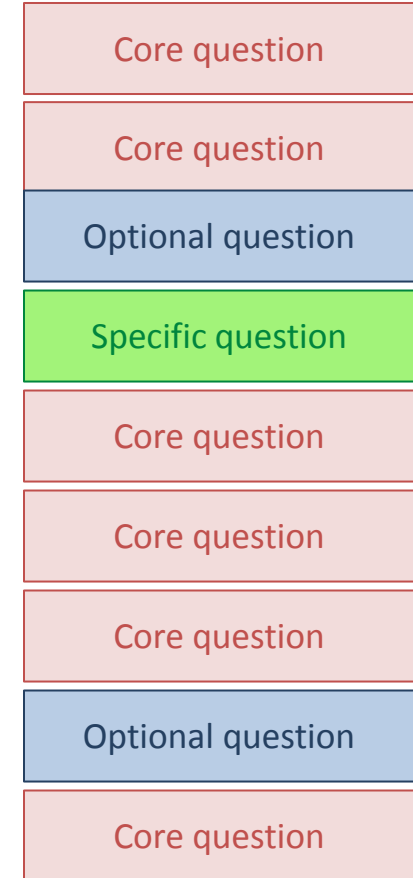
(have to be fixed for the whole project, contained in all versions of the questionnaire, warranted / guarantees comparability for institutions and national monitoring)

### 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 comparison possible, except some institutions using the same specific / individual questions, the layout have to fit the other quest. )



# 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 VET/HE institution* (number of contacts, quality of addresses)
- The longer the questionnaire, the more research questions can be answered → more relevant

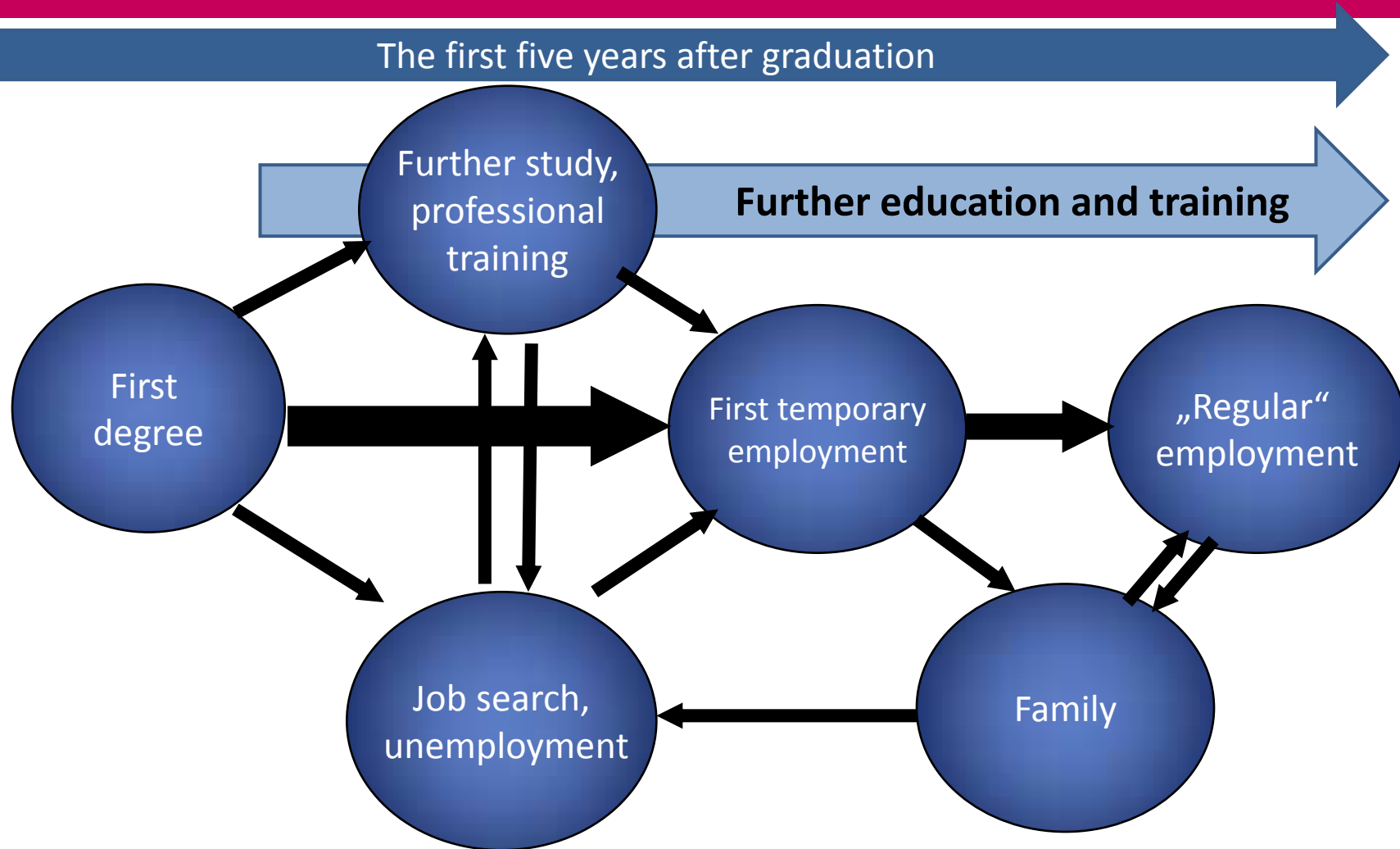
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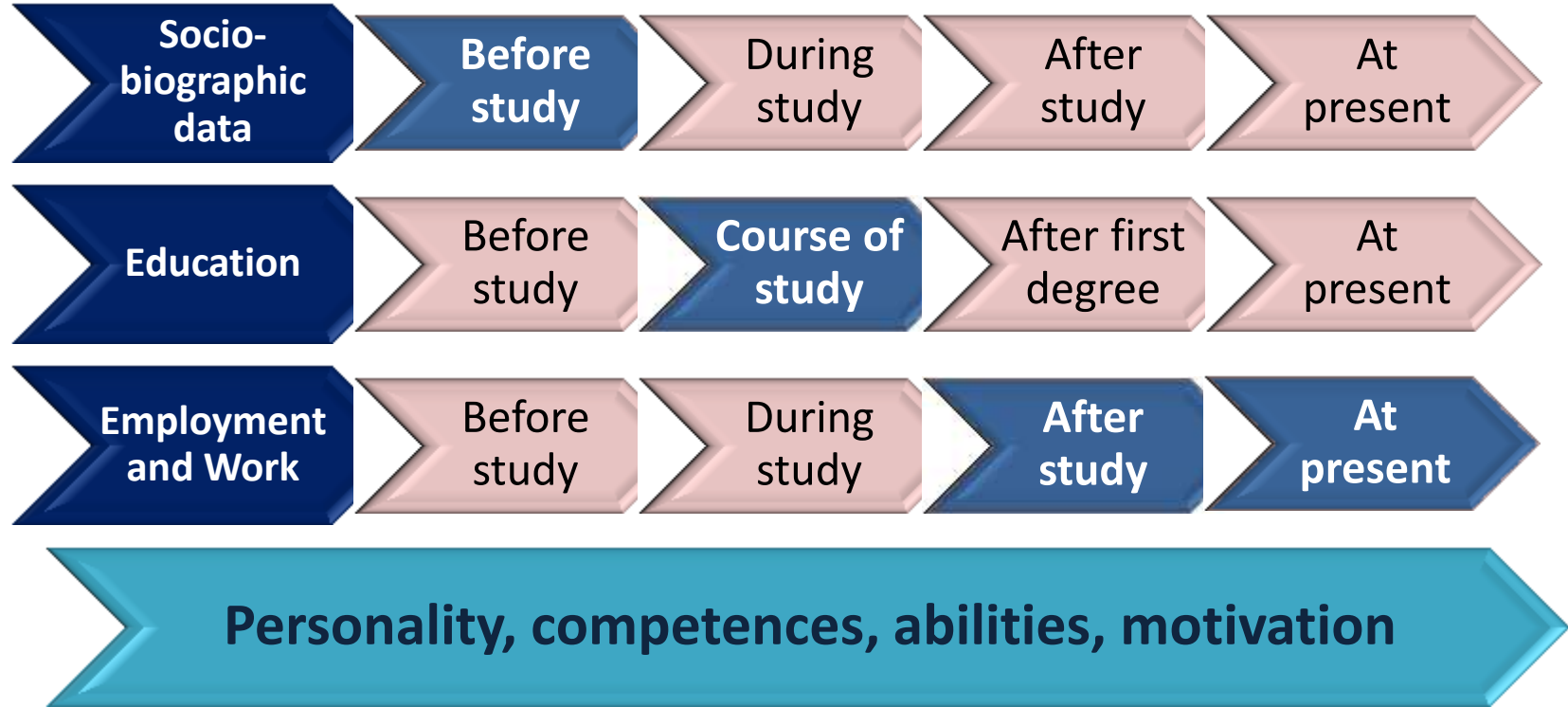




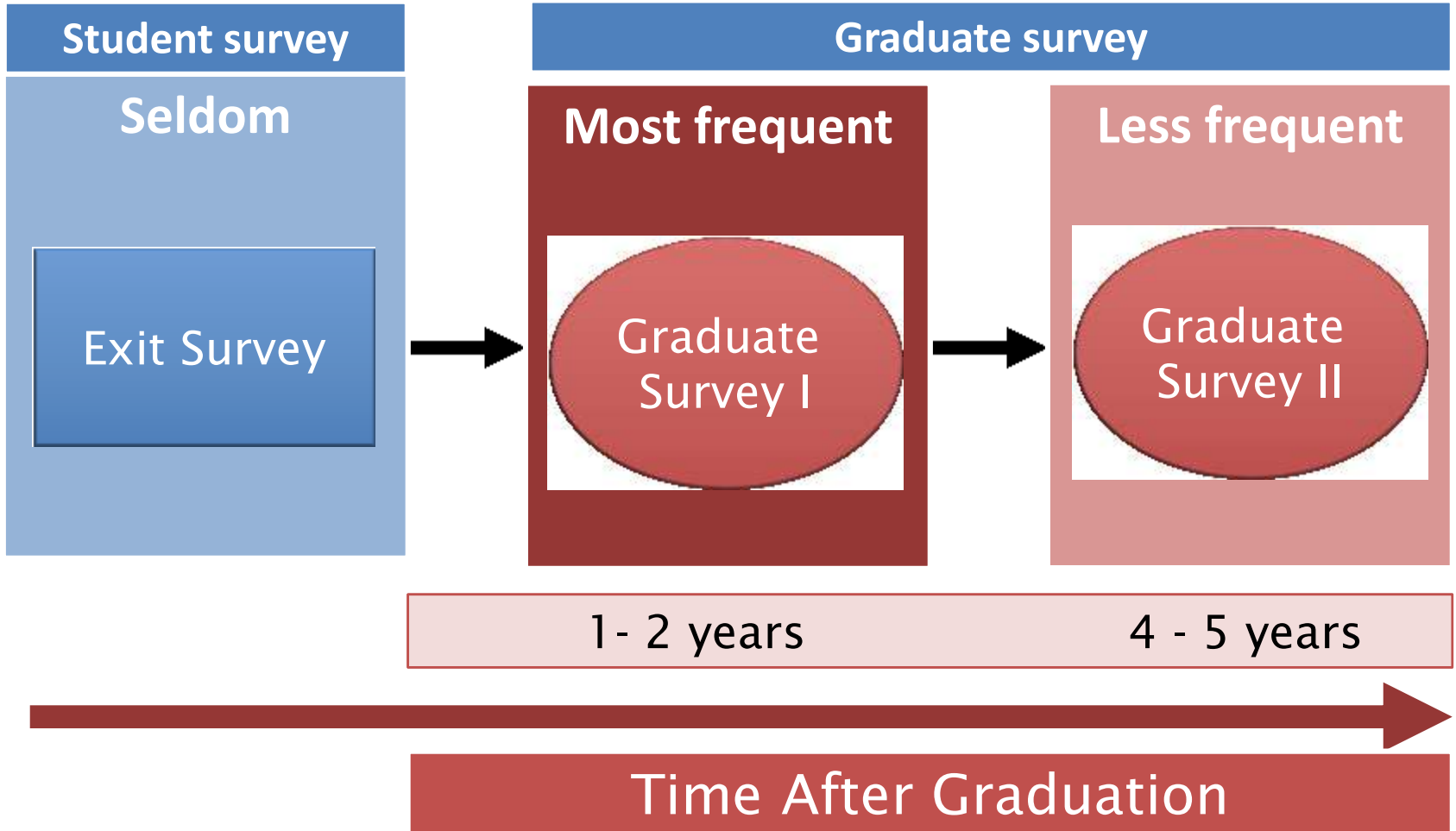
# The Complexity of Transition



# Time Relation of Key Questionnaire Topics



# Optimal Design of Graduate Surveys



- 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
- Heterogeneity 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 for improvements in study program**

Time After Graduation

# Survey at Three Time Points (Panel)

Panel design: only 100 variables in one survey

## Student survey

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

## Graduate survey 1

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

## Graduate survey 2

- 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

# Advantages of a Panel Design with three Waves: at the time of Graduation, 1.5 and 4.5 years 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
- Addresses for further contacts can be collected at the end of study = preparation of the first graduate survey  
→ cost reduction + → better quality

# Challenges of Panel Studies

- Panel mortality → possible selection bias and only a few cases could be left
- Long term commitment of the VET/HE institution – planning of human resources for about 6 – 8 years
- Higher requirements of professional competences of the researchers → much more demanding (database management and statistical analysis)



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# The Need to Achieve a High Quality of the Data: Can we trust the data?

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- **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)?

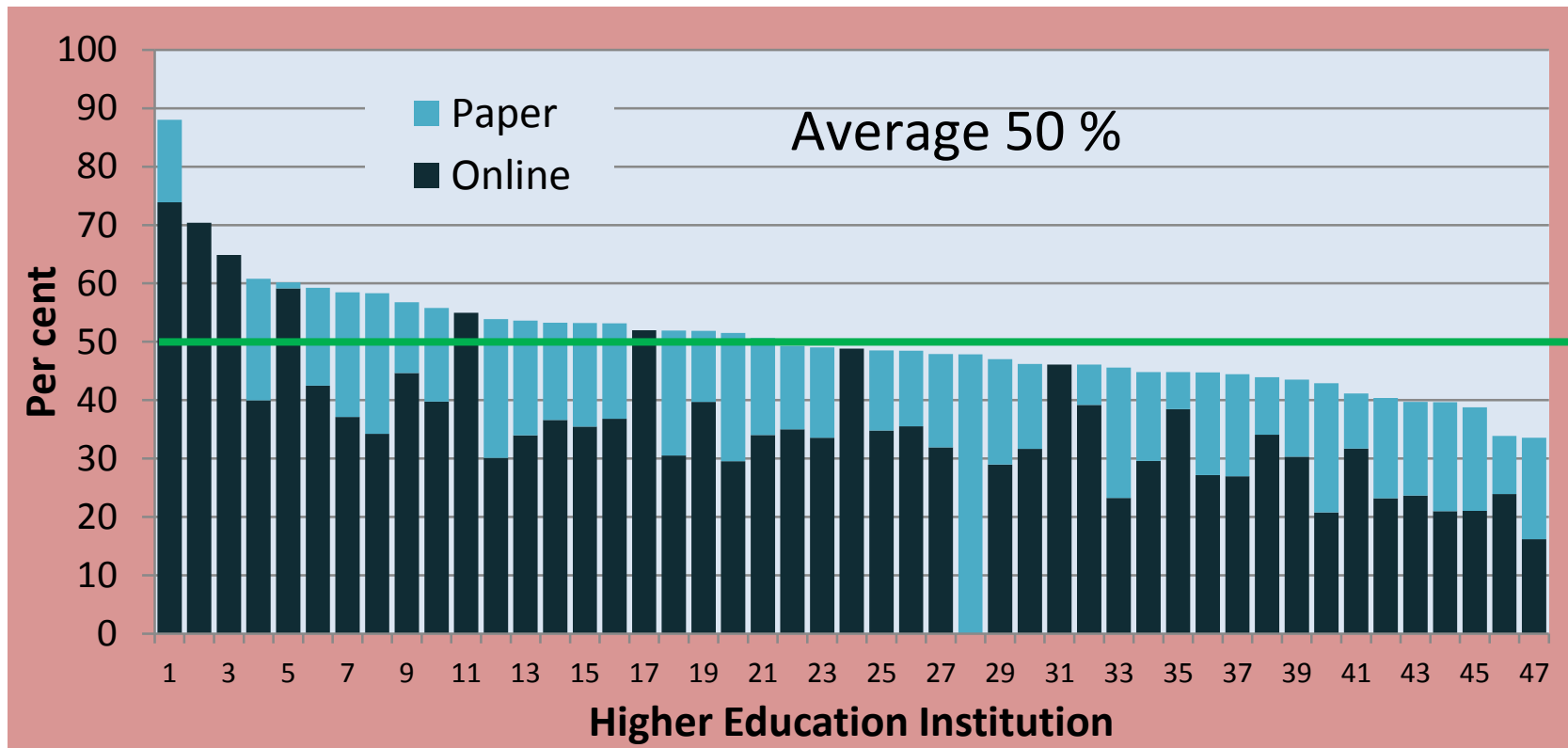
# Key Problems of Data Quality

- **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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Harald Schomburg: Key Methodological Issues of Tracer Studies – Challenges for a Guide on Tracer Studies



Source: INCHER, KOAB Absolventenbefragung 2009 Cohort 2007

# The Magic of Response Rates

- What are responses?
- The lurker
- Drop-outs
- 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?

# Requirements for a Methods Report

- 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

- Interpretation and data analysis – group comparison, relationships
- External (context) information
  - Educational statistics
  - Labour market statistics
  - Labour force survey results
- Causal effects (correlations of independent variables?)
- Selection bias?

- The Guide on Tracer Studies
- Sample questionnaire
- Free software for online surveys: *QTAFI online*
  - *Easy to use, data export*
  - *Frequencies and crosstabs*
  - *Documentation*
- Free software for automatic data capture with a scanner: *QTAFI scanner*
- *International Network of Tracer Study Researchers (INGRADNET)*



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- *High response rates* are possible to achieve in almost all countries
- *High quality of the data* 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 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)

# Open Questions

- 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 to build a system of Tracer Studies which is flexible and relevant for the institutions and for researchers (and the Ministry of Education) at the same time?
- How to exchange systematically the experiences to improve the future Tracer Studies (building a learning culture)?

- The implementation of Institutional Tracer Studies is a long term perspective (5 to 10 years)
- Network approach of institutions (cooperation)
- A central support unit is needed
  - Education research center (e.g. at university)
  - National monitor – national data base
  - Training, workshops and conferences
  - Publications, international contacts
- Support of international cooperation: training, workshops and conferences, publications



**Tracer Study Researchers from Africa, America, Asia and Europe**

**International Conference „Experiences with Link and Match in Higher Education: Results of Tracer Studies Worldwide „ (Bali, 2012)**

Thank you very much for your attention

