Philipps Universität Marburg

Guidelines for Scientific Papers

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Guidelines for the preparation of final and scientific papers

Theoretical principals of scientific work

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Interviews with experts as a method of empirical, qualitative research

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Personal preparation and advice regarding research

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Principals for the preparation of scientific papers

The TIM Research Group's understanding of research

- **A basic element of university education:**
  Guidance in scientific working.

- ***Research* has several meanings:**
  - A systematic search for the truth (idiographic versus nomothetic).
  - Realization-driven research.
  - Problem-driven research.
  - Solution orientated research (fluent transition to consulting).

- **Research is not automatically: non-applicational or not project relevant.**

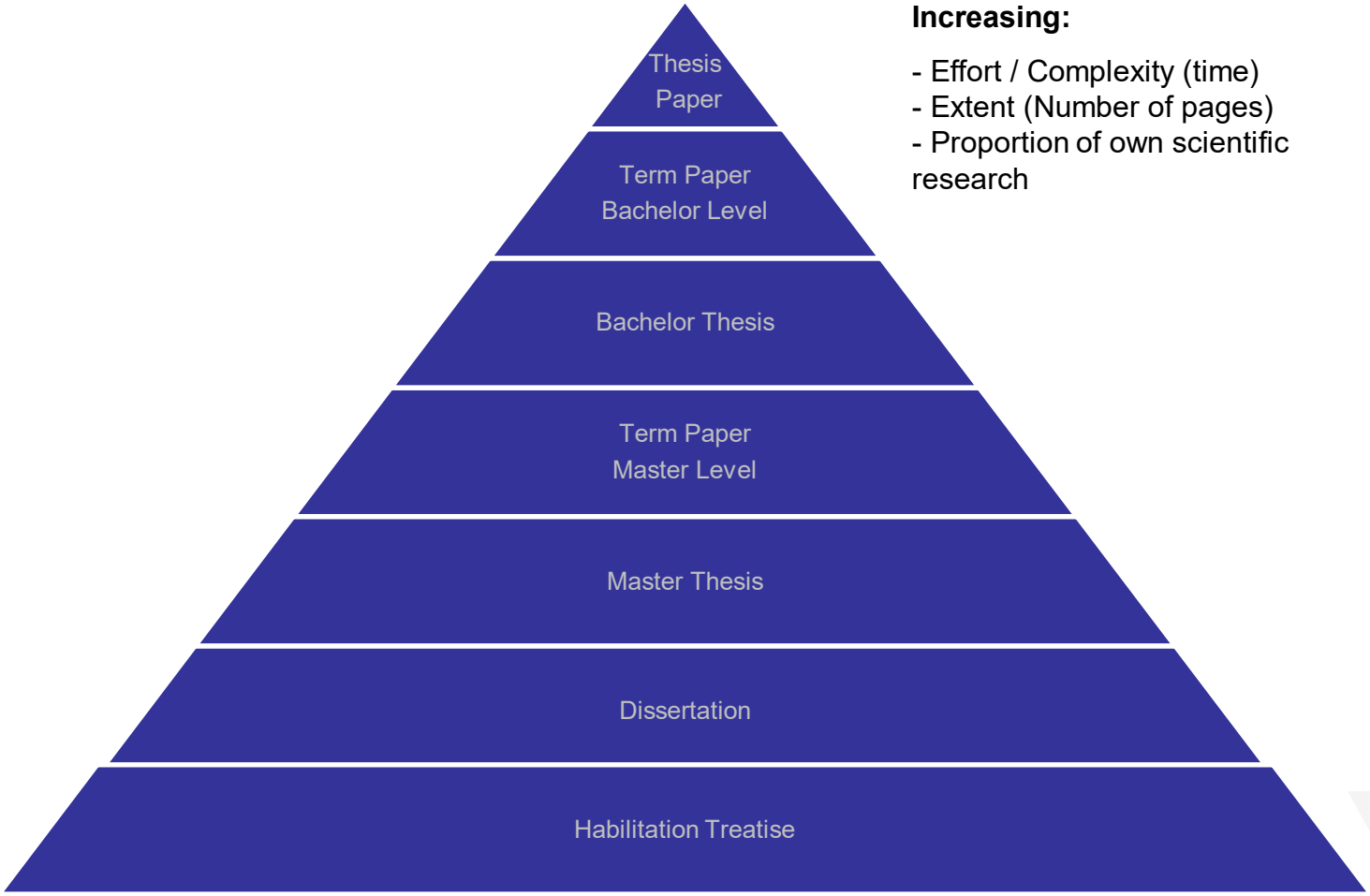
- **Our philosophy is: *"Research-driven problem solving and problem orientated research".***

- ***The long-term goal is naturally the improvement of knowledge.***

Awareness of the quality of the research is of crucial importance

- **How can we measure the quality of scientific work?**
- **Differentiate into: High-brow, medium-brow, and low-brow research**
  - *High-brow*: Detection of a radically new relation, that is acknowledged as a new scientific paradigm.
  - *Medium-brow:* Development of a useful solution that was not available before.
  - *Low-brow*: Reproduction of already existent knowledge.
- **Criteria of the quality of Medium-Brow research:**
  - Effective and new problem solution (“B achieved”);
  - Pointing out a surprising new result (B’);
  - Demonstrating a new effective approach to solve a problem (A $\rightarrow$ B);
  - Documentation/traceability of the approach used to get from A to B.

Types of scientific papers at the TIM Research Group



Increasing:

- Effort / Complexity (time)
- Extent (Number of pages)
- Proportion of own scientific research

The basics of scientific work

- A term or final paper written at the TIM Research Group has to meet the requirements of an independent, scientific effort.
  - The reproduction of existing literature, data, studies, etc. alone, without problem-oriented judgment is insufficient.
  - Scientific work is based on theories, axioms, and/or previous knowledge in research.
- Scientific approaches:
  - Theoretical studies
  - Empirical studies
  - Practical problem solving
  - Assessment of existing solutions
- Business sciences generally use one or several of the following methods:
  - Induction and/or deduction
  - Quantitative and/or qualitative methods
  - Primary and/or secondary methods

Induction vs. Deduction

- **Induction (bottom-up-method)**

Induction refers to the development of a generally accepted theory through the deduction of a hypothesis from several pieces of information/knowledge.

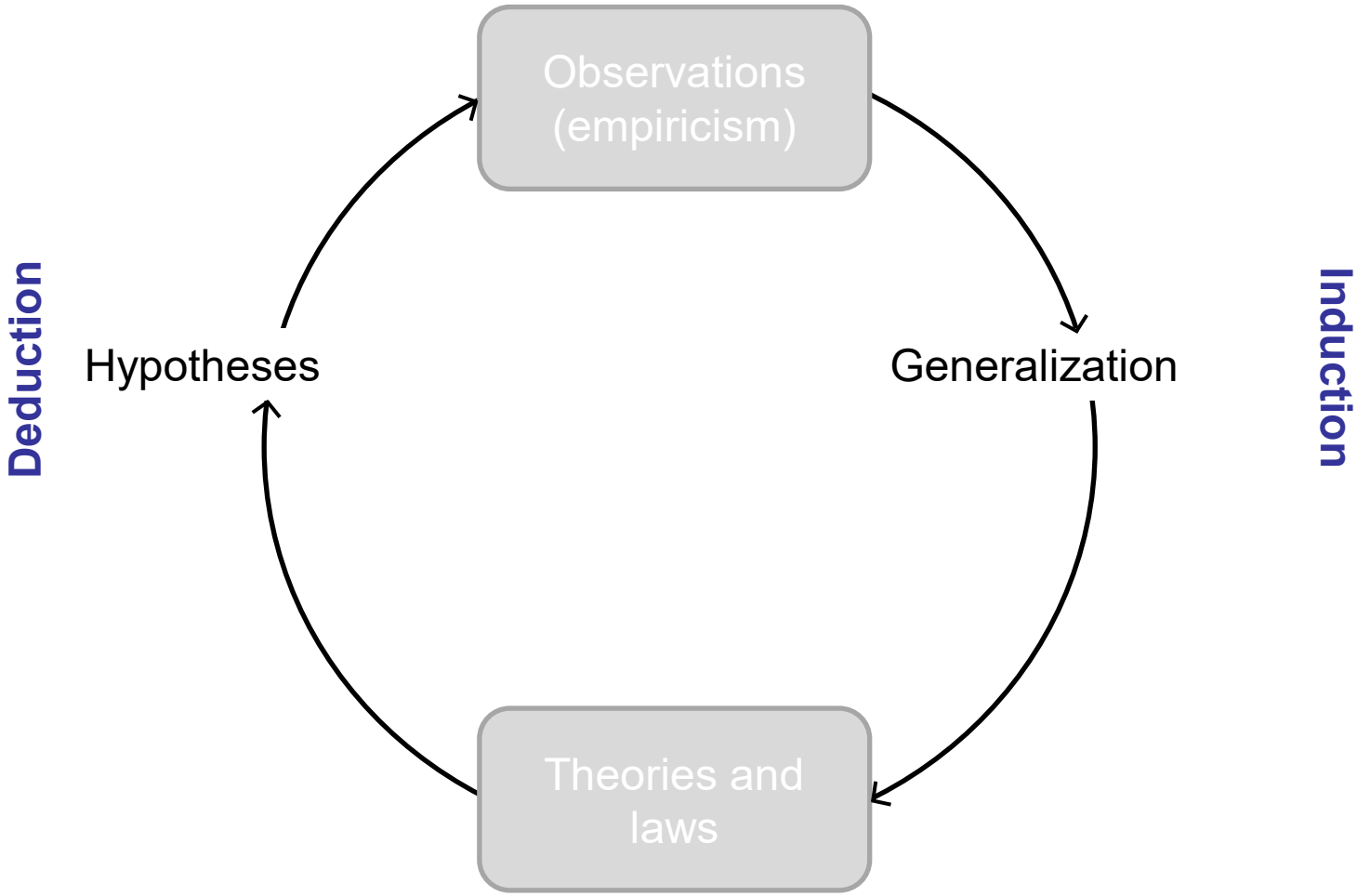
Example:
1. Mercury, Venus, Earth, Mars, Jupiter, and Saturn have an observable axial rotation.
2. These planets are the old planets.
→ *Theory: Every old planet has an axial rotation*

- **Deduction (top-down-method)**

Deduction infers hypotheses (predictions/explanations) from (common) laws and theories.

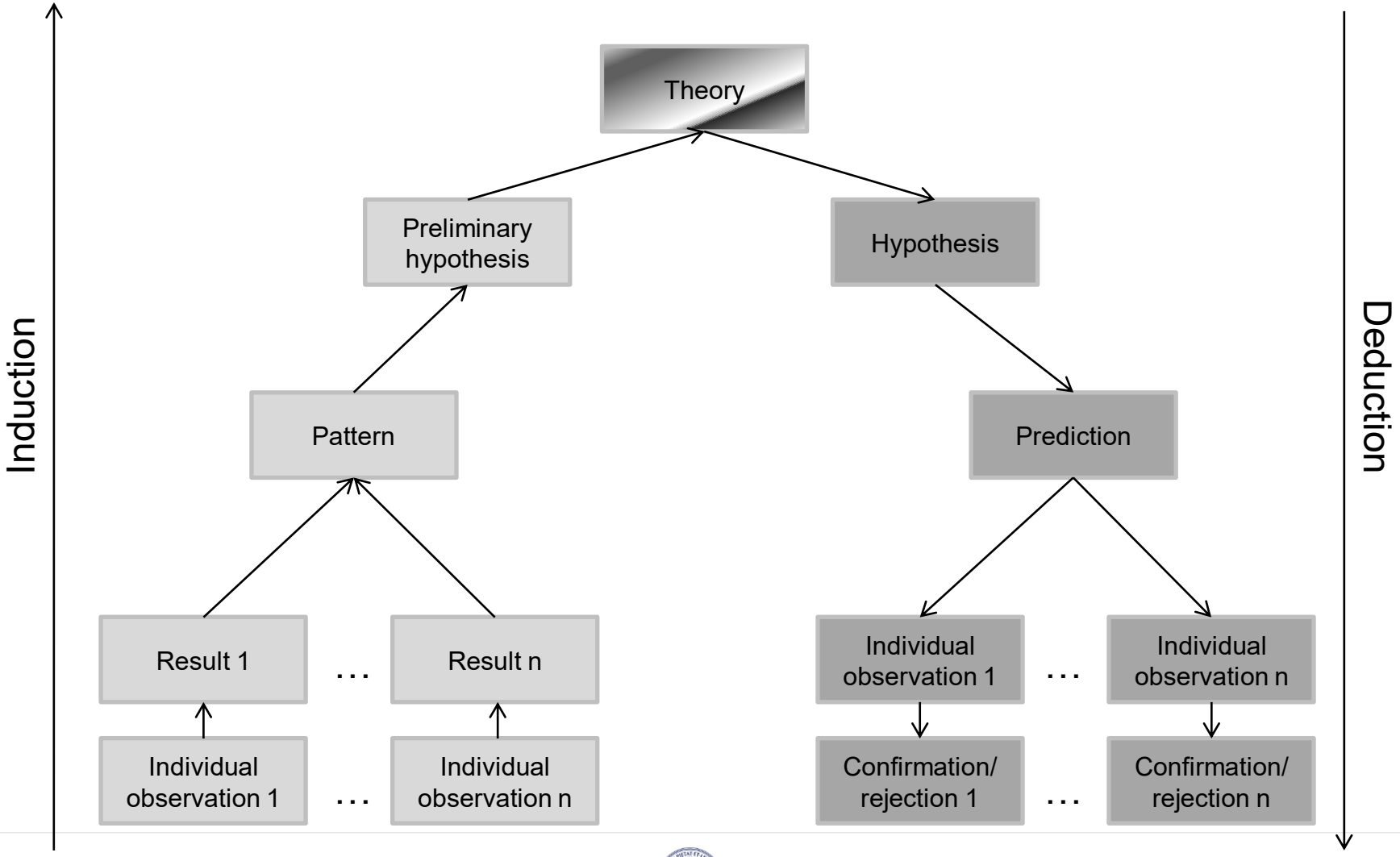
Example:
1. Water freezes at 0°C.
2. This cup is filled with water.
→ *Hypothesis: If the temperature drops below 0°C, the water in the cup will freeze.*

Induction vs. Deduction



1. Observation → 2. Induction → 3. Theories → 4. Deduction → 5. Predictions/Explanations

Induction vs. Deduction



Source: Based on Barzelt et al. (2008).

Research questions of a scientific paper

- The core of every scientific paper is the research question that serves as the starting point for further hypotheses.
- Research questions and hypotheses are theoretical expressions of reality, which have to be verified.
- The utilization of objective, scientific methods in the process of verification of hypotheses is essential.
- For an empirical verification of the hypotheses the use of quantitative and/or qualitative methods is necessary.

Quantitative vs. Qualitative research methods

- **Quantitative research methods**

  Originate from the natural sciences. Collecting and analyzing numerical data (numbers, e.g., patent data, key financial figures) by means of statistical methods (e.g., regression analysis, time series analysis). The used data is characterized by a high degree of objectivity.

- **Qualitative research methods**

  Originally developed in the social science. They include data which cannot be expressed numerical (e.g., observations, documents, expert interviews). The analysis is dominated by subjectivity rather than objectivity. General statements can't usually be made through the analysis of qualitative data. The scope of the results is limited to the analyzed data set. The application of qualitative methods is well-suited if the level of knowledge is still limited and the explorative detection of new patterns is necessary.

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Approach for expert interviews

Essential: Preparation and planning

- **Preparation on the subject**
  - Theory (relevant content, specific application aspects, solution approaches)
  - Sector knowledge (competitors, customers, suppliers, state/government, technologies, trends…)
  - Previous knowledge about the company (target markets, company resources, technologies, relevant departments, point of contact)
  - Non-disclosure agreement

- **Time scheduling**
  - Preparation on the subject
  - Milestone planning (Content, contact initiation, interview appointments, preparation and follow-up, evaluation, discussion, final editing)
  - “Special periods” that need to be taken into consideration, where an appointment is difficult (e.g., public holidays, summer months, etc.)

Initiating contact

- **Preparation**
  - Cover letter
  - Introduction of group members
  - Planned project
  - Behavior (friendliness!)
- **First phone call**
  - Preparation on the subject (theory)
  - Behavior (friendliness!)
  - Scheduling an appointment
- **Coordination of the content and appointment**
  - Theory (relevant content, specific application aspects, solution approaches)
  - Elaboration of company specific problems
  - Target agreement
  - Date and topic of the interview
  - Info sheet

Guideline preparation

- **General aspects**
  - Maximum two hours per interview
  - Interview partners with different perspectives and from different departments
- **Design**
  - Semi-structured interviews
  - Not to many different topics in one interviews
  - No closed questions
- **Central questions**
  - Defining open central questions for each topic
  - “Less is more!”, questions should give impetus for an open conversation about the topic.

Documentation of the interview

- **Format**
  - Identical structure of all documentation
- **Content**
  - Result protocol instead of history/process
  - Incorporation of all the relevant information
  - Contact details of the interview partners (incl. e-mail address), date, and duration of the interview
  - Company profile
  - Summary of the answers to the questions for each topic
  - Integrity and traceability
  - Approval by the interview partner
  - Prompt documentation of the interview
  - Foundation for the following evaluation!

Evaluation of the interview

- **Source material**
  - Written protocols of the interviews
  - No reports from memory!

- **Approach**
  - Systematic description
  - Preparation of an analysis grid
  - Value-free attitude
  - Individual case analysis
  - As well as a comparative analysis

Assessment and recommendations

- **In general**
  - Objective stance (especially if there is a strong personal connection)
  - Focus

- **Assessment**
  - No statements without supporting evidence
  - Think first, then write
  - Compare to previous studies, interview evaluations, case study analyses

- **Recommendations**
  - Compare theory and practice (relevant content, specific application aspects, solution approaches)
  - Definition of key success (or failure) factors
  - Working out successful procedures, processes, strategies…
  - Where are the problems relating to theoretical/practical approaches?
  - Future developments

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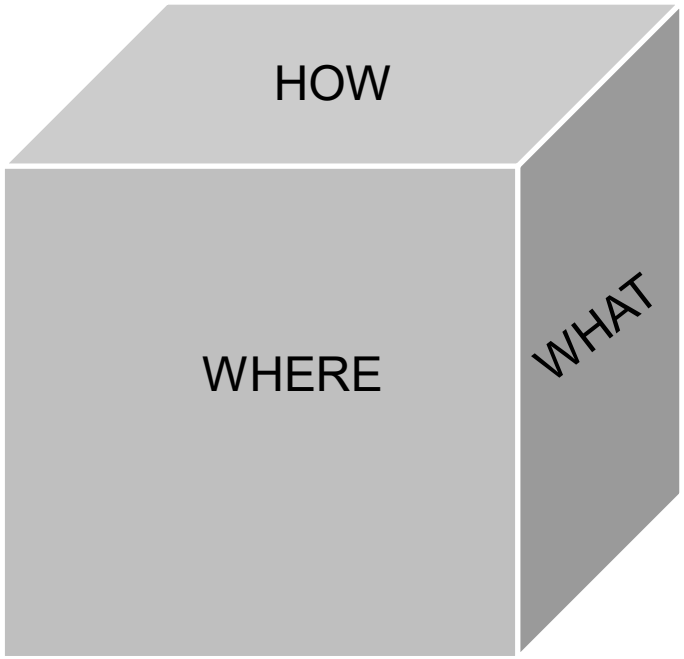
Milestone planning

- A time and milestone plan gives the “project” thesis clarity and structure and reduces complexity.

- The time needed for each step varies depending on the issue at hand, the current state of research, and the scope of one’s own empirical achievement.

- As a rough guide one can take figures based on experience:
  Time management:
  - Literature research and analysis (ca. 30%)
  - Outline and notes (ca. 10%)
  - Elicitation of own empirical data, writing the paper (ca. 50%)
  - Correction and layout (ca. 10%)

Literature research dimensions



Literatur research: Where

- Libraries (on-site, inter-library loan)
- Openly available databases on the internet (e.g., https://www.sciencedirect.com/, https://www.ssrn.com/)
- Databases within the university network
- …

Business Source Premier	LexisNexis und WISO	Hoppenstedt Firmendatenbank	ZEW	Statistisches Bundesamt und BMBF
Here you can search for academic publications such as papers (complete texts, abstracts)	Here you will find complete articles from over a thousand (international) newspapers and magazines. WISO additionally encompasses selected daily and weekly press articles that cover business and social scientific topics.	In the Hoppenstedt company database you will find addresses of large and medium-sized companies, banks, etc. In addition, there is a database of products, associations and societies.	Here you will find papers with topics relating to economic science, as well as current trend and innovation reports for different sectors.	On the pages of the federal office for statistics you will find current statistics relating to the general economy. The BMBF provides, for example, studies about the expected future development of technologies / knowledge intensive services.
https://rzblx10.uni-regensburg.de/dbinfo/dbliste.php?bib_id=ubma&colors=63&ocolors=40&lett=f&gebiete=16			https://www.zew.de/publikationen/zew-discussion-papers	https://destatis.de/jetspeed/portal/cms/ https://bmbf.de/

Literature research: Where

- ***Research tasks***
  Via the link: https://rzblx10.uni-regensburg.de/dbinfo/dbliste.php?bib_id=ubma&colors=63&ocolors=40&lett=f&gebiete=16 you will get to the economic sciences databases that can be accessed from the University of Marburg. The following TOP 10 databases are the most used:

TOP-Databases
Business Source Premier (via EBSCO Host)
EconLit
International Bibliography of the Social Sciences
JSTOR
LexisNexis / Wirtschaft
New Palgrave Dictionary of Economics Online, The
SourceOECD
StatistikNetz.de
Statistisches Jahrbuch für die Bundesrepublik Deutschland und für das Ausland
WISO

Additional databases

Economic information:

- IMF: https://imf.org/
- World Bank: https://worldbank.org/
- UN: https://un.org/
- UNCTAD: https://unctad.org/
- OECD: https://oecd.org/
- WTO: https://wto.org/
- Governmental sites (GTAI): https://gtai.de/
- Especially statistical agencies: https://destatis.de/; https://ec.europa.eu/eurostat
- Chambers of commerce (DIHK, AHK): https://dihk.de/; https://ahk.de/
- Banks and financial institutes
- International consultancies

Data on MNCs:

- Fortune 500: https://edition.cnn.com/search?q=Fortune%20500&size=10&category=business
- Dun & Bradstreet: https://dnb.com/
- Reuters (UK): https://reuters.com/
- The Economist (UK): https://economist.com/
- DIALOG (USA): https://dialog.com/
- GENIOS (D): https://genios.de
- Patent databases: https://epo.org/; https://www.dpma.de/; https://uspto.gov/; https://depatisnet.dpma.de/; https://lexisnexisip.com/products/totalpatent-one/ (Zugriff via Nexis Uni über das DBIS der Philipps-Universität Marburg)

Literatur research: How

Literature research is time consuming!

- Start early with literature research and finish it on time
- Target-oriented literature research and processing
  - Systematic search, keyword search, snowball system, hybrid forms
  - Compilation of all sources, including all important specifications in a database (e.g., in Excel, EndNote, Word)
- Engagement with a variety of theories/concepts/approaches
- Structuring of a topic (content wise)
- Evaluation of literature sources concerning their relevance for one's own topic or the allocated topic (or part thereof) that one is working on.

Literature research: What

Preparation for the master/bachelor thesis

- Find / narrow down a topic
- Gather and summarize the current state of research
- Compile all relevant opinions on one topic
- Consolidate information
- Illustrate different solution approaches
- Recognize practical relevance and the need for academic research
- HOWEVER: Don’t reinvent the wheel
- Collect ideas and continually develop these (or discard them)

Literature research: What

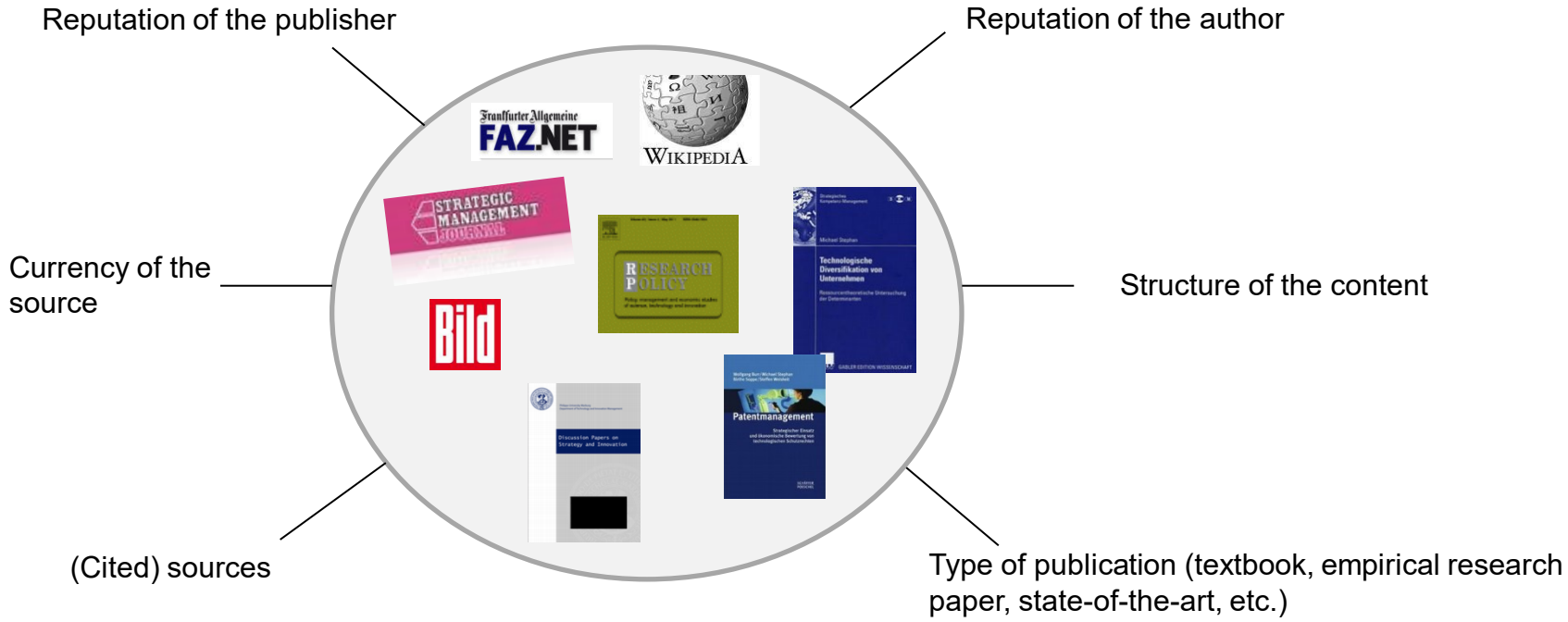
But:

- Don‘t illustrate all aspects of the whole subject area – that would be a textbook! Selection criteria for relevant literature / concepts is the respective question at hand.

- The reader of the work is an expert not a layman. Some general knowledge of the problem can be assumed.
  - All terms shouldn’t be defined, only those that are central for the subject being reviewed.
  - The description of the problem should focus on the fundamental issues of the topic.

Literature research: What

Not every potential information source is suitable as a source for academic work. The quality and citability of a source should always be questioned.



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Principals

- Academic work is done following (formal) guidelines.
- The correctness of citations, the exterior form, the existence of a content-, figure-, table-, and literature-index, etc. are incorporated in the overall evaluation of the work.
- The up-to-date guidelines of the TIM chair are available to download via the following link:

  https://uni-marburg.de/de/fb02/professuren/bwl/bwl01/studium/schriftliche-arbeiten

Literature suggestions for the writing of academic papers

- Atteslander, P. (2010): Methoden der empirischen Sozialforschung, 13. Auflage, Berlin, 2010.
- Balzert, C. et al. (2008): Wissenschaftliches Arbeiten – Wissenschaft, Quellen, Artefakte, Organisation, Präsentation, 1. Auflage, Herdecke, 2008.
- Bänsch, A. (2003): Wissenschaftliches Arbeiten - Seminar- und Diplomarbeiten. 8. Auflage, München, 2003.
- Brauner, D. H./Vollmer, H.-U. (2008): Erfolgreiches wissenschaftliches Arbeiten – Seminararbeit-Diplomarbeit-Doktorarbeit, 3. Auflage, Sternenfels, 2008.
- Bünting, K.-D./Bitterlich, A./Pospiech, U. (2006): Schreiben im Studium – mit Erfolg – Ein Leitfaden. 5. Auflage, Berlin.
- Theisen, M. R. (2021): Wissenschaftliches Arbeiten – Erfolgreich bei Bachelor- und Masterarbeit, 18. Auflage, München, 2021.
- Yin, R. K. (2018): Case Study Research and Applications – Design and Methods, 6. Auflage, Los Angeles, 2018.