Chair of Information Systems -
Innovation & Value Creation

Friedrich-Alexander-Universität
Fachbereich Wirtschafts- und
Sozialwissenschaften | WiSo

How to write student papers 101
Theses & seminar papers

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Handout - Guide

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Contents

1 Introduction

1.1 What this guide is about

This guide explores various aspects of writing seminar papers, offering insights to help you navigate the process. Some topics, such as personal writing style and preferences, may not have definitive answers. For these, the guide provides helpful tips and frameworks to support your individual approach. Other sections focus on essential rules and guidelines for scientific writing, which are critical to producing high-quality academic work. You are expected to adhere to these standards.

While this guide does not aim to cover every detail of writing seminar papers or theses, it serves as a starting point, offering practical direction and references to additional resources.

It is designed for students engaged in scientific writing, including seminar papers, theses, and other academic texts you may encounter during your studies and beyond. By following the recommendations here, you will be better equipped to develop well-structured, rigorous, and impactful academic work.

1.2 The basis of academic research

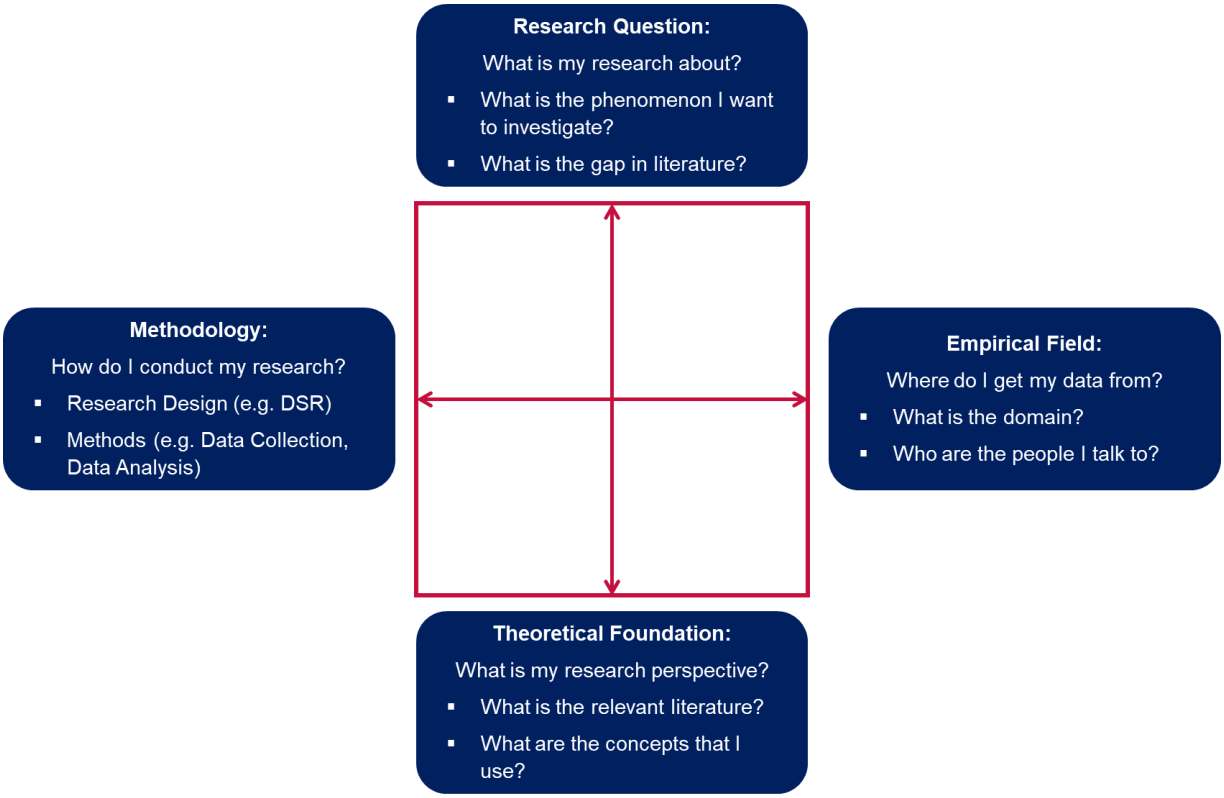
What is science

In the context of management and information systems research, science is the systematic pursuit of knowledge aimed at understanding, explaining, and predicting phenomena related to organizations, technology, and their interaction. It involves rigorous methodologies, both qualitative and quantitative, to develop theories, test hypotheses, and generate insights that inform decision-making, innovation, and practical applications in real-world settings.

Academia refers to the community and institutions dedicated to the pursuit, creation, and dissemination of knowledge through research, teaching, and scholarship. It encompasses universities, research centers, and academic professionals who engage in critical inquiry to advance understanding across disciplines, foster intellectual growth, and contribute to societal progress.

There are some fundamental types of research that are relevant for the field of Information Systems (IS). This includes the philosophical perspectives a research project takes and the methodological approach used to investigate a phenomenon. A discussion of these topics is available at the Association of Information Systems (AIS). It provides an overview of the epistemological perspectives in IS research and a variety of research methodologies that are popular in IS.

At our chair we use a framework to provide a structure to academic research, like writing a paper. This is illustrated below:



- **Research Question**: The starting point that defines the focus and purpose of the study, guiding all subsequent research activities.
- **Theoretical Foundation**: The body of existing theories and concepts that provide context, structure, and depth to the research, grounding it in scholarly knowledge.
- **Methodology**: The systematic approach and methods used to collect, analyze, and interpret data, ensuring rigor and reliability.
- **Empirical Field**: The real-world context or domain where the research is conducted, serving as the source of data and application for findings.

Interrelation of the Pillars

These pillars are deeply interconnected, creating a cohesive and dynamic research process. The **research question** drives the selection of the **theoretical foundation**, ensuring that the study builds on and contributes to existing knowledge. The **methodology** is shaped by both the research question and the theoretical foundation, ensuring that the chosen methods are appropriate for addressing the problem and aligning with theoretical assumptions. Finally, the **empirical field** provides the context in which the methodology is applied, validating the theoretical insights and refining the research question through real-world evidence.

This interdependence ensures that the research remains focused, relevant, and methodologically sound, producing meaningful contributions to both theory and practice.

Data and methods can be quantitative or qualitative. The table below illustrates the four categories that you research can fall into.

		Data, Dataset(s), Sample(s)	
		quantitative	qualitative
Method(s), Analysis, Evaluation	quantitative	Q1	Q3
	qualitative	Q2	Q4

Below are some examples for the four possible combinations:

Combination	**Method / Analysis / Evaluation**	**Example**
Q1: Quantitative Data + Quantitative Methods	Statistical Analysis	A survey collecting numerical responses on customer satisfaction (e.g., 1–5 Likert scale) analyzed using regression analysis to identify factors influencing satisfaction.
Q2: Quantitative Data + Qualitative Methods	Thematic Interpretation of Numerical Trends	A dataset of student test scores analyzed using qualitative coding to explore patterns in performance differences based on teacher feedback and learning styles.
Q3: Qualitative Data + Quantitative Methods	Content Analysis with Statistical Measures	A collection of open-ended interview responses analyzed using word frequency counts and sentiment analysis to quantify common themes in employee job satisfaction.
Q4: Qualitative Data + Qualitative Methods	Thematic Analysis	In-depth interviews with entrepreneurs analyzed through thematic coding to understand motivations and challenges in startup culture.

2 Literature as the source of theoretical foundation

2.1 Classes of Literature

There are a variety of classes to sort the vast literature that is available to read for academics. A simple classification is suggested below:

Books

- **Factual Books** (e.g. Management information systems: managing the digital firm, by Laudon, Kenneth C. (2020))
- **Books of Essays/Handbooks** (e.g. Extending the Boundaries of Design Science Theory and Practice, from the 14th International Conference on Design Science Research in Information Systems and Technology (2019))
- **Books for a General Audience** (e.g. The Innovators Dilemma, by Clayton Christensen (2011))
- **Theses** (e.g. Dissertations, Master Theses, Bachelor Theses, etc.)
- **Reports** (e.g. Zukunftsmarkt Künstliche Intelligenz Potenziale und Anwendungen, by Fraunhofer (2017))

Journal and Conference Articles

- **Review Articles** (e.g. Debating big data: A literature review on realizing value from big data, by Günther et al. (2017))
  → Reviews the literature in a certain field or discipline.
- **Theoretical Article** [descriptive] (e.g. Towards a Knowledge-based Theory of Firm, by Robert Grant (1996))
  → Develops a new theory or extends/changes an existing one.
- **Conceptual Article** [descriptive] (e.g. The location problem in electronic business: evidence from exploratory research, by Kathrin Möslein (2001))
  → Conceptualises a new framework in a certain field or discipline.
- **Investigative Article** [prescriptive] (e.g. Value Propositions in Service Systems Enabled by Digital Technology: A Field Based Design Science Approach, by Genennig et al. (2018))
  → Tests/evaluates a developed framework/concept in a certain domain context (e.g. manufacturing, agriculture, health, etc.).

Academic articles are mostly published in scientific journals or are part of conference proceedings. The major difference being the intensity of the peer review[1] conducted before a work is accepted. Some conferences (esp. in the Information Systems discipline) have a peer-review system that is almost equal to that of a good journal, which makes also the conference proceedings more valuable (in average).

An exception are preprints, such as those found on arXiv.org. Articles published there are often not published through a journal or conference, but can by uploaded without any quality checks, such as a peer-review process.

[1] Peer-Review is the process by which other researchers working in the same field anonymously review a work that has been handed in. The best ones are then selected.

2.2 Journal Rankings

There are several Rankings of academic work to be considered when evaluating ones sources. Most of the time it is a journal ranking (e.g. VHB-Ranking), but there are also rankings for business schools (e.g. Financial Times Survey of Top Business Schools). Below is a list of popular rankings:

- **HCERES** - High Council for Evaluation of Research &Higher Education
- **Financial Times Survey of Top Business Schools**
- **SJR** - Scimago Journal & Country Rank
- **CNRS** - Centre National de la Recherche Scientifique
- **FNEGE** - Foundation National pour l'Enseignement de la Gestion des Entreprises
- **ABDC** - Australian Business Deans Council Journal Rankings List
- **Den** - Danish Ministry Journal list
- **ABS** - Association of Business Schools Academic Journal Quality Guide
- **EJL** - Erasmus Research Institute of Management Journals Listing
- **VHB** – Association of Professors of Business in German speaking countries
- **UQ** - University of Queensland Adjusted ERA Rankings List
- **WIE** - WU Wien Journal Rating
- **EJIS** - European Jnl of Information Systems (Mingers & Harzing)

The last one (EJIS), is not just a ranking of its own, but also a large table that consolidates the ratings of many journals from several rankings, including the VHB Ranking which is the most popular in Germany.

There are mainly two types of ratings: (1) Based on citations and (2) based on opinions of academics. For the former one the Impact Factor (IF) and h-Index have been shown to be the mostly accepted ones (however, the SJR for instance uses its own version of the IF, calculated slightly different). The latter one is, for example, used by the VHB, ranging from "not ranked" to "A+".

Note: Scientific articles are **not ranked**, but the journals they get published in are. An article in a D-ranked journal is not necessarily a bad one and likewise, an article in an A+ journal is not necessarily a very good one. It is simply a tendency. Always keep that in mind when regarding the quality of an article you read.

2.3 Databases for searching literature

The university library offers access to many databases, which can be accessed here:

https://dbis.ur.de/dbinfo/dbliste.php?bib_id=ub_en&colors=2047&ocolors=40&lett=f&gebiete=16

Some of them are further explained below.

ELSEVIER

Both ScienceDirect and Scopus offer subscription-based access to scientific literature databases owned by the publisher Elsevier, but ScienceDirect hosts the full-text of Elsevier content whereas Scopus includes abstracts and citation statistics about both Elsevier and non-Elsevier content.

EBSCO Information Systems

EBSCO provides a range of library database services. Many of the databases, such as MEDLINE and EconLit, are licensed by content vendors. Others, such as Academic Search, Business Source, Health Source, Historical Abstracts or USP DI are compiled by EBSCO itself.

Google

Google Scholar is a freely accessible web search engine that indexes the full-text or metadata of scholarly literature across an array of publishing formats and disciplines. Unlike the before mentioned databases, Google Scholar is searching the internet for potential results rather than a specific database, which has pros and cons for the quality of results that you get.

Microsoft (no longer offered)

Microsoft Academic is a free public web search engine for academic publications and literature, developed by Microsoft Research. It is not as wide-ranging as the others, but offers a large range of meta-data, including a topic tree that connects parent and child topics with each other.

Clarivate Analytics

Web of Science (previously known as Web of Knowledge) is a website, which provides subscription-based access to multiple databases that provide comprehensive citation data for many different academic disciplines. It was originally produced by the Institute for Scientific Information (ISI) and is currently maintained by Clarivate Analytics (previously the Intellectual Property and Science business of Thomson Reuters).

Another search database by Clarivate Analytics is the Master Journal List that provides information about scientific journals.

Springer

Springer Science+Business Media or Springer (Business Database), part of Springer Nature (Natural Science Database) since 2015, is a global publishing company that publishes books, e-books and peer-reviewed journals in science, humanities, technical and medical (STM) publishing. It offers a wide range of accessible publications from the university network (ensure you use your FAU-VPN if you search for literature).

arxive

arXiv.org is an open-access repository where researchers can share and access preprints—early versions of scholarly papers—before they are formally peer-reviewed and published. It covers a wide range of fields, including physics, computer science, mathematics, quantitative biology, quantitative finance, and statistics, with newer categories like electrical engineering and systems science also gaining prominence.

2.4 Advanced search with search strings

When conducting a systematic literature review, the key element to focus on is the system that is used to conduct it. Instead of simply searching each database for results that might fit your topic, certain rules have to be followed.

If your literature review is based on the following process, it can be called systematic:

1) Select databases that you are going to search on (see part 0)

2) Define the search string that you are using.
   This is also an experimental procedure and it takes a while to find the right string. E.g.:

("business model") AND ("Intelligent Production" OR "Smart Production" OR "Industry 4.0" OR "Industrial Internet of things" OR "Cyber-Physical Systems" OR "Smart Factory") AND (LIMIT-TO(DOCTYPE, "ar") OR LIMIT-TO(DOCTYPE, "cp") OR LIMIT-TO(DOCTYPE , "ch") OR LIMIT-TO(DOCTYPE, "bk"))*

You can use logic operators like AND, OR, NOT, etc. Most database websites have a help page for these (e.g. Scopus Advanced Search or Scopus FAQ, Ebsco Advanced Search, …). One search string usually works on all websites, so you only have to write it down once. In addition, you can use the filter features provided by most services.

Most important operators are:

- **AND**
- **OR**
- **NOT**
- *****
  = wildcard character(s)/placeholder for any character(s)
- **"***word***"**
  = quotation marks are used to define exact phrase searches, e.g. (*business model*) vs. ("*business model*")
- **?**
  = wildcard for exactly one character/placeholder for exactly one character
- field codes like **TITLE-ABS-KEY("*phrase*")**
  = searches a specific field for the *phrase*
- Filters, e.g. **LIMIT-TO(DOCTYPE, "ar")** OR **LIMIT-TO(DOCTYPE, "cp")** OR **LIMIT-TO(DOCTYPE , "ch")** OR **LIMIT-TO(DOCTYPE, "bk")**
  = limits the results to articles, conference papers, book chapters and books. These codes can be different from database to database

3) Export your results to your computer. Popular formats are Bibtex, RIS and CSV. Then import the files into your reference management program (e.g. Endnote, Citavi, Mendeley, etc.). The university provides free accounts and courses for these popular software).

4) Auto lookup
   One strategy can be to import all references into the same folder in your reference management program. Most software has an auto-fill, auto-complete or update function by which the references can be updated by comparison with the linked database of the software. This works best if you have the DOI number, always starting with '*10.*'! E.g. *10.1007/978-1-4471-6590-3_7*
   A DOI number is unique to a document and identifies it exactly. If you don't have it, you can also try it with the title of the reference.

5) Scan for duplicates
   You may find the same article multiple times, or on several databases. Most software allows you to search for duplicates and then merge or delete them.

6) Go through the list

Go through your list of references and sort them into subfolders, organized to your preference. Mark most impotent papers and give structure to the literature review.
It is helpful not to just read the title but also to read the abstract.

3 Managing your Knowledge Base

3.1 Organizing literature

There are several software available that let you organize and cite literature:

- Mendeley
- Citavi
- EndNote
- …

3.2 Reading Papers

It is important that you develop a systematic way of reading literature and store the important bits in a structured way. What are the important assumptions, arguments, implications etc.? What is important? What theories do the authors use?

Such questions and more are important to your research. For this process the following guidelines by Prof. Anne Huff may help you:

1. Highlight the AUTHORS' key assertions
    a. Listening/understanding is the important beginning of good conversation
    b. Use colourful highlights for the AUTHORS' main points
    c. Use different colours to record your current ideas → makes the paper copy worth keeping
2. Mark with "**i**" what is interesting to you and why
3. Check-Marks (✓) where you agree
    a. STOP if not enough "**i**" and ✓ (interest & positive regard are central to good conversation).
    b. If not don't have enough papers on your topic (questions), reframe your ideas about questions of interest or key papers. Then start again to find a conversation with "fellow travellers"
4. Mark with "Q" what you might want to quote, note for why
5. Post it note ® where you disagree or would add (this is a possible research 'GAP')
    a. The notes flag YOUR POTENTIAL CONTRIBUTION TO A CONVERSATION
    b. What do you care about? & What knowledge do you have to enter a discussion?

Ask you self, how and where you want to collect your knowledge bits. Tables, documents or notebooks are all viable solutions. Find your way of creating a knowledge base where you can go back to and find important bits that are relevant for your research.

4 Research approaches and paradigms

Behavioral research seeks to understand, explain, and predict human behaviors and phenomena, often in social or organizational contexts. It relies on established theories, empirical observations, and rigorous analysis to derive insights about existing realities.

In contrast, design science research (DSR) focuses on creating and evaluating innovative artifacts—such as models, methods, or systems—that solve real-world problems. It emphasizes building and applying knowledge through the iterative design and testing of these artifacts in practical settings.

While behavioral research is descriptive and explanatory, design science research is prescriptive and solution-oriented, with both approaches complementing each other in advancing knowledge.

4.1 Behavioral Research

- **Objective**: Aims to understand and explain human or organizational behavior by developing and verifying theories1 2 3.
- **Focus**: Seeks to explore and validate cause-effect relationships, often using statistical significance as a measure of rigor2.
- **Methodology**: Typically involves empirical studies, surveys, and experiments to gather data on how people behave in different contexts1 2.
- **Outcome**: Produces knowledge that explains or predicts behavior, which can be used to inform decision-making and policy3 5.

4.2 Design Science Research

- **Objective**: Aims to create and evaluate artifacts that extend human and organizational capabilities2 3 4.
- **Focus**: Concentrates on constructing and evaluating solutions to practical problems, emphasizing utility and relevance to practice1 2.
- **Methodology**: Involves iterative processes of building, evaluating, and refining artifacts, often guided by frameworks and models2 3.
- **Outcome**: Produces innovative solutions and artifacts that address specific needs or problems, contributing to practical advancements3 4.

A video series on DSR is provided via StudOn: https://www.studon.fau.de/crs4651281.html

4.3 Key Differences between Behavioral Research & Design Science Research

- **Nature of Inquiry**:
  - Behavioral research is descriptive and explanatory, focusing on understanding existing phenomena.
  - Design research is prescriptive and constructive, focusing on creating new solutions.
- **Measures of Success**:
  - Behavioral research values rigor through statistical significance and theoretical validation2.
  - Design research values utility and practical relevance, though its rigor is less standardized2 3.

- **Application**:
    - Behavioral research findings are often used to inform policies, strategies, and interventions based on understanding behavior[1] [5].
    - Design research outcomes are directly applied to solve practical problems through the creation of artifacts and systems[2] [3].

5 Rigorous academic writing

5.1 Scientific Argumentation

Scientific Formulations:

- … results/authors show that …
- … the authors found evidence that …
- … a study by X is in support of Y …
- … X could confirm that Y …
- … X argues that Y…
- … X state Y …
- … there is support for …

Inaccurate Formulations:

- … results/authors proof that …
- … the authors found out that …
- … in truth …
- … X is right/wrong, because …

Referencing authors/articles as examples

- Many authors were able to show that learning scientific writing leads to better grading (e.g. Möslein et al., 2020; Roth et al., 2020, pp. 40-42).

Referencing the results of a study [author(s)/article(s)]

- A study by Möslein et al. (2020) supports this argument.
- In support of that a study showed a positive correlation ($p=0.002$, $\alpha=0.97$) between the “experience in scientific writing” and the “received grading” (Author et al., 1900).

Referencing the line of argumentation of authors/articles

- We adopt the perspective of Roth (2020), that you can transfer your everyday experience to your academic field of study and vice versa.

Referencing the interpretation of some logic or result of authors/articles

- In line with the argumentation Roth (2020), Möslein et al. (2020) state that it is important for students to learn scientific writing in order to get good marks for seminar papers.

5.2 Citation and managing references

When write academic texts, it is essential that you are able to manage your sources and reference them correctly. There are a variety of software tools that support you in this task. Some of them are listed below:

- Citavi
- EndNote
- Mendeley
- Zotero
- …

Most software supports adding different types of sources to your bibliography (i.e. your list of sources or references). E.g. journal articles, books, webpages etc. Each of them requires an often similar but different way of referencing (i.e. citation). How to cite a particular type of reference is defined by the Citation Style. It always includes two entries in your academic text: (1) The citation position as in-text or (less common) as footnote. (2) The respective entry in your list of references added at the end of the academic text. The most common types of citation styles are exemplified below:

- **Parenthetical In-Text citation with Author and Year**

  In-Text Citation:

  The idea of piloting is not new. It is a standard element in development processes, especially in product oriented, high tech industries (Roth, 2020).

  Entry in list of reference:

  Roth, A. 2020. "1 Piloting in Open Innovation Labs – A Challenge for Local Ecosystems," in Innovating in the Open Lab, Oldenburg: De Gruyter Oldenbourg, pp. 3–10. (https://doi.org/10.1515/9783110633665-001).

  Example:

  This type is used by citation styles like APA[2] 6th or 7th Edition or MIS Quarterly[3].

- **Numeric In-Text citation**

  In-Text Citation:

  The idea of piloting is not new. It is a standard element in development processes, especially in product oriented, high tech industries [1].

  Entry in list of reference:

  [1] Roth, A. 2020. "1 Piloting in Open Innovation Labs – A Challenge for Local Ecosystems," in Innovating in the Open Lab, Oldenburg: De Gruyter Oldenbourg, pp. 3–10. (https://doi.org/10.1515/9783110633665-001).

  Example:

[2] Description of APA: https://www.mtroyal.ca/library/files/citation/apa.pdf, https://www.iirp.edu/pdf/IIRP-APA-Guidelines.pdf
[3] Description of MISQ: https://citationsy.com/styles/mis-quarterly

This type is used by citation styles like ACS[4] or Chicago Style[5].

- **Citation Key In-Text citation (mostly in old articles)**

  In-Text Citation:

  The idea of piloting is not new. It is a standard element in development processes, especially in product oriented, high tech industries [Ro20].

  Entry in list of reference:

  [Ro20] Roth, A. 2020. "1 Piloting in Open Innovation Labs – A Challenge for Local Ecosystems," in Innovating in the Open Lab, Oldenburg: De Gruyter Oldenbourg, pp. 3–10. (https://doi.org/10.1515/9783110633665-001).

5.3 Examples for in-text citations

Good examples:

- Parenthetical Citation (Information Prominent)
  Open innovation is a collaborative approach to innovation that extends beyond traditional organizational boundaries (Chesbrough, 2004). It involves the purposeful exchange of ideas, knowledge, and technologies between a company and external entities to accelerate internal innovation and expand market opportunities (Bogers et al., 2017).
- Narrative Citation (Author Prominent)
  Bogers et al. (2017) describe open innovation as a collaborative approach that transcends traditional organizational boundaries, facilitating the exchange of ideas, knowledge, and technologies between companies and external entities to drive internal innovation and market expansion.
- Multiple Citations (Combining Sources)
  Open innovation, which involves the strategic exchange of ideas, knowledge, and technologies between firms and external entities, has been recognized as a means to accelerate internal innovation and expand market opportunities (Bogers et al., 2017; Chesbrough, 2003).
- Direct Quotation (Short Quote with Page Number)
  Chesbrough and Bogers (2014) redefine OI as "a distributed innovation process based on purposively managed knowledge flows across organizational boundaries" (p.17).
- Direct Quotation (Block Quote for Longer Texts)
  Bogers et al. (2017) emphasize the significance of open innovation:

  > *"Such broad embrace of OI research presents opportunities for conceptualising and understanding the OI processes further. Certainly, recent studies highlight a variety of perspectives that relate to different forms of OI such as knowledge sourcing (Laursen and Salter 2006; Spithoven, Clarysse, and Knockaert 2011), crowdsourcing and distributed problem solving (Jeppesen and Lakhani 2010; Afuah and Tucci 2012),*

[4] Description of ACS: https://pubs.acs.org/doi/pdf/10.1021/bk-2006-STYG.ch014
[5] Description of CS: https://www.chicagomanualofstyle.org/home.html

inter-organisational alliances (Stuart 2000; Faems et al. 2010), licensing agreements (Arora, Fosfuri, and Gambardella 2001; Bogers, Bekkers, and Granstrand 2012), as well as collaborations with and within communities, crowds or networks of individuals (including users, citizens, scientists, etc.) (cf. von Hippel 2005; Jeppesen and Frederiksen 2006; Fabrizio and Di Minin 2008; Murray et al. 2009; Poetz and Schreier 2012; Perkmann et al. 2013; Franzoni and Sauermann 2014; Levine and Prietula 2014)." (p.9)

- Secondary Citation (Citing a Source Found in Another Work)
  OI is a distributed innovation process based on purposively managed knowledge flows across organizational boundaries (Bogers et al., 2017 as cited in Chesbrough and Bogers, 2014).
- Citing Multiple Works by the Same Author(s) in the Same Year
  Open innovation facilitates the exchange of knowledge and technologies between firms and external partners (Bogers et al., 2017a) and has been linked to increased market opportunities (Bogers et al., 2017b).

Bad examples:

- Open innovation is a collaborative approach to innovation that extends beyond traditional organizational boundaries. It involves the purposeful exchange of ideas, knowledge, and technologies between a company and external entities to accelerate internal innovation and expand market opportunities. (Chesbrough, 2004; Bogers et al., 2017)
- (Bogers et al. 2017) describe open innovation as a collaborative approach that transcends traditional organizational boundaries, facilitating the exchange of ideas, knowledge, and technologies between companies and external entities to drive internal innovation and market expansion.

6 Structuring student papers

6.1 General outline

A well-structured academic paper is essential for effectively communicating your ideas and demonstrating your understanding of the subject. Below is a general structure that your paper should follow:

1. Title Page

- Include the title of your paper, your name, student ID, course name, and submission date.
- Ensure the title is concise and accurately reflects the content of your paper.

2. Abstract *(if required)*

- A brief summary (150–250 words) of the paper's objectives, methods, key findings, and conclusions.
- Write this section last but place it at the beginning of your paper.

3. Introduction

- Provide background information to set the context for your paper.

- Clearly state the research question or objective of your work.
- Outline the structure of the paper, giving readers a roadmap of what to expect.

4. Theoretical Background or Literature Review

- Summarize relevant theories, concepts, and prior research to provide a foundation for your work.
- Highlight gaps in the literature that your paper aims to address.

5. Research Design *(if applicable)*

- Describe the methods, data collection, and analysis techniques used in your research.
- Ensure clarity so that your approach can be replicated or critically assessed.

6. Analysis and Results

- Present your findings or insights in a logical and organized manner.
- Use tables, charts, or graphs where appropriate to support your arguments.

7. Discussion

- Interpret the results in relation to your research question and the theoretical background.
- Discuss implications, limitations, and potential future research directions.

8. Conclusion

- Summarize the main points and findings of your paper.
- Reinforce the significance of your work and its contribution to the field.

9. References

- List all sources cited in your paper, following the required citation style (e.g., APA, MISQ, MLA, Chicago).
- Ensure consistency and accuracy in your formatting.

10. Appendices *(if needed)*

- Include supplementary materials, such as raw data, detailed calculations, or additional figures, that support your work but are not essential to the main text.

It is important that the Introduction section guides the readers into the topic from a general overview, trends, observations, etc. to the specific problem statement addressed in your research.

6.2 Communicating Design Science Research

In DSR it is important to frame your research around the artifact that is evaluated. Hevner et al. (2004) provide an outline for DSR research and suggest a paper structure as illustrated below.

Table 2. Design Evaluation Methods	
1. Observational	Case Study: Study artifact in depth in business environment
	Field Study: Monitor use of artifact in multiple projects
2. Analytical	Static Analysis: Examine structure of artifact for static qualities (e.g., complexity)
	Architecture Analysis: Study fit of artifact into technical IS architecture
	Optimization: Demonstrate inherent optimal properties of artifact or provide optimality bounds on artifact behavior
	Dynamic Analysis: Study artifact in use for dynamic qualities (e.g., performance)
3. Experimental	Controlled Experiment: Study artifact in controlled environment for qualities (e.g., usability)
	Simulation – Execute artifact with artificial data
4. Testing	Functional (Black Box) Testing: Execute artifact interfaces to discover failures and identify defects
	Structural (White Box) Testing: Perform coverage testing of some metric (e.g., execution paths) in the artifact implementation
5. Descriptive	Informed Argument: Use information from the knowledge base (e.g., relevant research) to build a convincing argument for the artifact's utility
	Scenarios: Construct detailed scenarios around the artifact to demonstrate its utility

7 Formatting checklist for final paper

- ☐ Search for terms “error” / “fehler” or similar terms that Word uses to highlight errors
- ☐ Search four double space characters and replace them in the whole document with one space character
- ☐ Ensure all fields are updated to link, for example, to the proper table/figure/etc. (“Ctrl. + A” to select the whole document and then press F9)
- ☐ Ensure Headings are formatted in the proper way
- ☐ Ensure Footnotes and citations are displayed properly
- ☐ Ensure page number in correct
- ☐ Ensure document borders, text alignment and line spacing are correct
- ☐ Ensure there are no unwanted idents
- ☐ Ensure tables have the correct and same layout
- ☐ Ensure that all markers and highlight have been removed