# Data Objects as Epistemic and Managerial Boundary Objects in Organizational Contexts of Machine Learning: A Systematic Literature Review.

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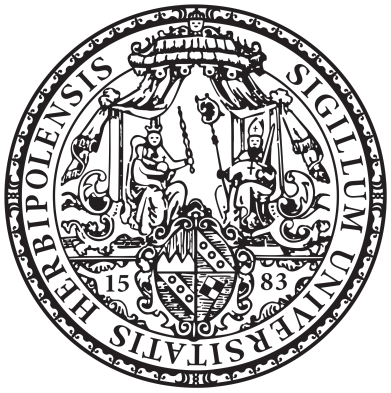


Exposé

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# Contents

# List of Abbreviations

**BO** Boundary Object

**DO** Data Object

**IS** Information Systems

**ML** Machine Learning

**SLR** Systematic Literature Review

# 1 Research Topic

In recent years, the integration of Machine Learning (ML) technologies into organizational processes has become increasingly prevalent. These technologies generate and utilize vast amounts of data, which serve as critical components in decision-making and operational workflows. The concept of Data Objects (DOs), as a specific development within the broader category of Boundary Objects (BOs) introduced by Star and Griesemer (1989) as artifacts facilitating a shared but differently interpreted understanding, emerged in the context of datafication, algorithmic governance, and the rise of machine learning systems.

# 2 Motivation

Explain what you want to find out by the end of your research project—and why!

# 3 Methodology

The research will follow a Systematic Literature Review (SLR) according to Okoli (2015). This method is used to identify, evaluate and interpret the available research relevant to a particular research question, topic area or domain of interest and is designed to be used in Information Systems (IS) research (Okoli, 2015, p. 884).
A SLR is particularly suitable for this thesis as it allows to systematically gather and analyze existing knowledge on the topic of data objects in machine learning contexts in general and above all, organizational contexts. With this approach, it is possible to identify research gaps and provide a solid foundation for future research directions. Even though the methodology is designed mostly for research teams, but with some minor adjustments, it can also be used for individual research. Overall it simplifies the process of conducting a literature review due to the lack of risks associated with incorrect team communication and cooperation.

# 4 Preliminary Outline

Lastly the following outline should give an overview of the planned sections of the thesis. Changes may appear during the research process but as an entry point it should help to structure the work.

1. Introduction
2. Theoretical Background
   2.1. Boundary Objects
   2.2. Data Objects as Epistemic Artifacts

## 4 Preliminary Outline

3. Methodology
4. Structured Literature Review Results
   4.1. Overview of Identified Literature
   4.2. Technical Origin of Data Objects in ML Contexts
   4.3. Data Objects as Boundary Objects in Organizational Contexts
   4.4. Visualization and Interface Design as Epistemic Factors
5. Discussion
6. Future Research Directions
7. Conclusion

## References

Okoli, C. (2015). A guide to conducting a standalone systematic literature review. *Communications of the Association for Information Systems*, *37*, 879–910.

Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, 'translations' and boundary objects: Amateurs and professionals in berkeley's museum of vertebrate zoology, 1907-39. *Social Studies of Science*, *19*(3), 387–420.

# Eidesstattliche Erklärung

Hiermit versichere ich, die vorliegende Arbeit selbstständig verfasst und keine anderen als die angegebenen Quellen und Hilfsmittel benutzt sowie die Zitate deutlich kenntlich gemacht zu haben.
Ich erkläre weiterhin, dass die vorliegende Arbeit in gleicher oder ähnlicher Form noch nicht im Rahmen eines anderen Prüfungsverfahrens eingereicht wurde.

Würzburg, den 12. November 2025 Linus Schärmann