

Lappenküper, Dominik^{1,2}

¹ BMS, ETM, University of Twente

² S2BMRC, FH Münster University of Applied Sciences

Supervised by
Prof. Dr. Rainer Harms (University of Twente)
Prof. Dr. Thorsten Kliewe (FH Münster)



Introduction

Artificial Intelligence (AI) plays a critical role in today's business world impacting profit, productivity, and innovation.

Issues:

1. Many entrepreneurs struggle with its practical adoption (Ransbotham et al., 2020)
2. Variety of research foci inhibits efficient and targeted investigation by researchers
3. Especially SMEs are lagging compared to larger enterprises in their AI Adoption (EU, 2021)

Study's aims:

1. Outline structure and impact of current research
2. Identify key aspects during AI adoption for SMEs
3. Conceptualize support structures for universities to support SMEs in their AI adoption

Research Questions

How can SMEs be empowered in their AI adoption?

1. What is the AI Adoption research status quo?
2. Which barriers and drivers are relevant during the AI adoption of SMEs?
3. Where do SMEs get support in their AI adoption?
4. How can universities empower SMEs in their AI adoption, addressing the identified significant barriers and drivers?

Methods

The research project aims to follow a mixed methods approach, using different methodologies in the different studies to jointly form a good thesis.

1. Bibliometric analyses (Bibliographic Coupling & Co-word Analysis of Authors' Keywords)
2. Qualitative study (Expert interviews)
3. Quantitative study (Survey of SMEs and universities)
4. Conceptual paper

Citations

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285–296. <https://doi.org/10.1016/j.jbusres.2021.04.070>

Eller, R., Alford, P., Kallmünzer, A., & Peters, M. (2020). Antecedents, consequences, and challenges of small and medium-sized enterprise digitalization. *Journal of Business Research*, 112, 119–127. <https://doi.org/10.1016/j.jbusres.2020.03.004>

Holmström, J. (2021). From AI to digital transformation: The AI readiness framework. *Business Horizons*. <https://doi.org/10.1016/j.bushor.2021.03.006>

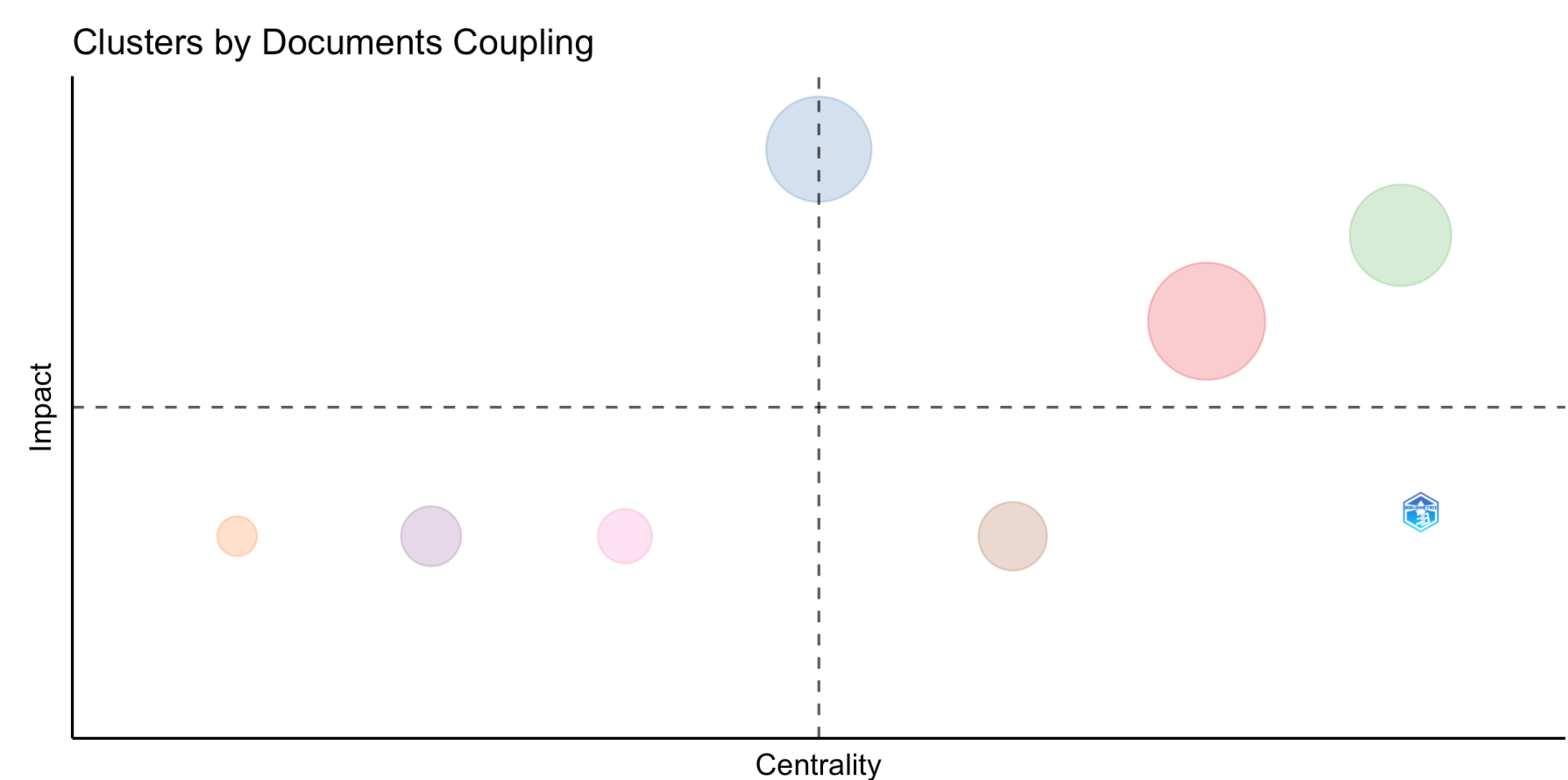
Mittal, S., Khan, M. A., Romero, D., & Wuest, T. (2018). A critical review of smart manufacturing & Industry 4.0 maturity models: Implications for small and medium-sized enterprises (SMEs). *Journal of Manufacturing Systems*, 49, 194–214. <https://doi.org/10.1016/j.jmsy.2018.10.005>

N. Donthu et al. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285–296.

S. Ransbotham et al. (2020). Expanding AI's Impact With Organizational Learning.

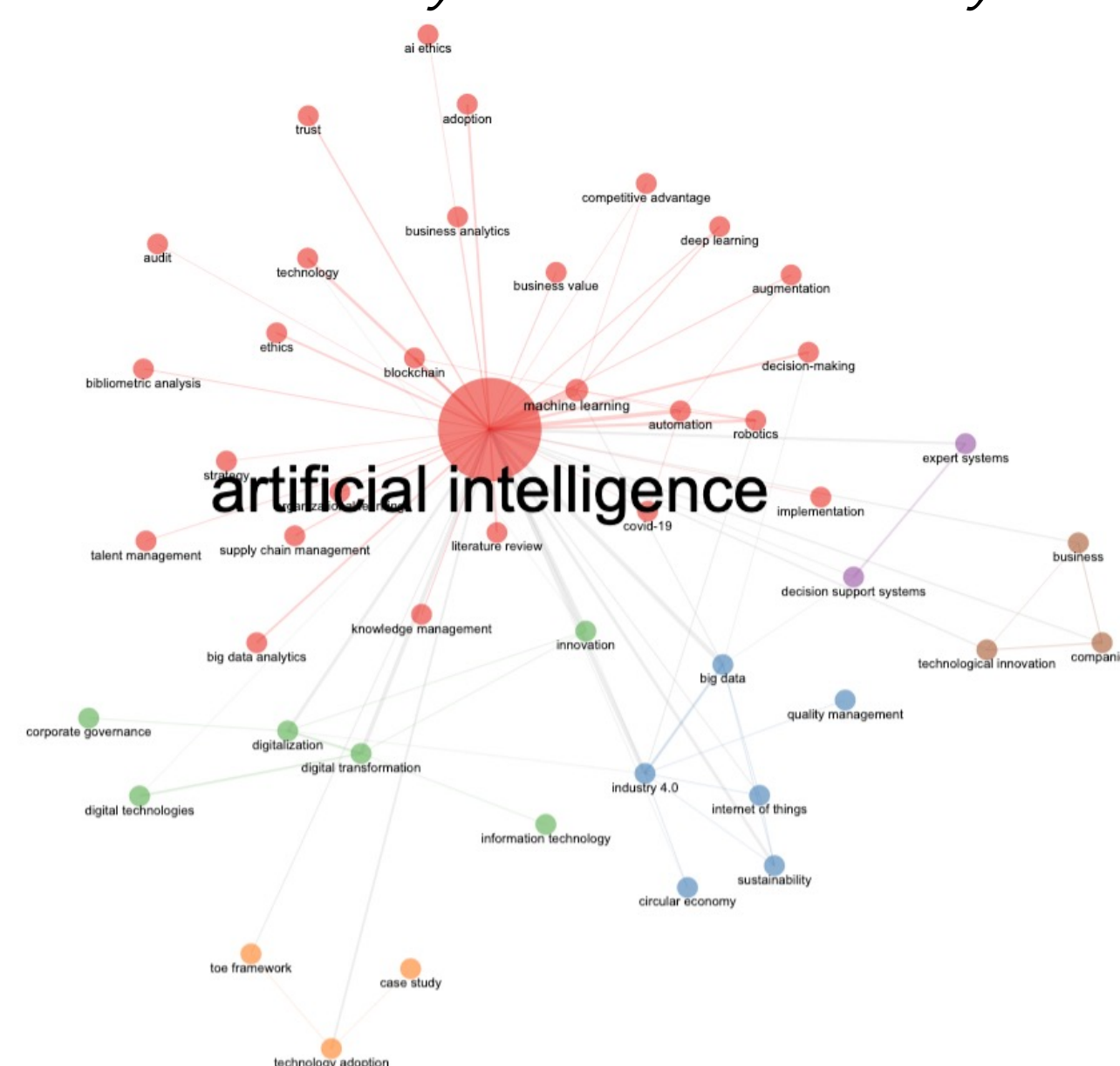
(Preliminary) Results of Study 1

Bibliographic Coupling



7 clusters identified: **Information Systems perspective on AI (128)**; **Business Automation/Augmentation (72)**; **Digital Entrepreneurship (60)**; **Predecessors - Expert Systems and (Group) Decision Support Systems (12)**; **AI and Blockchain (8)**; **Quantitative practice data on AI adoption (6)**; **Knowledge Management (3)**

Co-word Analysis of Authors' Keywords



6 clusters identified: **Information Systems, Industry 4.0, Decision Support Systems, Digital Transformation, Technology Adoption, Innovation**

Conclusion

1. AI Adoption is a wide, fragmented, and growing research field
2. There appear two main research gaps:
 1. Known different adoption rates between companies of different size seem to be neglected
 2. Co-dependencies between businesses and their wider ecosystem, including universities, seem to be overlooked
3. These research gaps give a good foundation for the planned further studies.