

Investigating the Establishment of Communities of Practice in Large-Scale Agile Software Development - A Literature Review

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Discussion and Conclusion

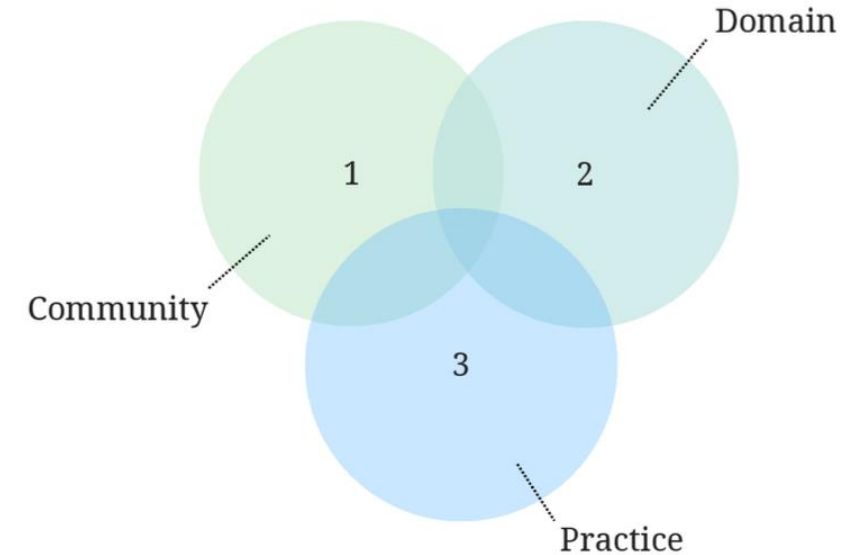
Question from the kick-off presentation:

What is the difference between Communities of Practice and other group structures ?

Answer:

Definition : “Groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly” (Wenger, 2011).

→ The definition allows for **intentionality** since learning is either the driving purpose for the community or an unintended outcome. Not all communities make up a Community of Practice, just like a neighborhood is not a Community of Practice despite being called a community.



Communities of Practice in Large-Scale Agile Software Development (CoPs)

- Agile methodologies emphasize collaboration, frequent requirement change, and continuous feedback.
- Large organizations are implementing the agile methodology despite it being created **initially for small teams**.
- **Complexities** arise since the frameworks were not implemented to meet the needs of large structures
For example: siloed teams.
- Communities of Practice (CoPs), who are groups of people with a common interest and who regularly exchange knowledge, are recommended to tackle challenges in scaling agile software development.
- Studies about the concept of CoPs exist, however, there remains a **lack of a comprehensive synthesis** of the existing research and conclusions in relation to Large-scale Agile Software Development.

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We investigated the following:

RQ1

What research endeavors exist investigating CoPs in large-scale agile software development?

RQ2

Why were the CoPs established?

RQ3

What challenges and good practices exist?

Note: research questions were refined according to the time span and capacity of the research.

Outline



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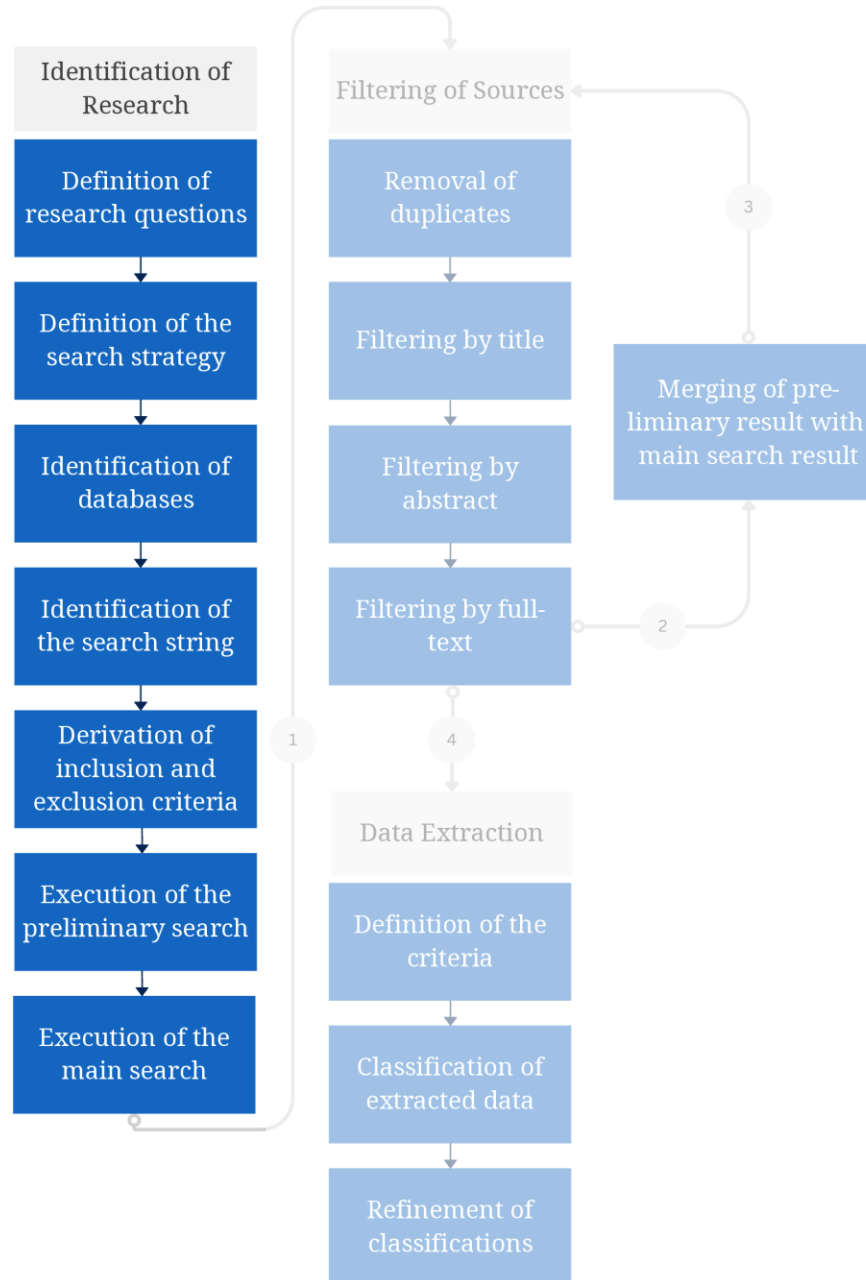
Research questions

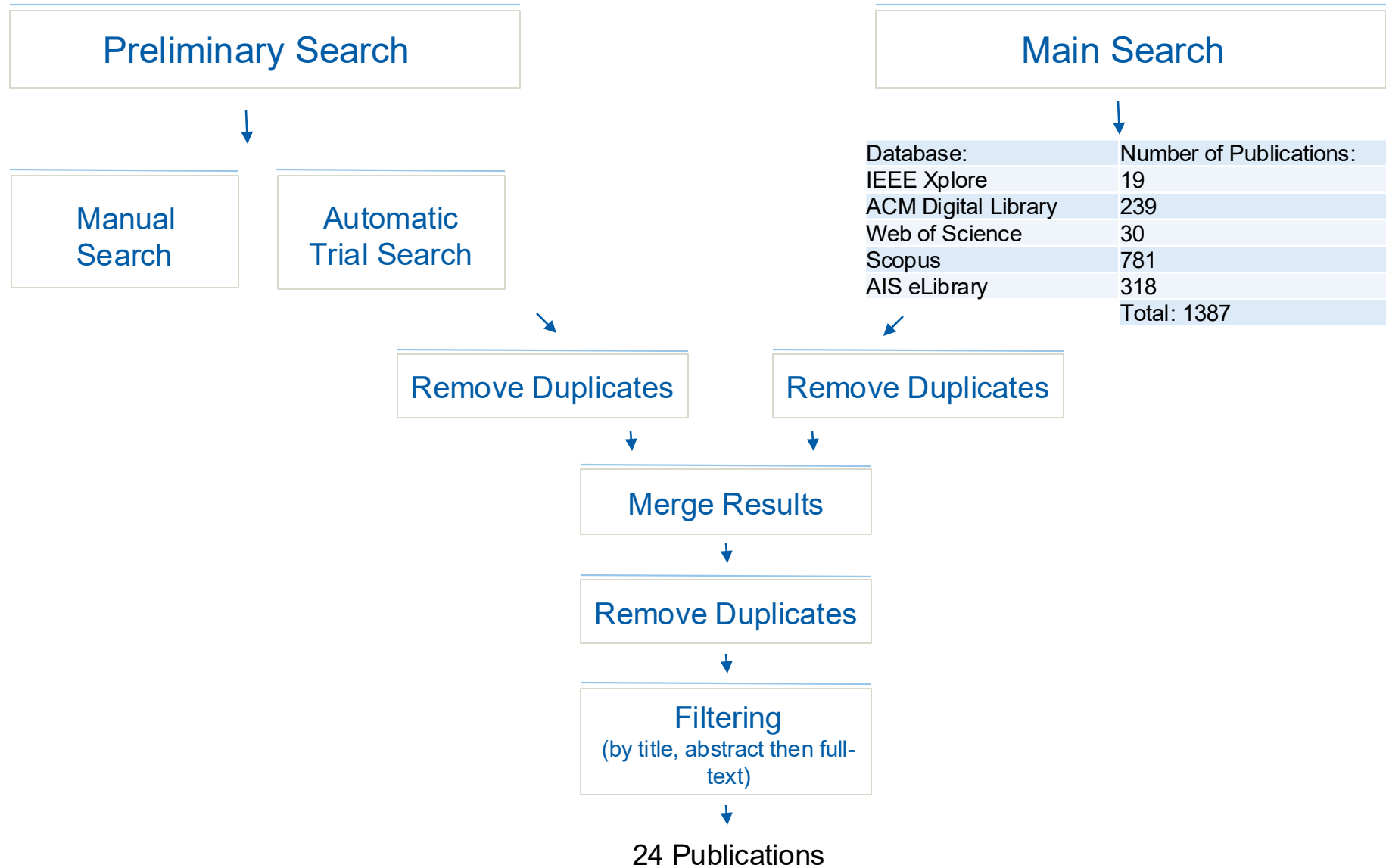
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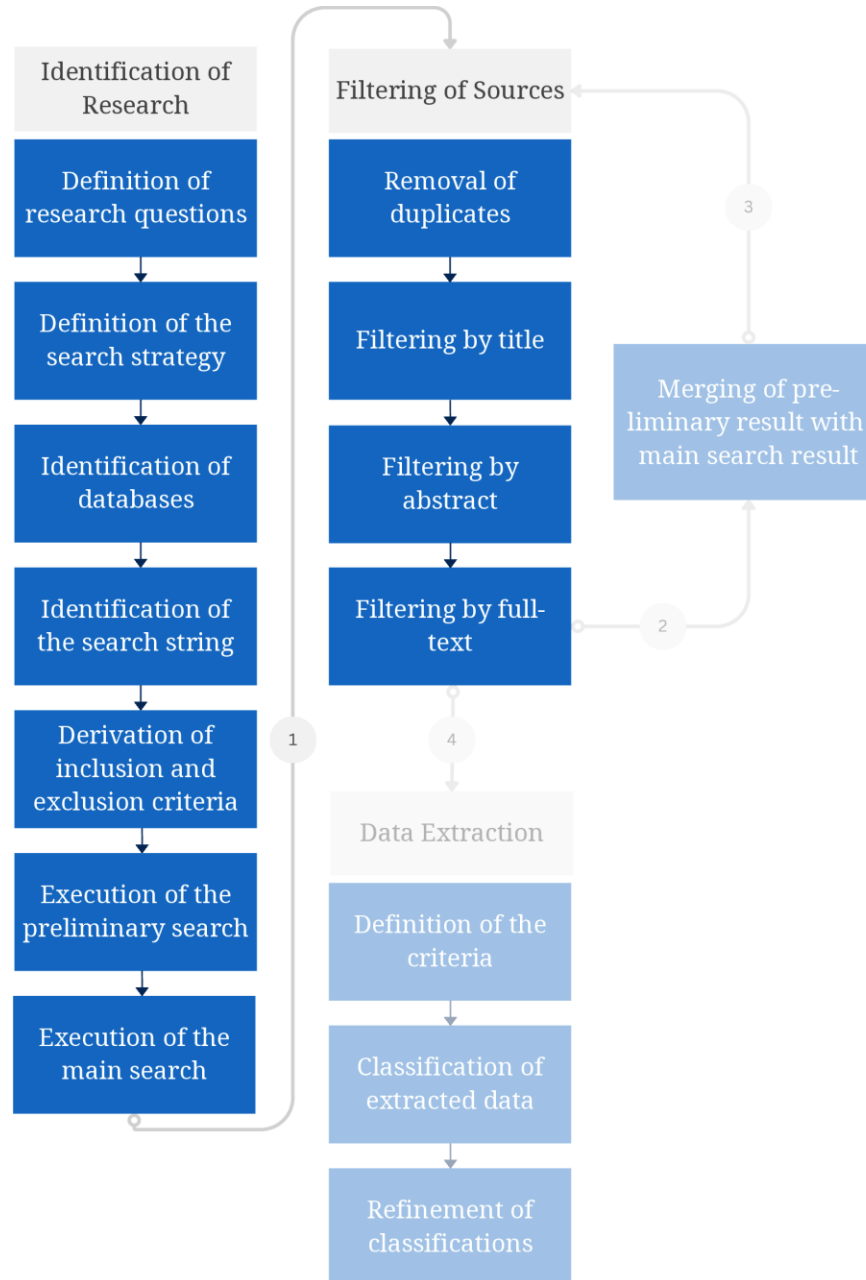
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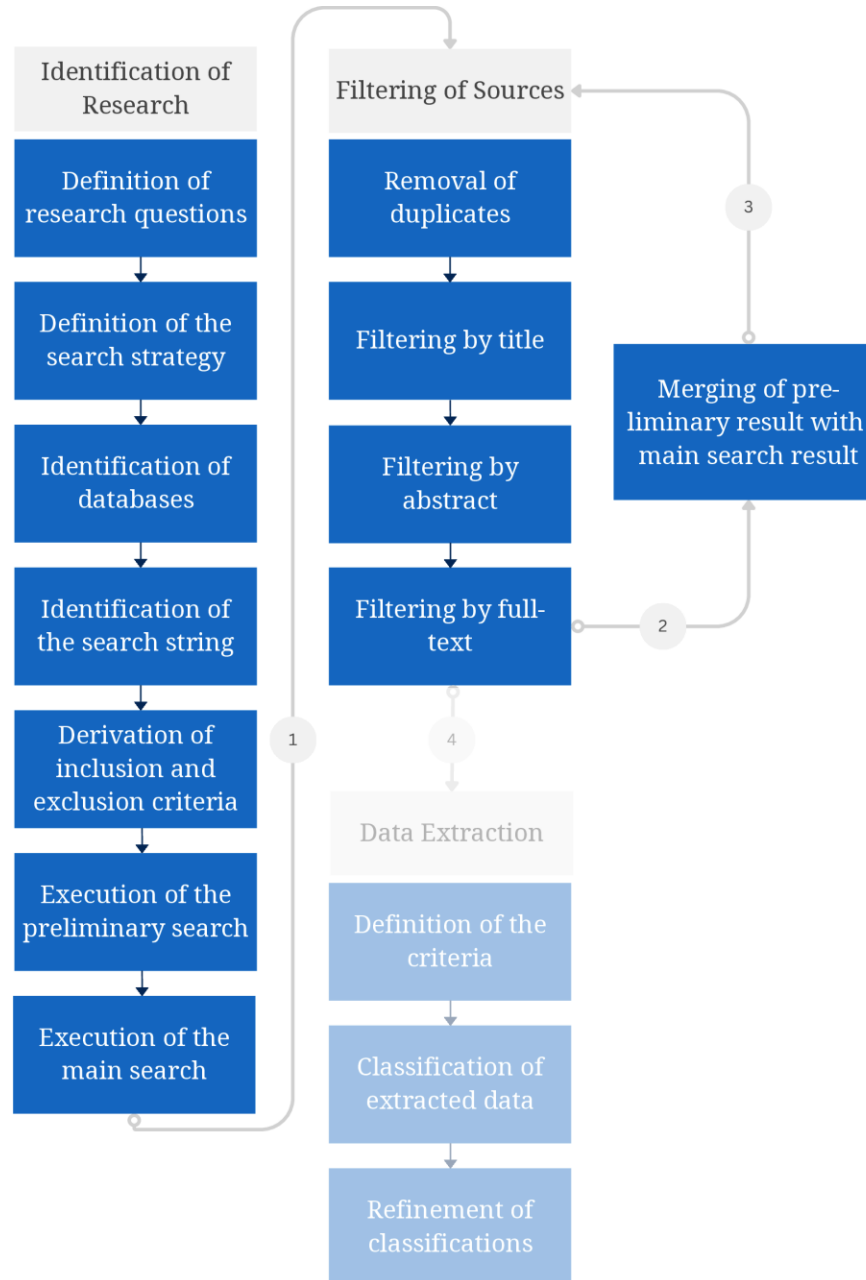




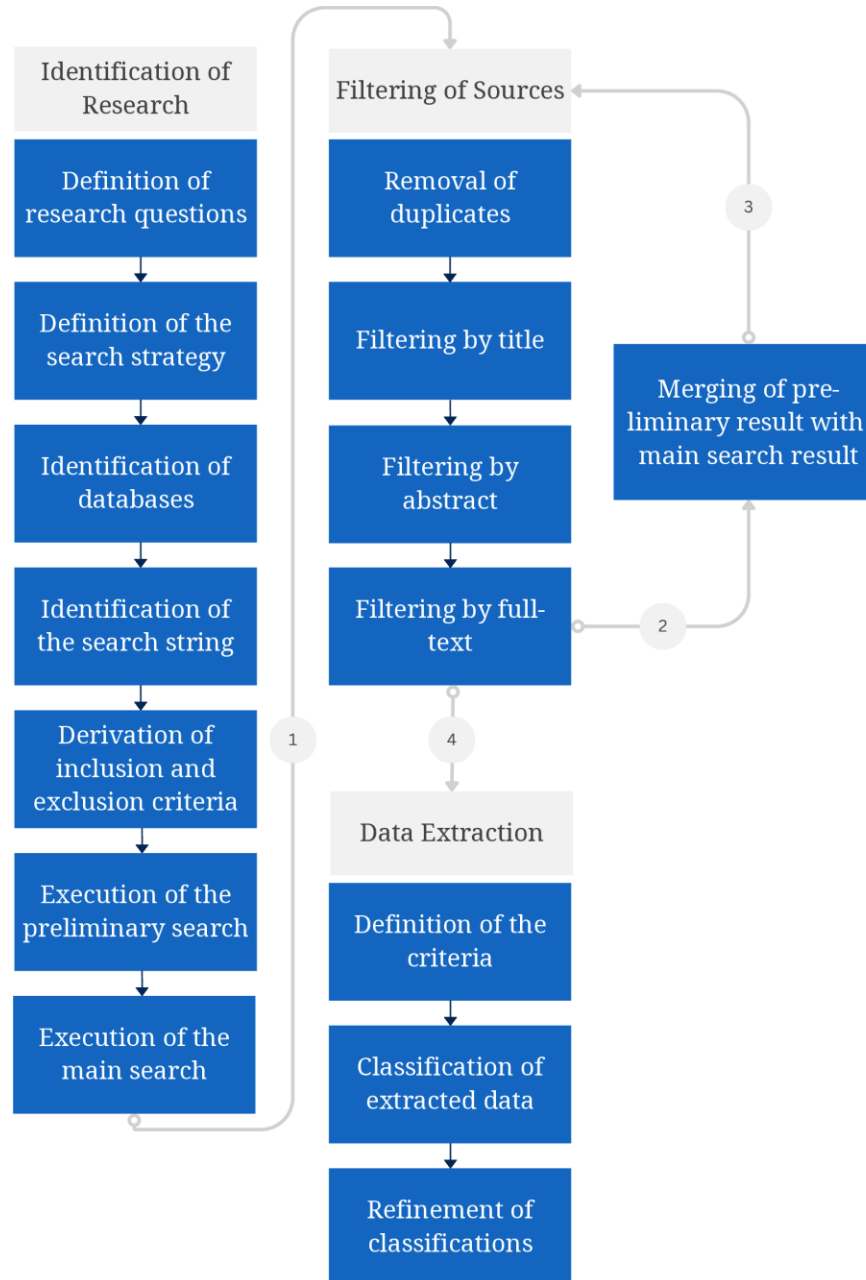
Methodology



Methodology



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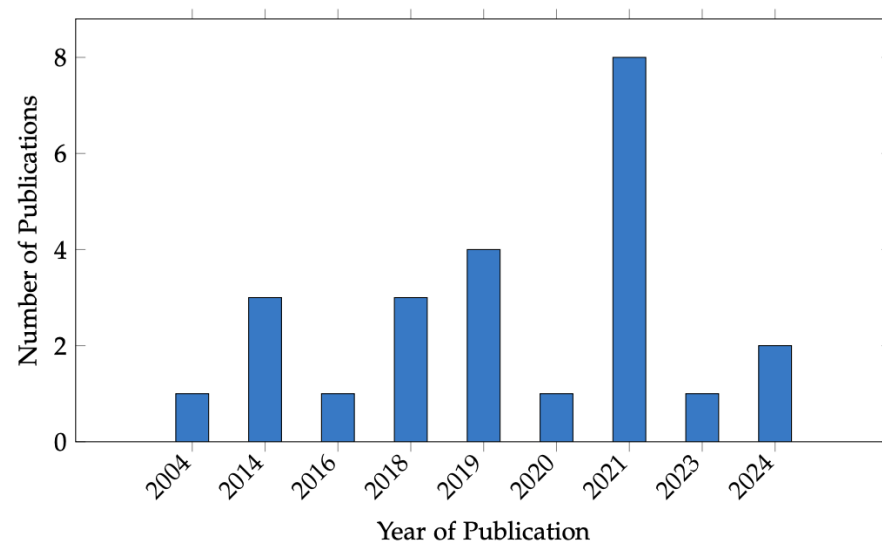
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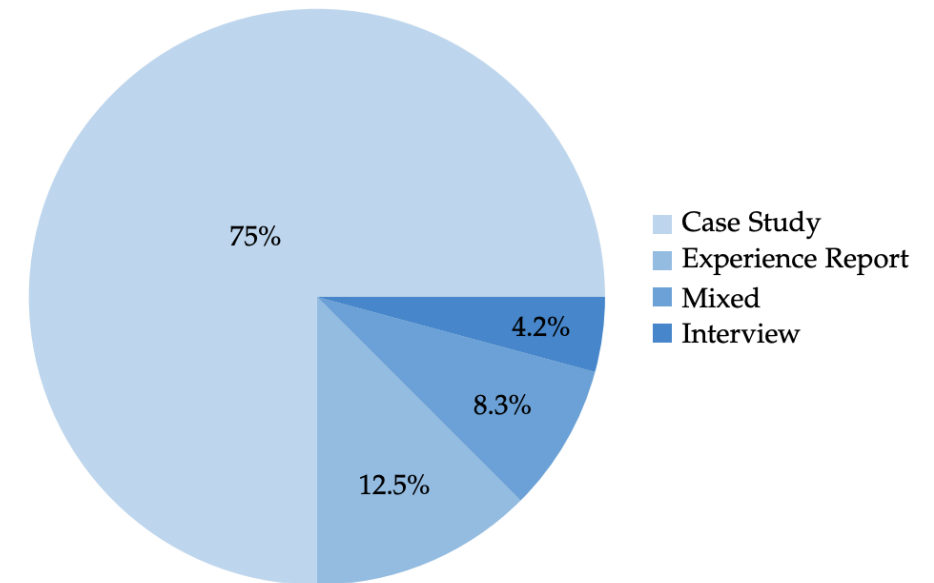
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Research endeavors

- Using data extraction criteria we extracted 24 publications that investigate CoPs in detail.
- The resulted publications handled Q2 and Q3.

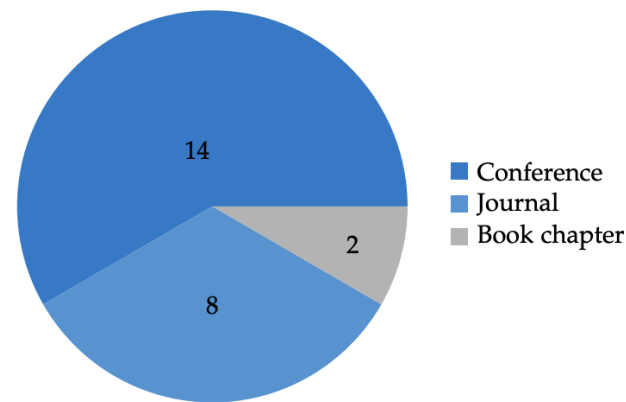


Distribution of publications per year

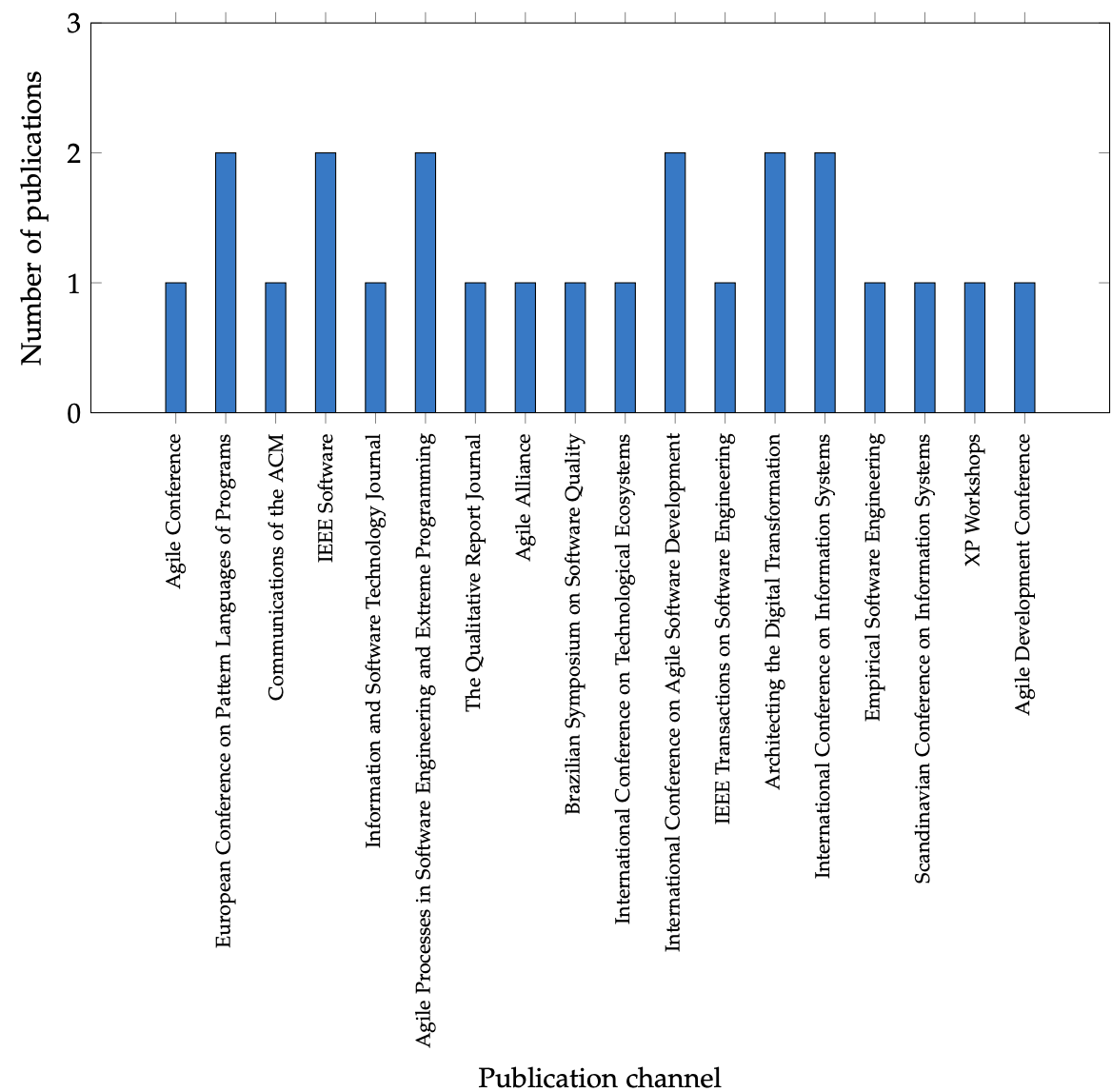


Distribution of study types

Results - RQ1



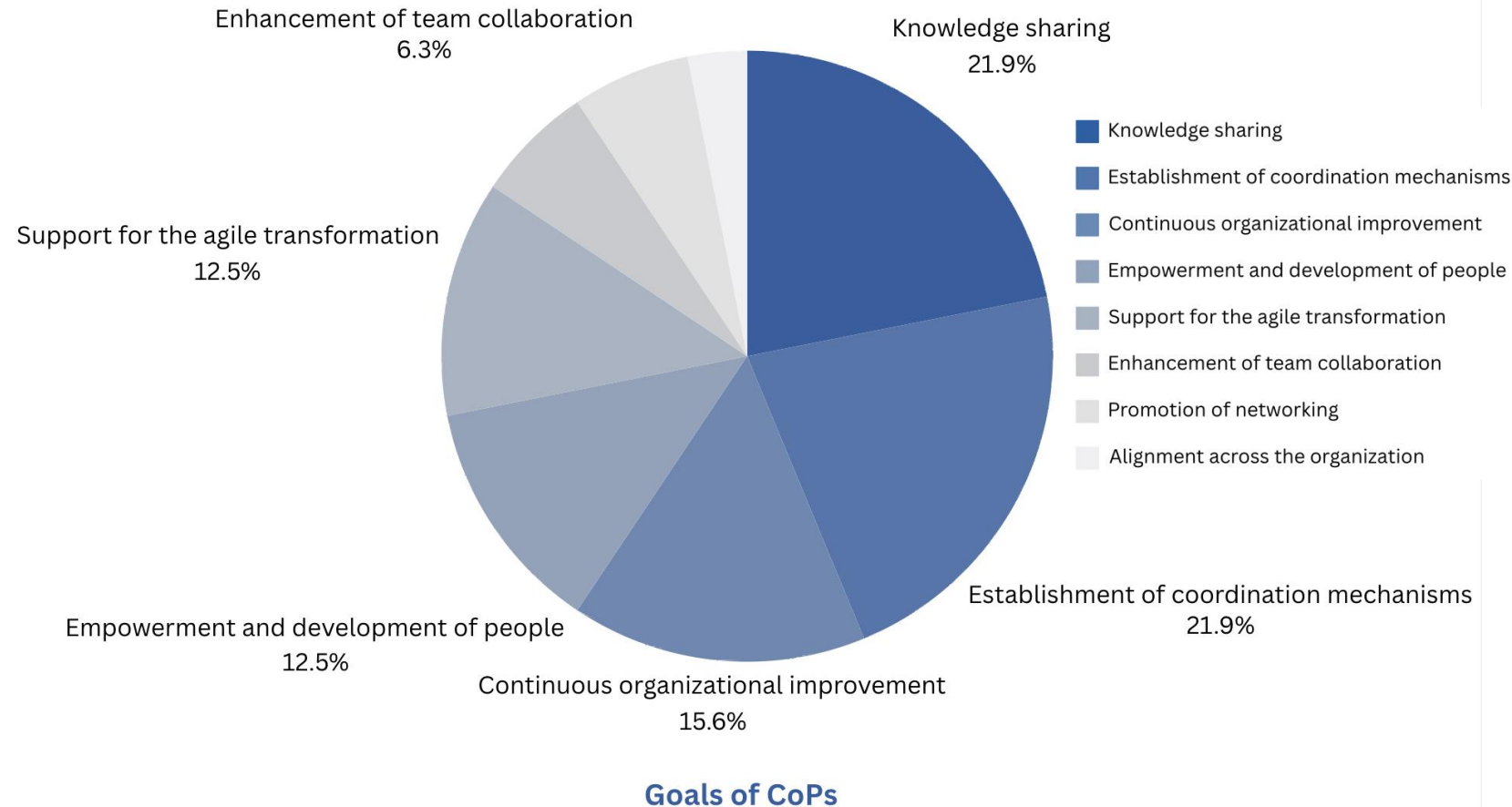
Distribution of publication types



Distribution of publication channels

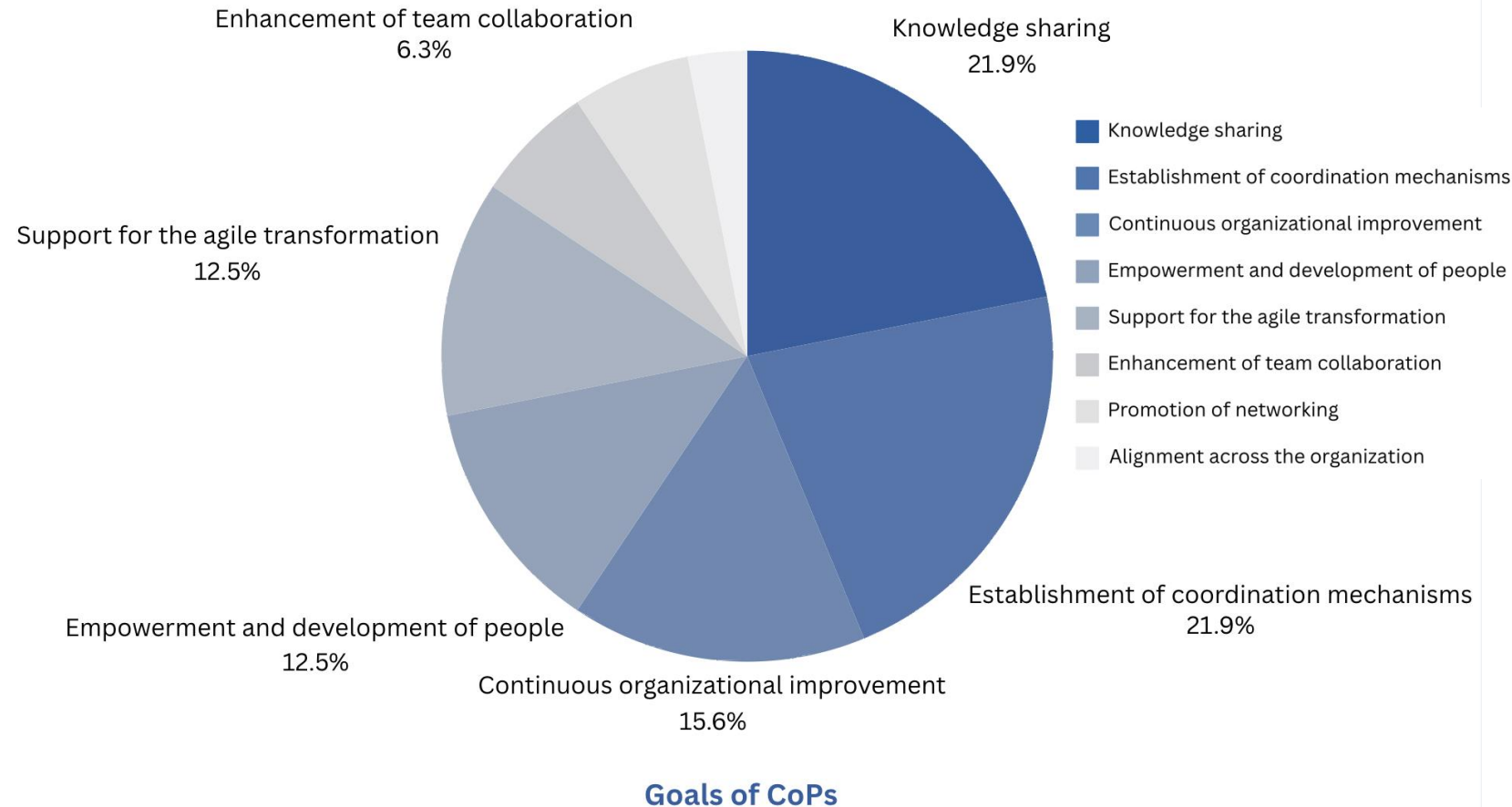
Purposes for the establishment of Communities of Practice in LSAD

- Knowledge sharing is the main reason reported by most organizations that implemented CoPs, alongside the establishment of coordination mechanisms.
- The continuous improvement of the organization and the empowerment of CoP members is an outcome of collectively pursuing these goals.



Purposes for the establishment of Communities of Practice in LSAD

- Examples reported for the **improvement of the organization**:
 - The establishment of coding and documentation standards.
 - The discovery of new topics.
- Examples reported for the **empowerment of people**:
 - Confidence boost through making contributions to the organization.
 - Improved management of change and uncertainty.



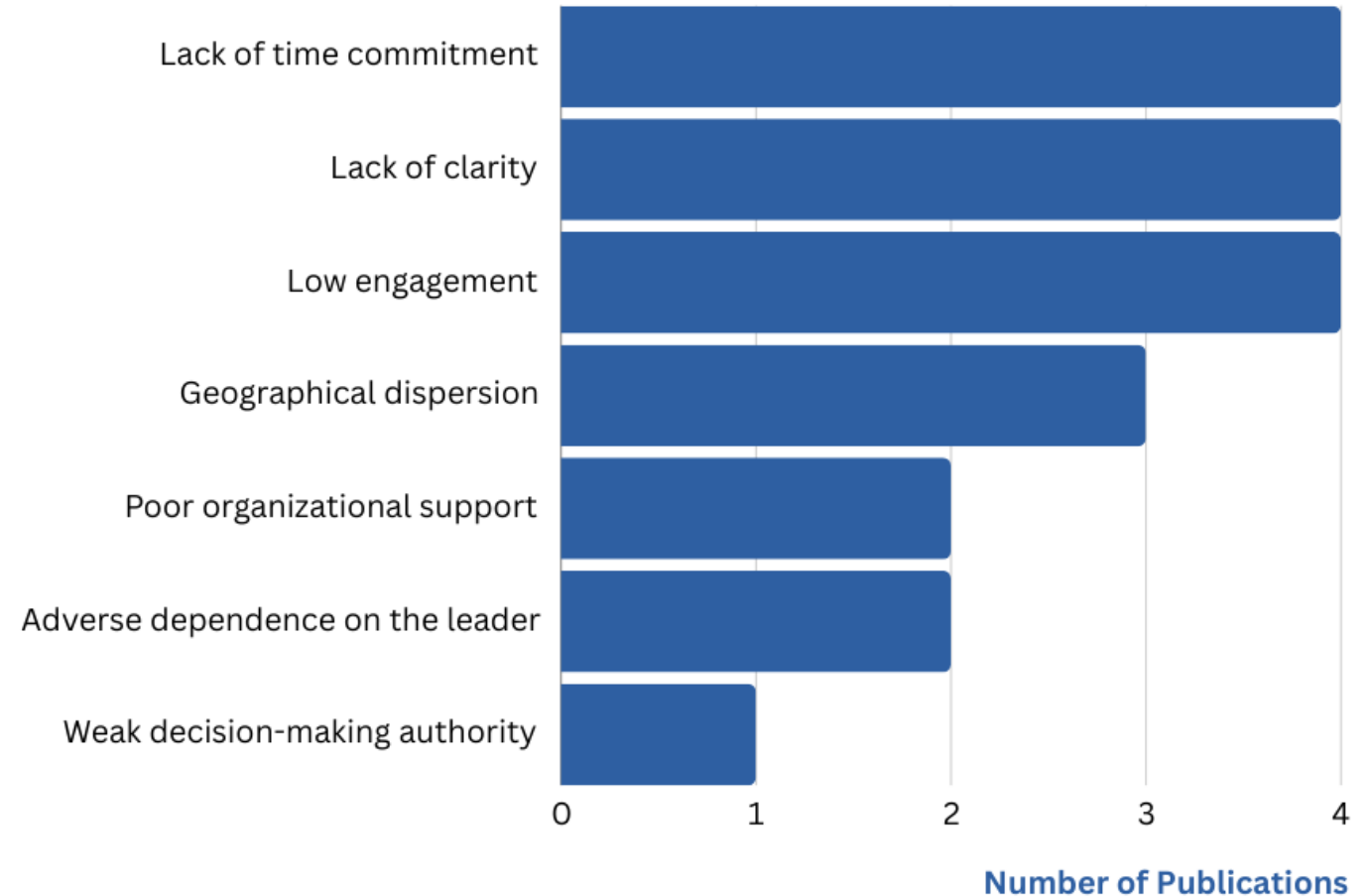
T. Detofeno, S. Reinehr, and M. Andreia. "Technical debt guild: when experience and engagement improve technical debt management". In: Proceedings of the XX Brazilian Symposium on Software Quality. 2021, pp. 1–10.
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F. Tobisch, J. Schmidt, and F. Matthes. "Investigating Communities of Practice in LargeScale Agile Software Development: An Interview Study". In: International Conference on Agile Software Development. Springer. 2024, pp. 3–19.

Challenges faced by Communities of Practice in LSAD

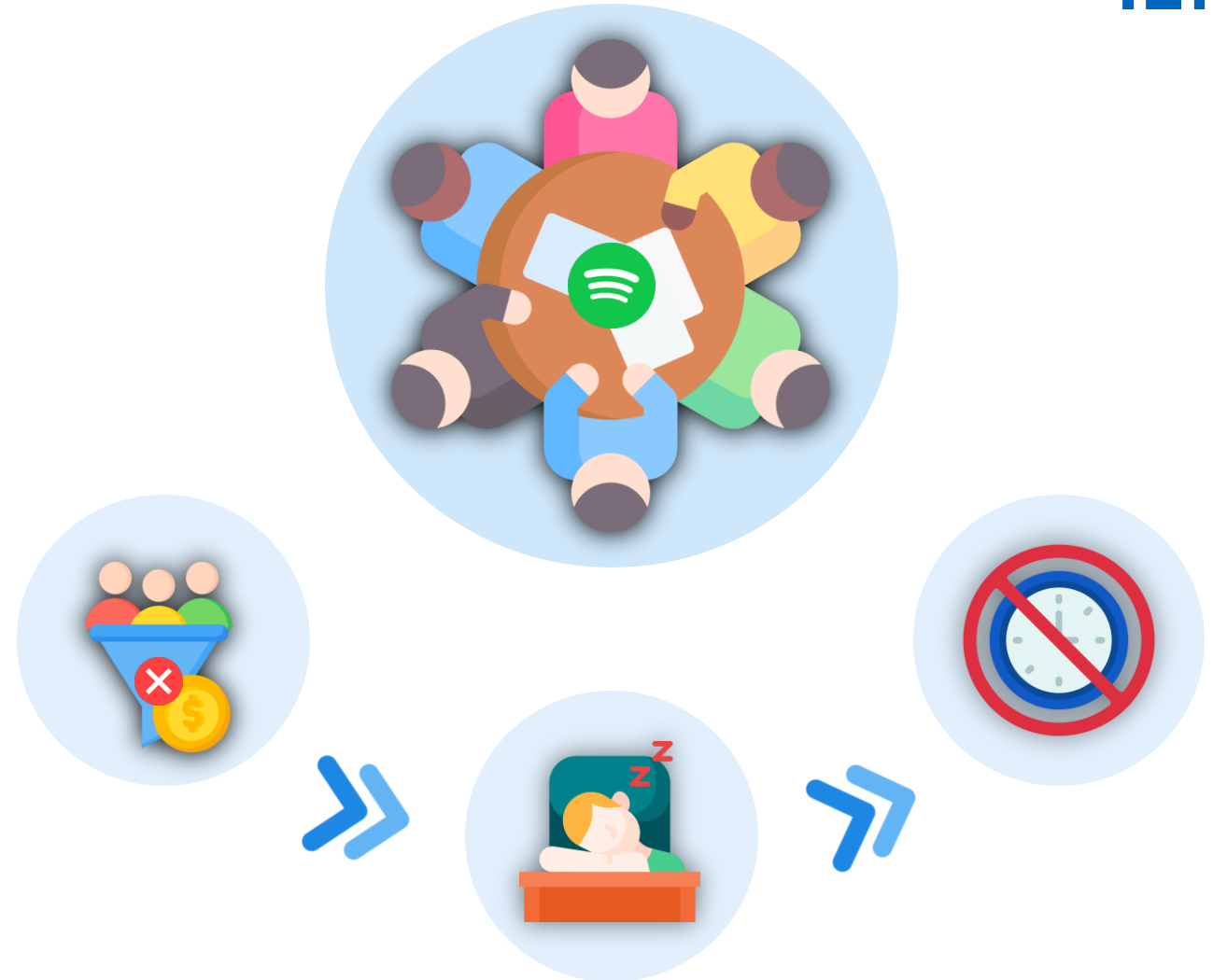
- Both the organization and the members played a role in rising challenges during the implementation of the CoPs
- Some challenges were interconnected.
Example in the next slide!

Challenges faced by CoPs



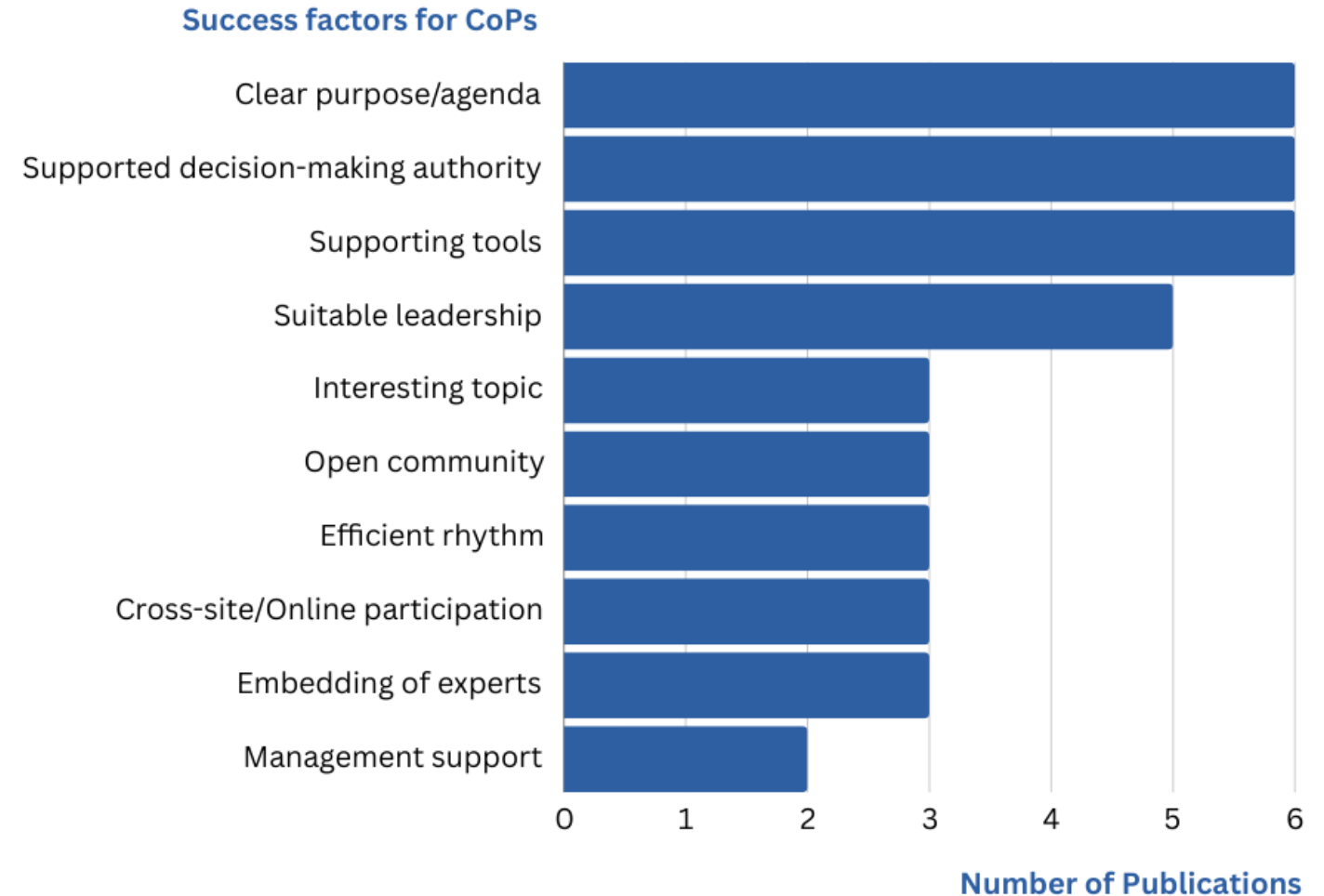
Challenges faced by Communities of Practice in LSAD

- Example: Spotify Guilds
- Lack of support from the organization was a contributing factor to poor engagement from the guild members.
→ Lack of time dedication for the guild activities.
- Members struggled to point out expectations.



Factors for establishing successful Communities of Practice in LSAD

- Proposed solutions for the challenges faced by the CoPs.
- First step: establishing a clear purpose.
- Next: creating and sustaining an engaging environment for the members.



Factors for establishing successful Communities of Practice in LSAD

- Example: CoPs at Ericsson



M. Paasivaara and C. Lassenius. "Deepening our understanding of communities of practice in large-scale agile development". In: 2014 Agile Conference. IEEE. 2014, pp. 37– 40.

Factors for establishing successful Communities of Practice in LSAD

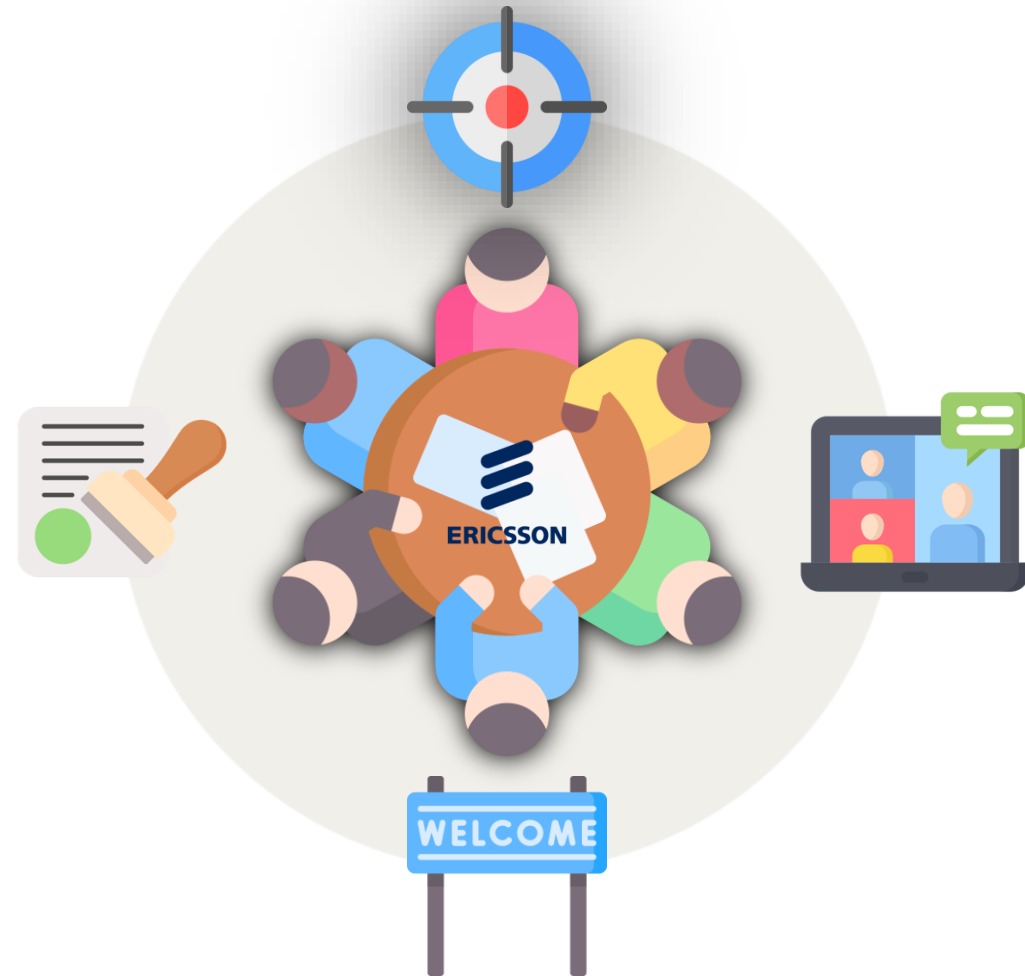
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Factors for establishing successful Communities of Practice in LSAD

- Example: CoPs at Ericsson
- **Clear agenda** is important. Members must agree on the scope and goals of the CoP.
- Establishing a time limit and ending discussions before they went on for too long is necessary.
→ **Efficient rhythm**



Factors for establishing successful Communities of Practice in LSAD

- Example: CoPs at Ericsson
- Ericsson applied **decentralized, team-driven decision-making**, where experimenting and quick feedback was key.
- It was crucial that management does not overrule decisions.
 - Members make mistakes in a safe environment where they can eventually fix them through their own feedback.



Factors for establishing successful Communities of Practice in LSAD

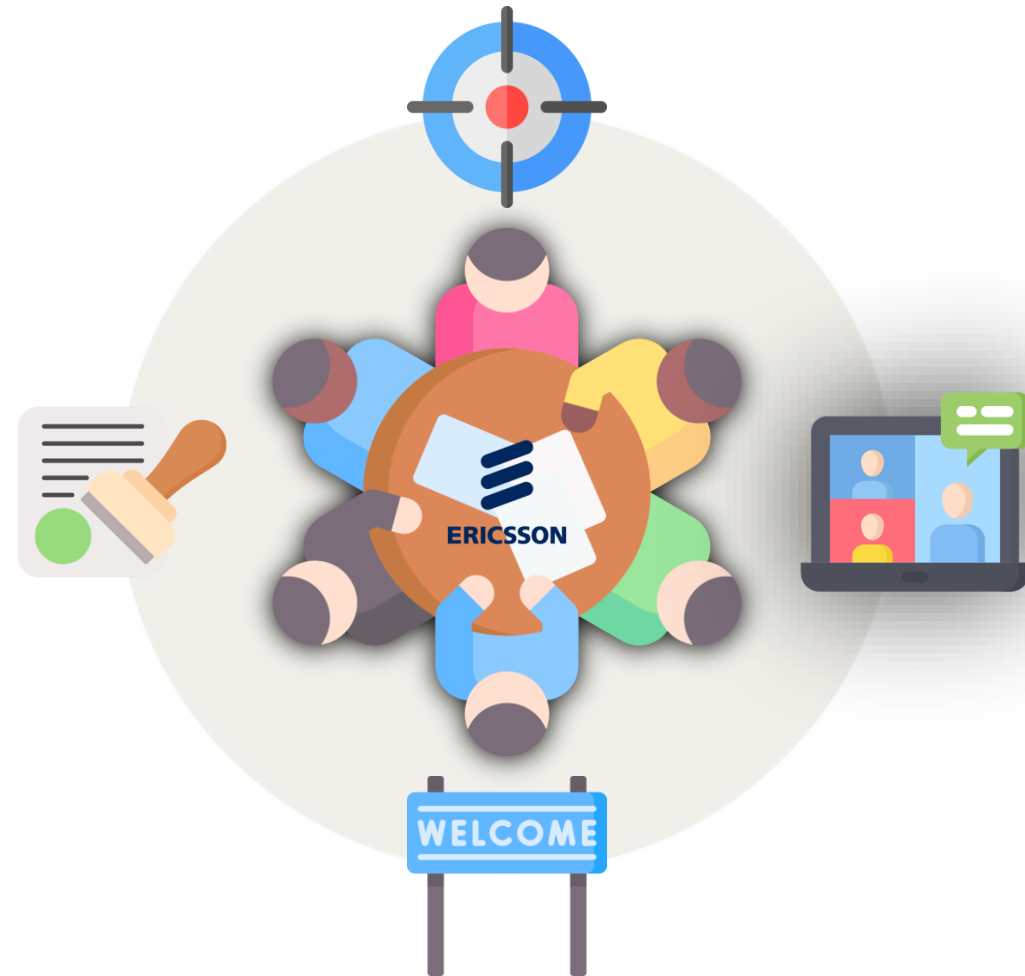
- Example: CoPs at Ericsson
- **Open community** is crucial.
- Everyone should be invited. Even people who are not regarded as experts can attend passively.
- Agenda should be available to everyone.
- Communities must avoid making cliques and holding private meetings.



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Factors for establishing successful Communities of Practice in LSAD

- Example: CoPs at Ericsson
- Geographical dispersion between U.S. and European offices is tackled through **supporting tools**.
- Supporting tools: Online conference calls and Wiki pages to display agendas.



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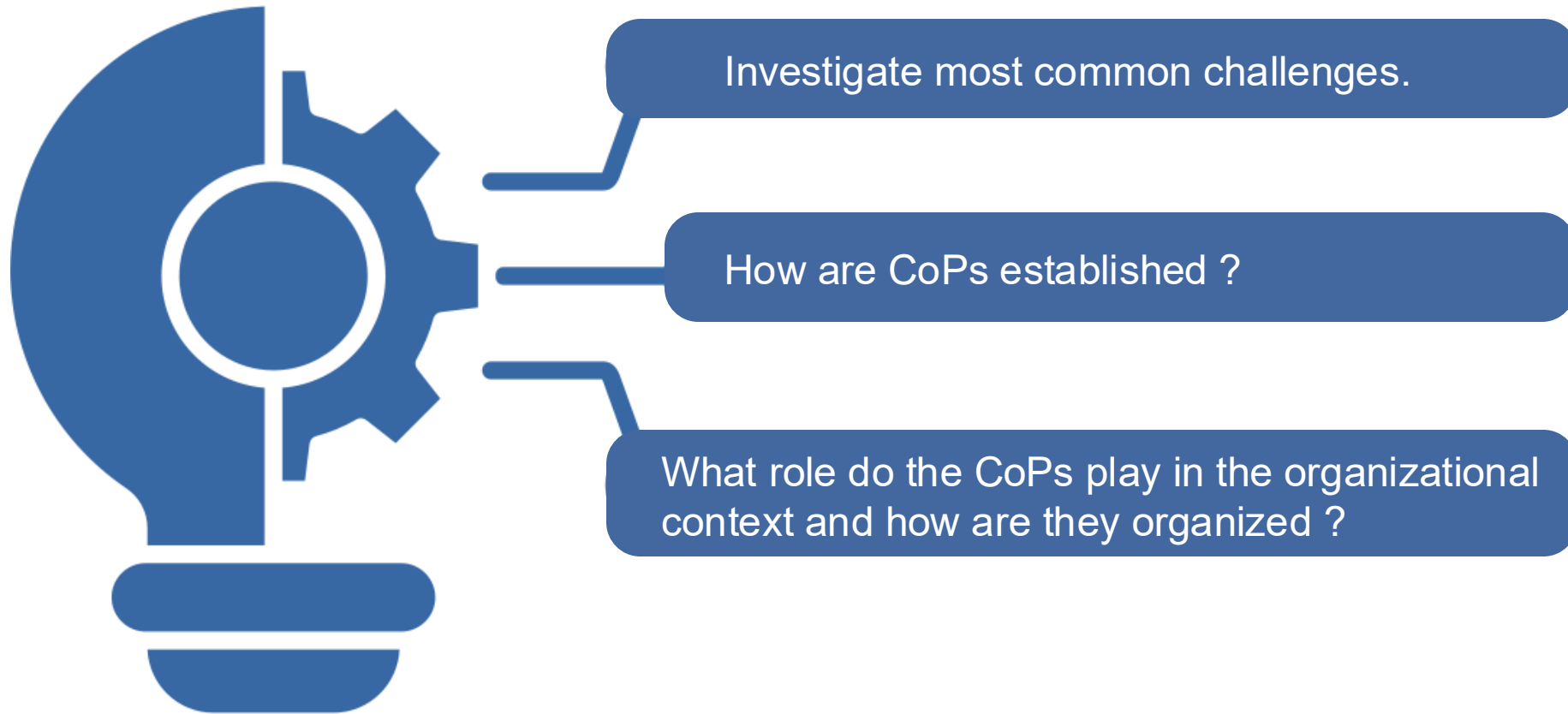
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Communities of Practice in Large-Scale Agile Software Development (CoPs)

- Case studies are the most frequent type of studies and conferences are the most common publication types.
- Knowledge sharing, coordination and continuous improvement are the most dominant factors behind establishing Communities of Practice.
- CoPs benefit the organization as well as the participating members.
- Lack of clarity, low engagement and a poor time commitment are leading setbacks.
- Support from the organization tackles a number of challenges faced by CoPs.
- Decision-making authority is motivational for members.



Thank you for your attention!



Questions ?
Feedback ?



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