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

Johannes Alexander Schmidt, 27.03.2023, Kick-off presentation
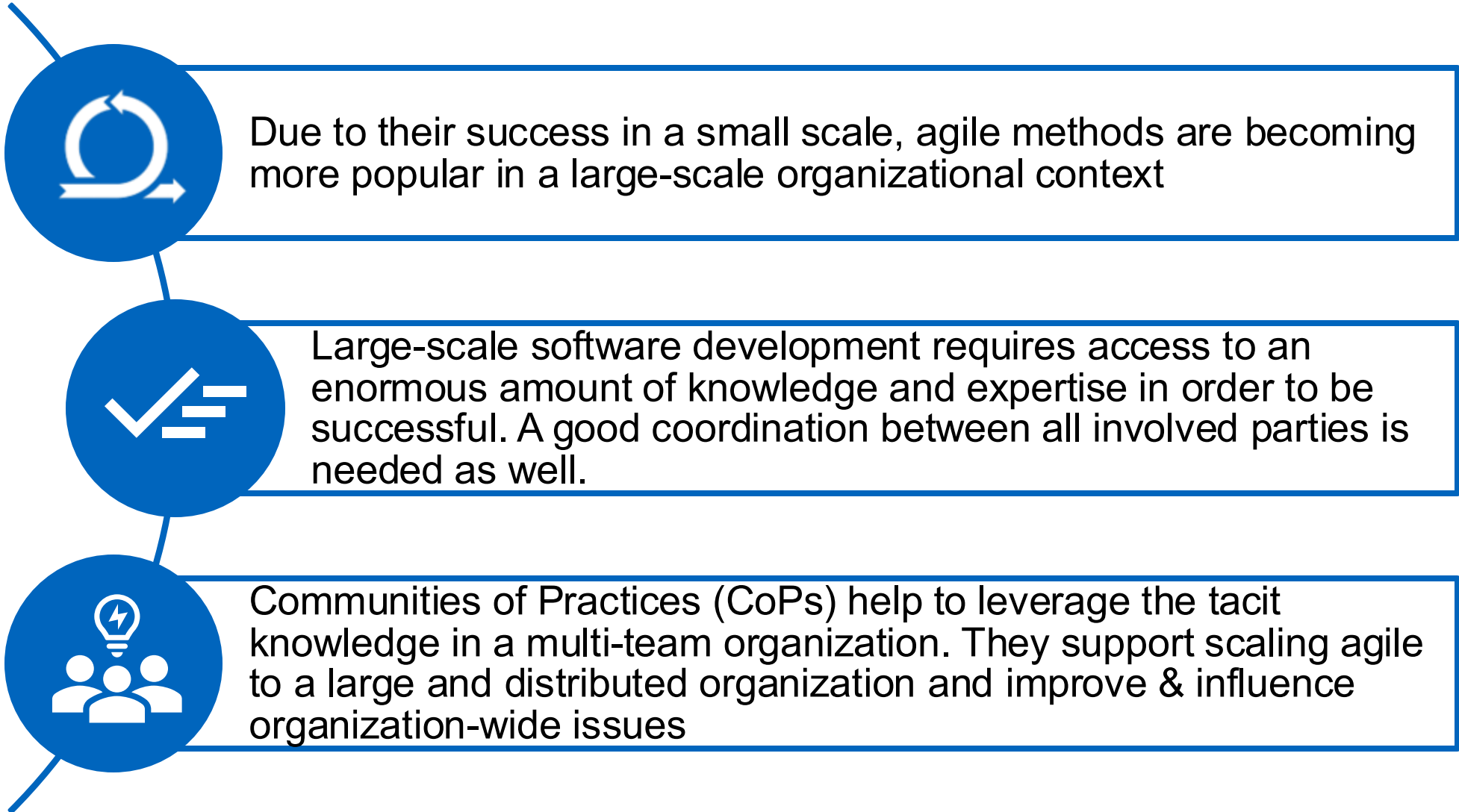
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Outline

Motivation

Research methodology

Current state

Research roadmap

Motivation – Need for Knowledge in Large-Scale Agile Software Development

Due to their success in a small scale, agile methods are becoming more popular in a large-scale organizational context

Large-scale software development requires access to an enormous amount of knowledge and expertise in order to be successful. A good coordination between all involved parties is needed as well.

Communities of Practices (CoPs) help to leverage the tacit knowledge in a multi-team organization. They support scaling agile to a large and distributed organization and improve & influence organization-wide issues

Bjørnson et. al. (2016), K. Dikert et. al. (2016), Hendriks, P. (1999), Ipe, M. (2003), Kahkonen, T. (2004), Markus, L. M. (2001), Paasivaara et. al. (2014), Šmite, D. Et. al. (2017)

Motivation – Lack of Literature → Research

Potential and relevance of CoPs for large agile organizations

Benefits:

- Gaining knowledge & coordination
- Creation of a network

Challenges:

- High Attendance
- Active participation

Only a little research focuses on:

- Providing an overview of which CoPs currently exist in practice
- The establishment of CoPs in large-scale agile development (how/why)
- Providing guidance, especially on topics relevant to practice

This thesis tries to fill this gap.

Bjørnson et. al. (2016), Markus, L. M. (2001), Paasivaara et. al. (2014), Šmite, D. Et. al. (2017), Tarmizi, H. et. al. (2006)

Motivation – Goal

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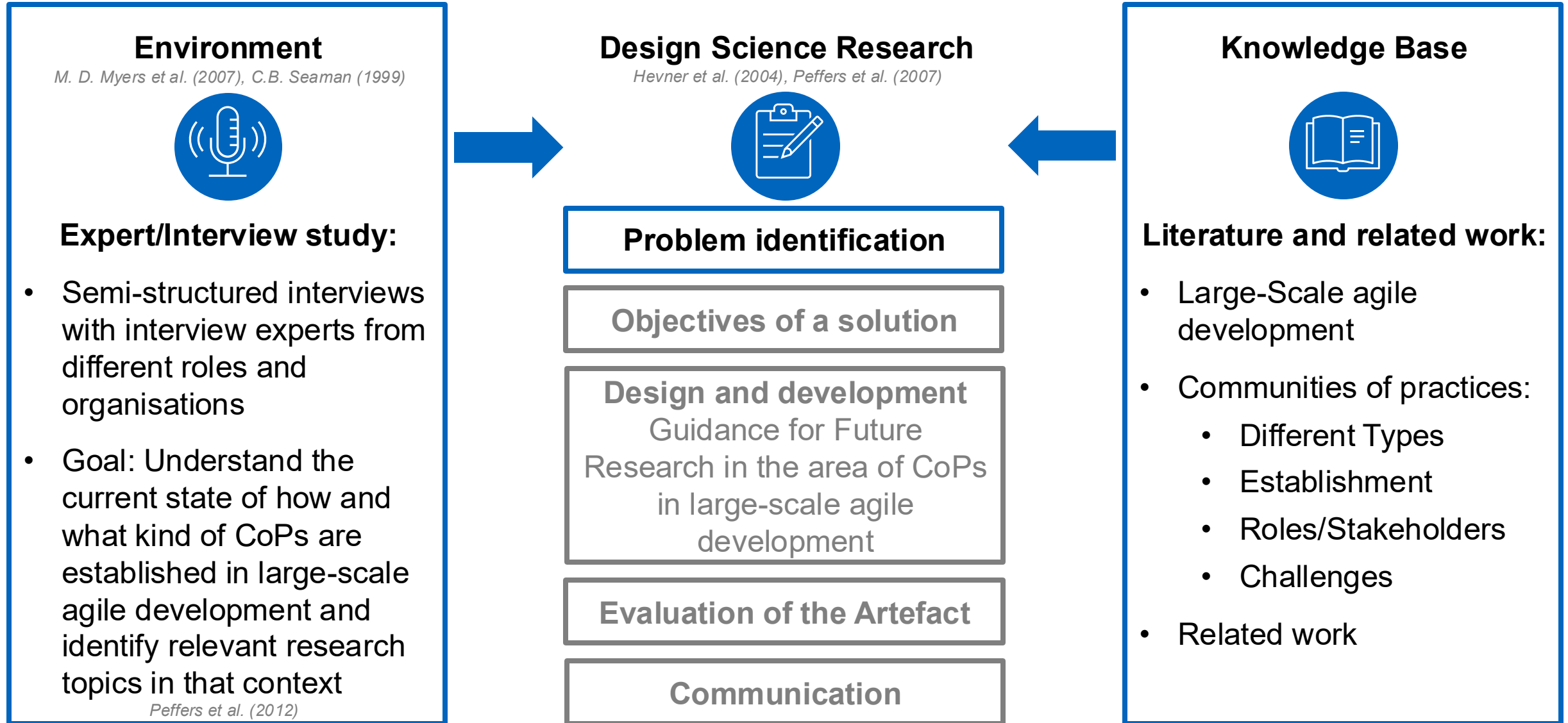
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Goal of this thesis:

- Investigate knowledge sharing, knowledge creation, and cross-team coordination through CoPs
- Build the foundation of providing relevant guidance for practitioners by identifying particular areas and problems of high relevance to the practice that require more research/guidance

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Research methodology – Problem Identification for Design Science

Environment
M. D. Myers et al. (2007), C.B. Seaman (1999)

Expert/Interview study:

- Semi-structured interviews with interview experts from different roles and organisations

- Goal: Understand the current state of how and what kind of CoPs are established in large-scale agile development and identify relevant research topics in that context
Peffers et al. (2012)

Design Science Research
Hevner et al. (2004), Peffers et al. (2007)

Problem identification

Objectives of a solution

Design and development
Guidance for Future Research in the area of CoPs in large-scale agile development

Evaluation of the Artefact

Communication

Knowledge Base

Literature and related work:

- Large-Scale agile development

- Communities of practices:
  - Different Types
  - Establishment
  - Roles/Stakeholders
  - Challenges

- Related work

Research Methodology - Research questions

RQ1 — What types of CoPs exist in large-scale agile software development?

RQ2 — What are the goals and reasons for the establishment of CoPs in that context?

RQ3 — How were the CoPs established? Who was involved and how?

RQ4 — How do knowledge sharing, and governance take place?

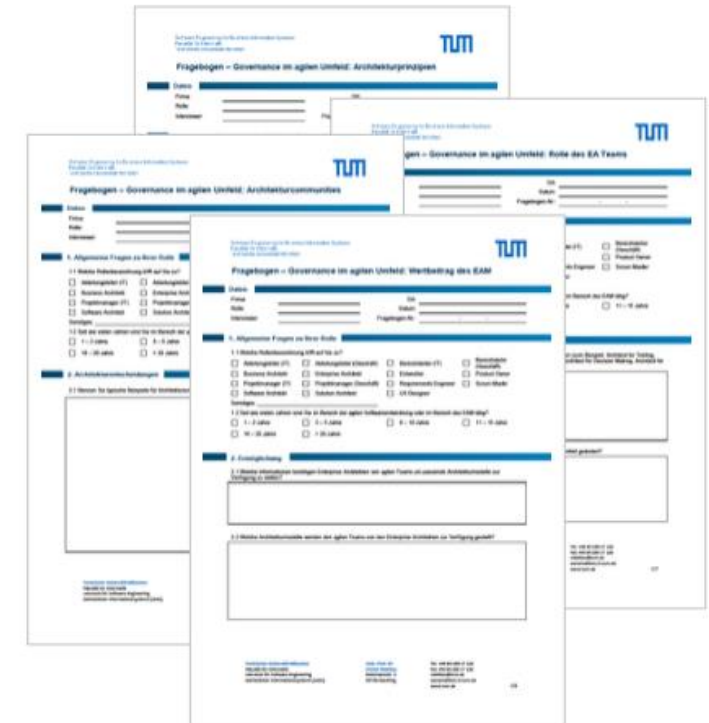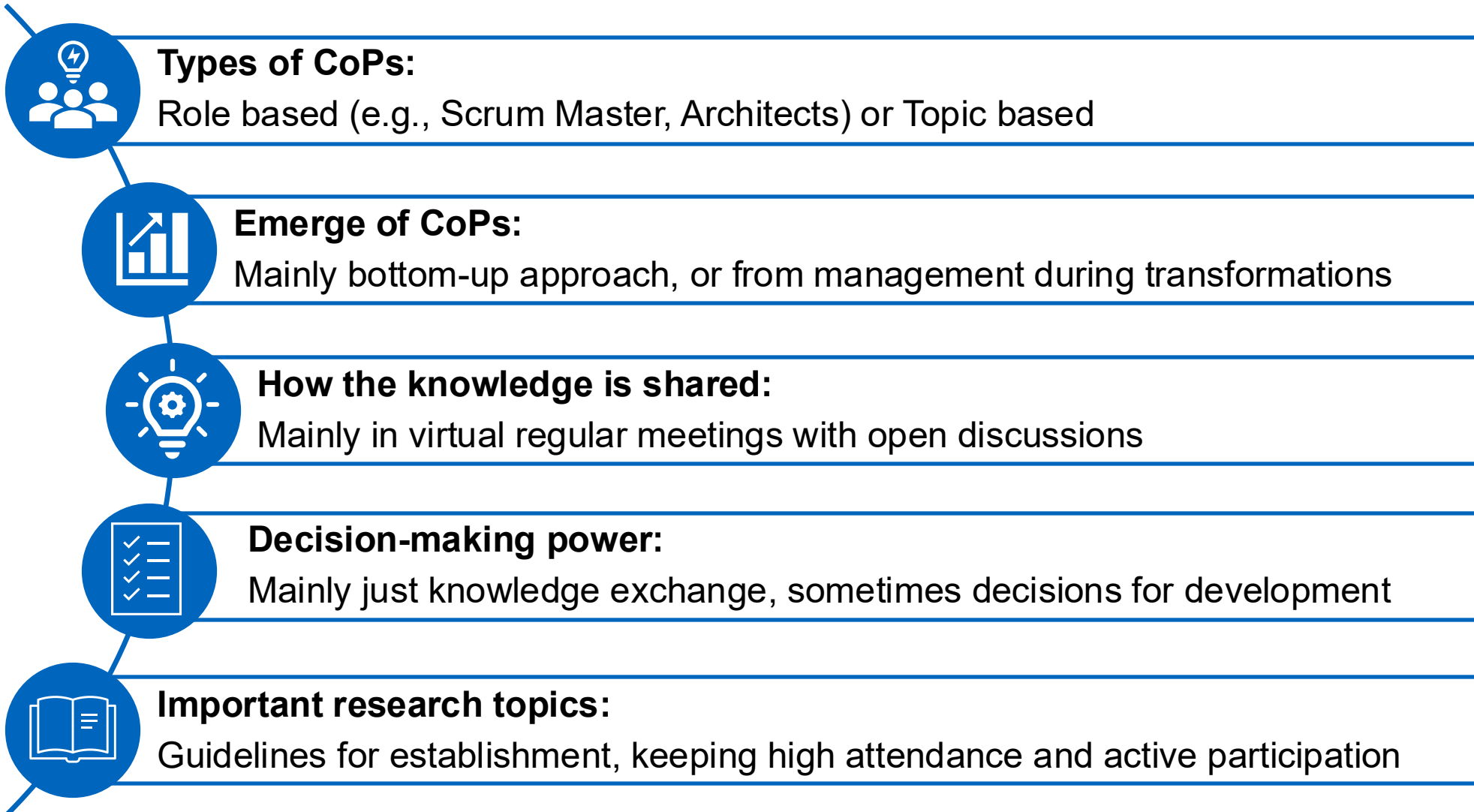**RQ5** — What research topics in that context would be relevant/interesting for practice?

Research methodology – Interview study

1. **Data collection**
   - Literature review
   - Data is gathered via **semi-structured interviews:**
     - Interview roles: stakeholders that are involved in the establishment of CoPs (e.g., Solution Architects, Product Owners, Product Managers, Scrum Masters, Scrum Coaches,…). To ensure a great variety of voices, diverse roles are desirable.
     - We provide pre-presentations of our research, an overview of the interviews and their purpose for interviewees.

2. **Data analysis**
   - The interviews are recorded, transcribed and anonymized.
   - The interviews are analyzed and codified using MAXQDA. After the data analysis, the recordings are deleted.
   - Types of CoPs, reasons/goals for their establishment, changes and governance, and important research areas for the industry within software development are identified.

3. **Identification and formulation of results** based on collected data

A. R. Hevner, S. T. March, J. Park, & S. Ram (2004)

Research methodology – Initial insights

Types of CoPs:
Role based (e.g., Scrum Master, Architects) or Topic based

Emerge of CoPs:
Mainly bottom-up approach, or from management during transformations

How the knowledge is shared:
Mainly in virtual regular meetings with open discussions

Decision-making power:
Mainly just knowledge exchange, sometimes decisions for development

Important research topics:
Guidelines for establishment, keeping high attendance and active participation

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ID	Role	Experience in LSAD	Company	Duration
1	Manager, Scrum Coach, Architect	11-15 years	SoftwareCo1	40 min
2	Enterprise Architect	1-2 years	InsuranceCo1	52 min
3	Program Manager, Scrum/Agile Coach	11-15 years	SoftwareCo2	53 min
4	Manager	6-10 years	ConsultCo1	41 min
5	Software Architect	6-10 years	SoftwareCo2	41 min
6	Quality Assurance, Agile Trainer	1-2 years	ConsultCo2	45 min
7	Agile Coach, Manager	6-10 years	CarCo1	51 min
8	Scrum Master, Security Expert	< 1 year	SoftwareCo2	54 min
9	Developer, Scrum Master	11-15 years	SoftwareCo2	34 min
10	Agile Coach	3-5 years	CarCo2	62 min
11	Business Analyst	6-10 years	ConsultCo1	47 min
12	Scrum Master	11-15 years	SoftwareCo2	41 min
13	Scrum Master/Agile Coach, Manager	6-10 years	ElectRetailCo1	44 min
14	Agile Coach	1-2 years	ElectRetailCo1	53 min
15	…	…	MedicDeviCo1	…
16	…	…	FoodCo1	…
17	…	…	ConsultCo1	…
18	…	…	ConsultCo3	…
…	…	…	…	…

- **14** semi-structured interviews conducted
- **4** upcoming interview dates fixed
- **2+** people in contact
- **11+** different companies
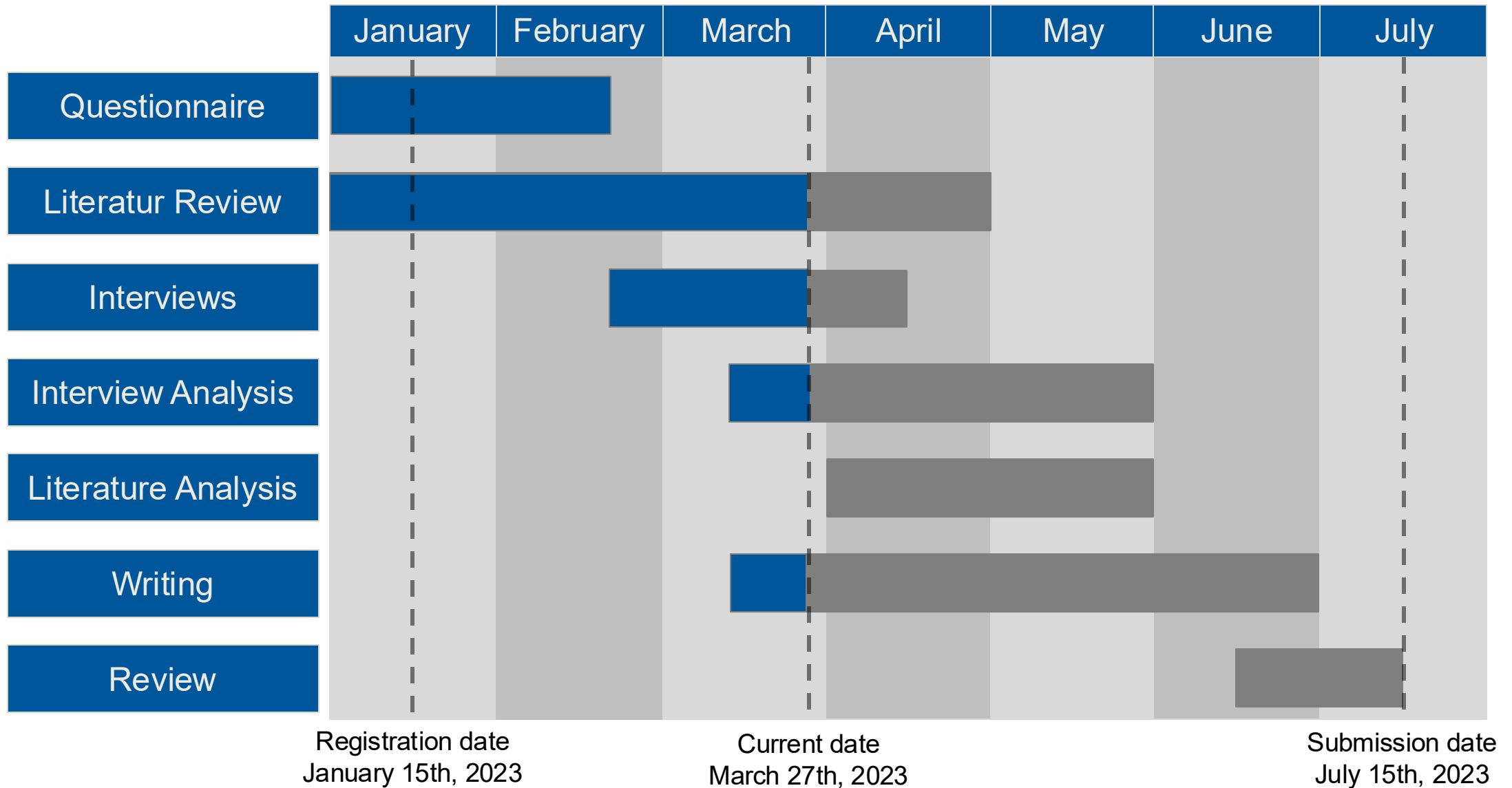- Analysis / Coding started mid of March

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References

Icons: Flat Icon https://www.flaticon.com/

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Backup: Literature

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