

Establishing and Reporting Goals in Large-Scale Agile Software Development

Moritz Schüll, Kick-Off Master's Thesis, 03.05.2021

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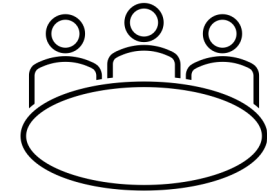
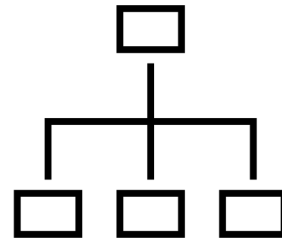
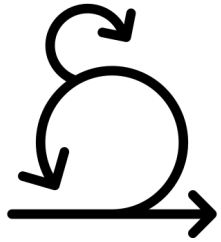
Motivation

Research Questions

Methodology

Current State

Roadmap



Agile methods are designed for small, co-located teams [1].

Their shown benefits make them the **most common methodology** in software development [2].

Applying agile methods on **large-scale projects** leads to several **challenges** [3].

It must be ensured that agile teams are collaborating and working towards **common goals** [4].

[1] Boehm & Turner (2005)

[2] VersionOne (2020)

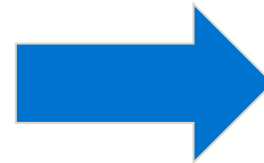
[3] Dikert, Paasivaara & Lassenius (2016)

[4] Moe et al. (2019)

Increasing **popularity** of agile at scale in industry [3] and academia [5].

Reporting is positively associated with program and portfolio success [6, 7].

No notable research stream for reporting in scaled agile environments [5, 6].



Reporting in large-scale agile environments seems like a **new** and **relevant** field for research.

[3] Dikert, Paasivaara & Lassenius (2016)

[5] Uludağ & Philipp (2021)

[6] Stettina & Schoemaker (2018)

[7] Müller, Martinsuo & Blomquist (2008)

Agenda



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RQ01

How are goals in large-scale agile software development established and reported at the case organization?

RQ02

What are challenges and reasons for establishing and reporting goals in large-scale agile software development?

RQ03

How can these challenges for establishing and reporting goals in large-scale agile software development be addressed?

Agenda



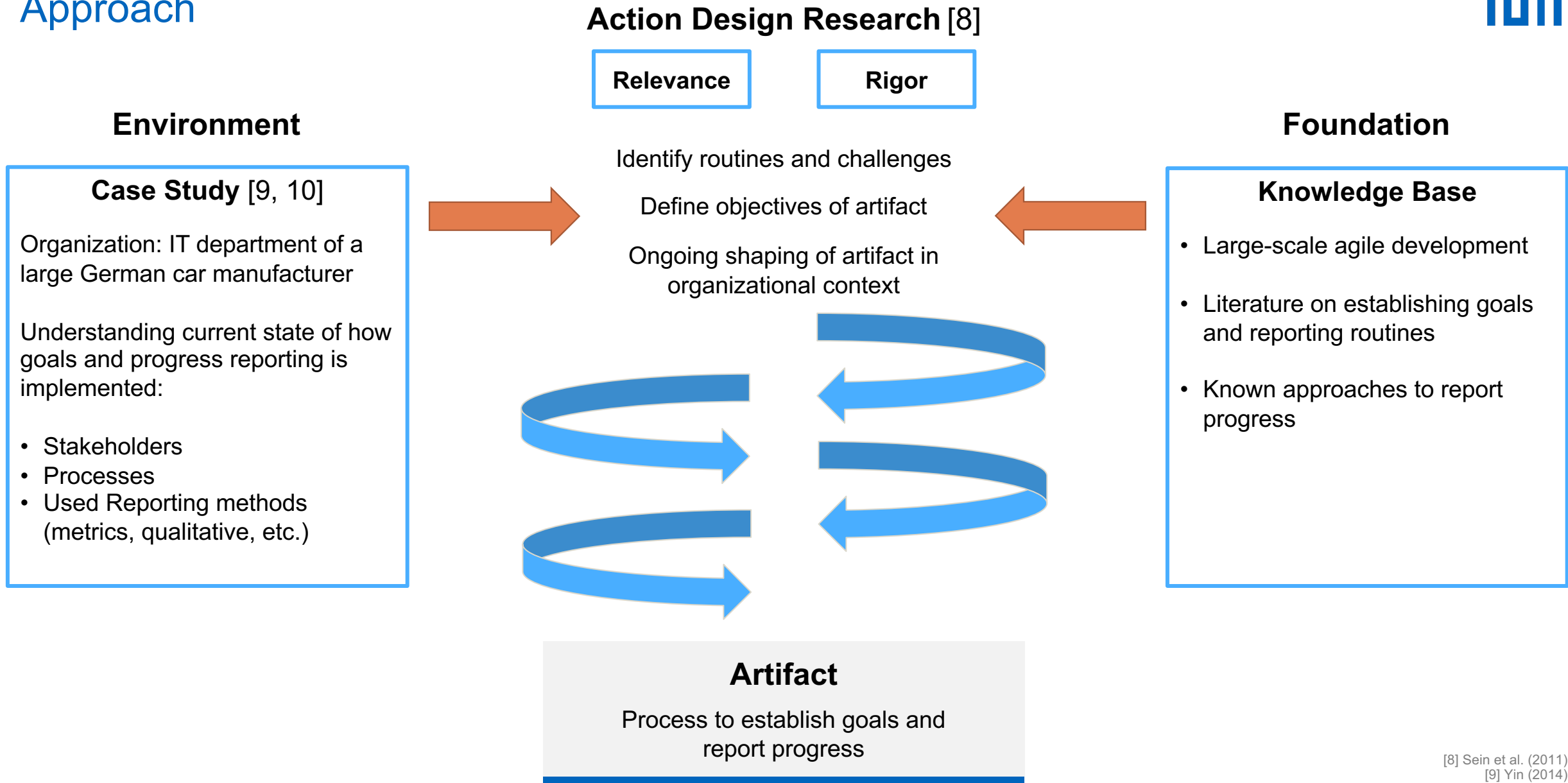
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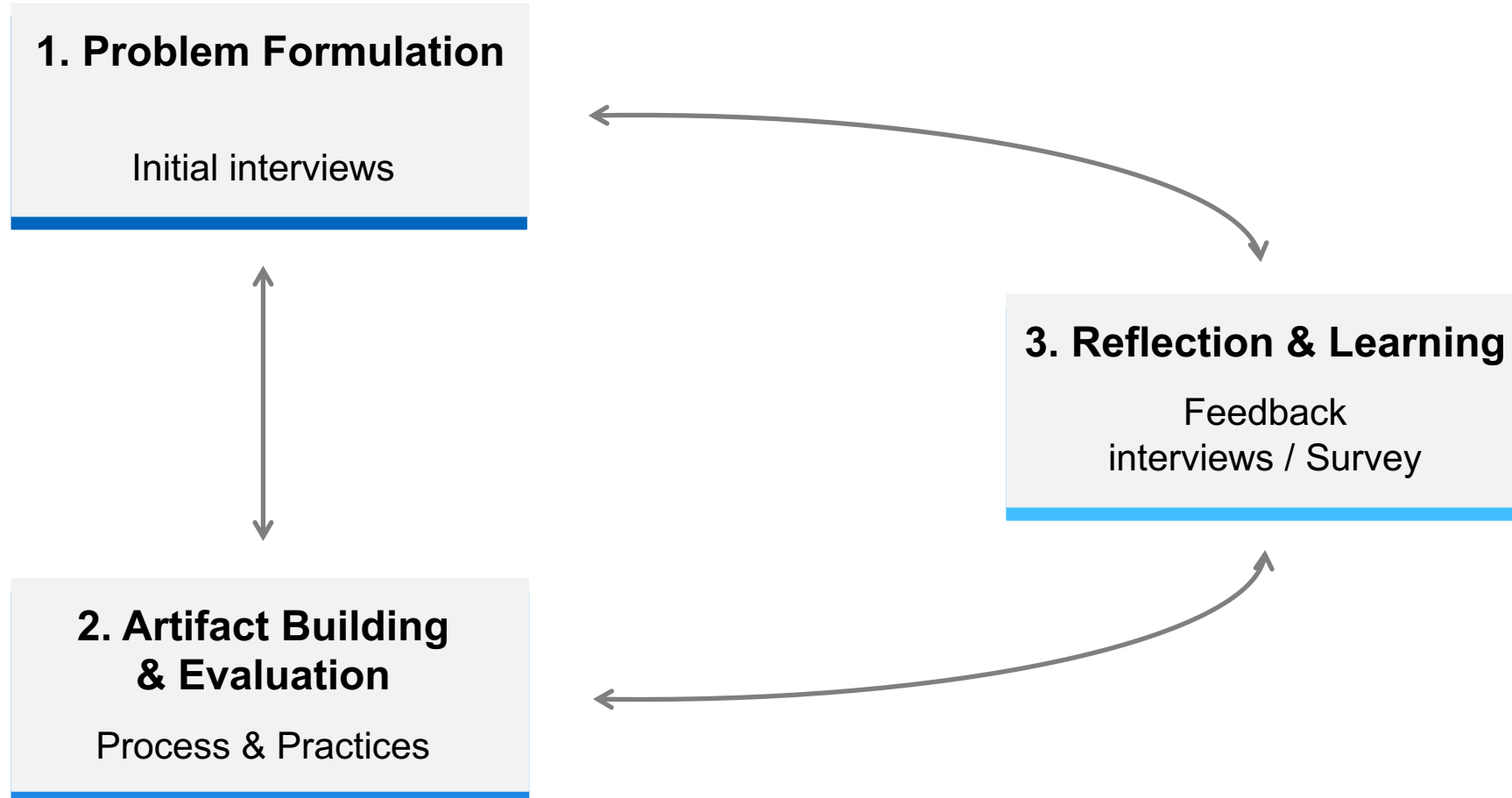
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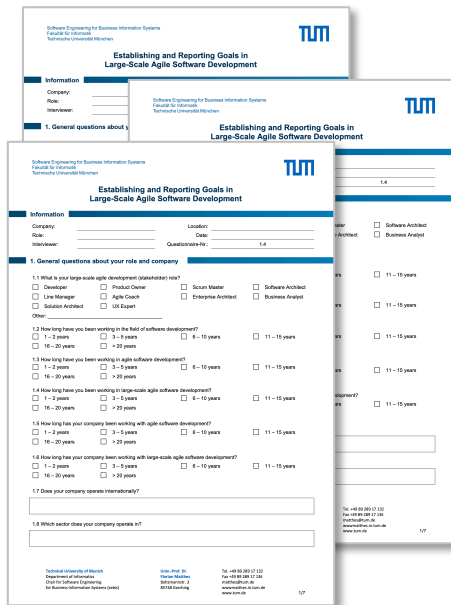
Roadmap



[8] Sein et al. (2011)
[9] Yin (2014)
[10] Runeson & Höst (2009)



Problem Formulation



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Establishing and Reporting Goals in Large-Scale Agile Software Development

Information
Company: _____
Role: _____
Interviewer: _____

1. General questions about your role and company

1.1 Which is your large-scale agile development (development) role?
 Developer Product Owner Scrum Master Software Architect
 Line Manager Agile Coach Enterprise Architect Business Analyst
 Solution Architect Self-Organized
Other: _____

1.2 How long have you been working in the field of software development?
 1 - 2 years 3 - 5 years 6 - 10 years 11 - 15 years 16 - 20 years > 20 years

1.3 How long have you been working in agile software development?
 1 - 2 years 3 - 5 years 6 - 10 years 11 - 15 years 16 - 20 years > 20 years

1.4 How long have you been working in large-scale agile software development?
 1 - 2 years 3 - 5 years 6 - 10 years 11 - 15 years 16 - 20 years > 20 years

1.5 How long has your company been working with agile software development?
 1 - 2 years 3 - 5 years 6 - 10 years 11 - 15 years 16 - 20 years > 20 years

1.6 How long has your company been working with large-scale agile software development?
 1 - 2 years 3 - 5 years 6 - 10 years 11 - 15 years 16 - 20 years > 20 years

1.7 Does your company operate internationally?

1.8 Which sector does your company operate in?

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Semi-structured interviews [9, 10]

Document analysis [10]

Understand how goals are currently established and reported by practitioners.

Identify challenges and reasons behind the current approach(es).

[9] Yin (2014)
[10] Runeson & Höst (2009)

Problem Formulation

Semi-structured interviews [9, 10]

Introduction

Goals

Reporting I

Reporting II

Duration: ~ 90 minutes

The image shows a questionnaire form titled "Establishing and Reporting Goals in Large-Scale Agile Software Development". The form is divided into several sections:

- Information:** Fields for Company, Role, and Interviewer.
- 1. General questions about your role and company:** A series of multiple-choice questions (1.1 to 1.6) asking about the respondent's role, years of experience in various capacities, and company size.
- 1.7:** A question about the company's internationality.
- 1.8:** A question about the industry the company operates in.

At the bottom of the form, there is contact information for the Technical University of Munich (TUM) and the Institute of Information Systems in Mechanical Engineering.

[9] Yin (2014)

[10] Runeson & Höst (2009)

Problem Formulation

The image shows two overlapping survey forms. The top form is titled "Establishing and Reporting Goals in Large-Scale Agile Software Development" and includes a header with the TUM logo and contact information. It contains sections for "Information" (Company, Role, Interviewer) and "1. General questions about your role and company". The questions include: "1.1 Which is your large-scale agile development (development) role?", "1.2 How long have you been working in the field of software development?", "1.3 How long have you been working in agile software development?", "1.4 How long have you been working in large-scale agile software development?", "1.5 How long has your company been working with agile software development?", "1.6 How long has your company been working with large-scale agile software development?", "1.7 Does your company operate internationally?", and "1.8 Which sector does your company operate in?". The bottom form is identical but partially obscured.



- ✓ Conducted 9 interviews:
- 1 Product Owner
 - 5 Scrum Masters & Agile Coaches
 - 1 Line Manager
 - 1 Business Expert
 - 1 Solution Train Engineer

[9] Yin (2014)
[10] Runeson & Höst (2009)

Problem Formulation

The image shows two overlapping survey forms. The top form is titled "Establishing and Reporting Goals in Large-Scale Agile Software Development" and includes a header with the TUM logo and contact information. It contains sections for "Information" (Company, Role, Interviewer) and "1. General questions about your role and company". The bottom form is identical but shows more of the questionnaire, including questions 1.1 through 1.8 with multiple-choice options for years of experience and checkboxes for various roles like Developer, Product Owner, Scrum Master, etc.



- ✓ Conducted 9 interviews
- ✓ Finished transcription of the interviews

[9] Yin (2014)
[10] Runeson & Höst (2009)

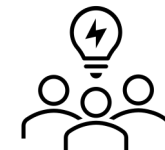


Qualitative Coding and Data Analysis [11, 12]

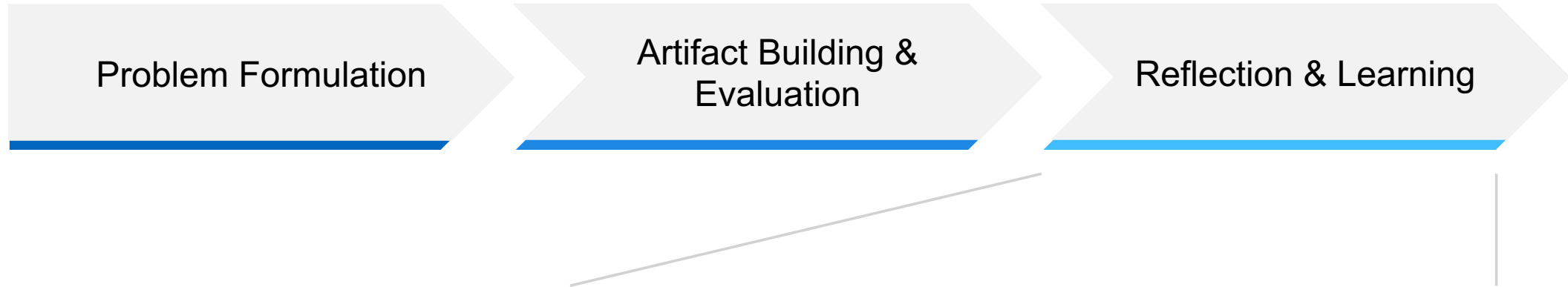
- Identify practices, challenges, reasons
- Incorporate existing literature

Artifact Building & Evaluation [8]

- Build process model / visualization of these challenges, reasons, practices and their connections
- Continuous input from practitioners via further interviews / survey and workshop



[8] Sein et al. (2011)
[11] Miles & Huberman (1994)
[12] Cruzes & Dyba (2011)



Formalize the learning in thesis

- Initial situation & challenges
- Attempts to address challenges
- Evaluation results & artifact adjustments

Agenda



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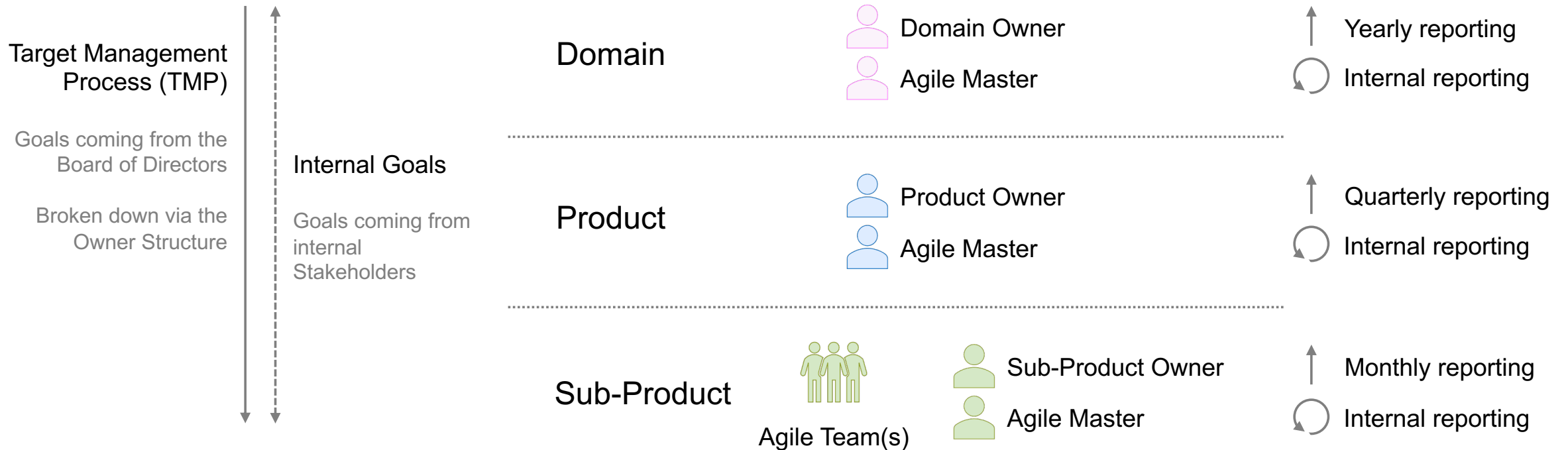
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Current State at the Case Organization



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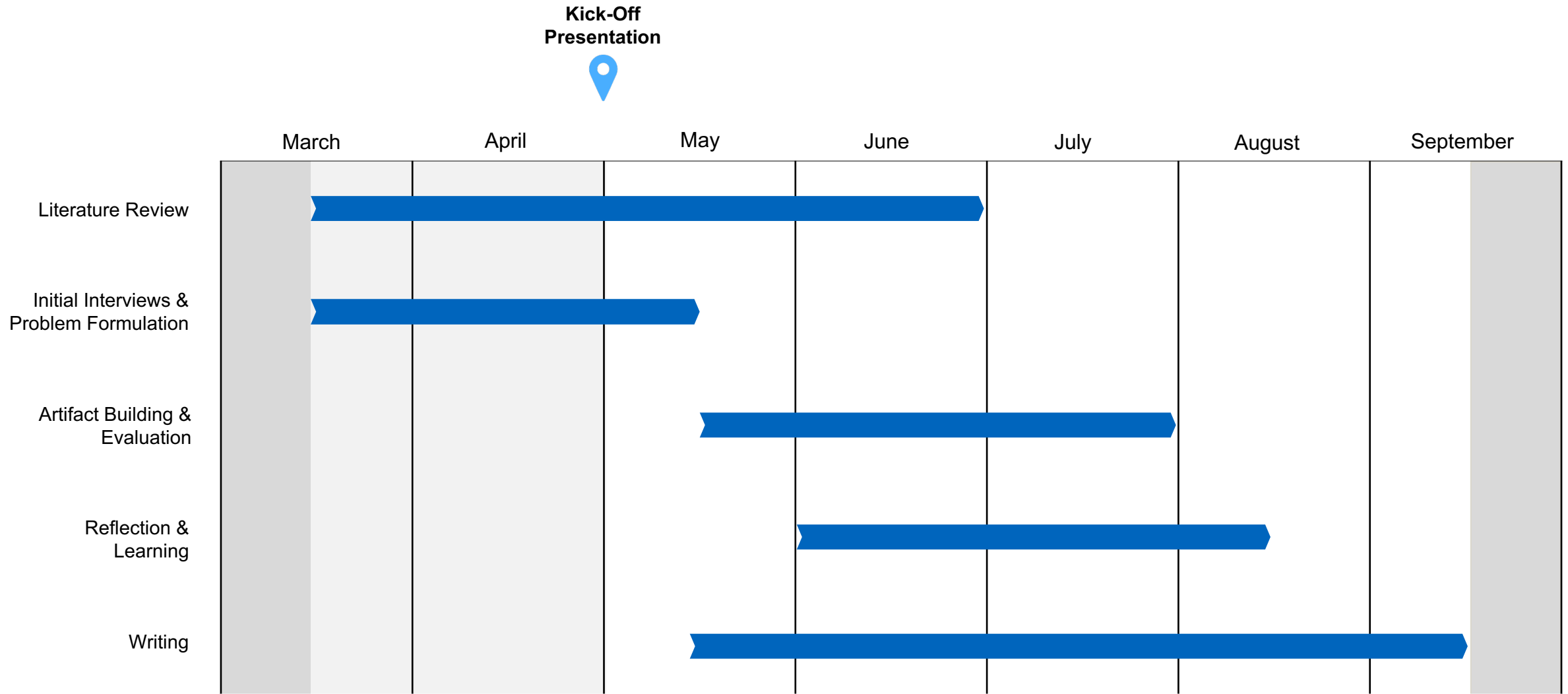
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- [1] Boehm, B., & Turner, R. (2005). Management challenges to implementing agile processes in traditional development organizations. *IEEE software*, 22(5), 30-39.
- [2] VersionOne Inc. *14th annual state of agile report*. 2020. URL: <https://stateofagile.com/#ufh-i-615706098-14th-annual-state-of-agile-report/7027494> (visited on 03/13/2021).
- [3] Dikert, K., Paasivaara, M., & Lassenius, C. (2016). Challenges and success factors for large-scale agile transformations: A systematic literature review. *Journal of Systems and Software*, 119, 87-108.
- [4] Moe, N. B., Dahl, B. H., Stray, V., Karlsen, L. S., & Schjødt-Osmo, S. (2019). Team autonomy in large-scale agile. In *Proceedings of the Annual Hawaii International Conference on System Sciences (HICSS)* (pp. 6997-7006). AIS Electronic Library.
- [5] Uludağ, Ö., Philipp, P., Putta, A., Paasivaara, M., Lassenius, C., & Matthes, F. (2020). Revealing the State-of-the-Art in Large-Scale Agile Development: A Systematic Mapping Study.
- [6] Stettina, C. J., & Schoemaker, L. (2018). Reporting in agile portfolio management: routines, metrics and artefacts to maintain an effective oversight. In *International Conference on Agile Software Development* (pp. 199-215). Springer, Cham.
- [7] Müller, R., Martinsuo, M., & Blomquist, T. (2008). Project portfolio control and portfolio management performance in different contexts. *Project management journal*, 39(3), 28-42.
- [8] Sein, M. K., Henfridsson, O., Purao, S., Rossi, M., & Lindgren, R. (2011). Action design research. *MIS quarterly*, 37-56.
- [9] Robert K. Yin. *Case study research: Design and Methods*. 5th ed. Los Angeles, USA: SAGE Publications, 2014.
- [10] Runeson, P., & Höst, M. (2009). Guidelines for conducting and reporting case study research in software engineering. *Empirical software engineering*, 14(2), 131-164.
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