

Understanding the Concept of Stress in Large-Scale Agile Transformations: A Multiple-Case Study

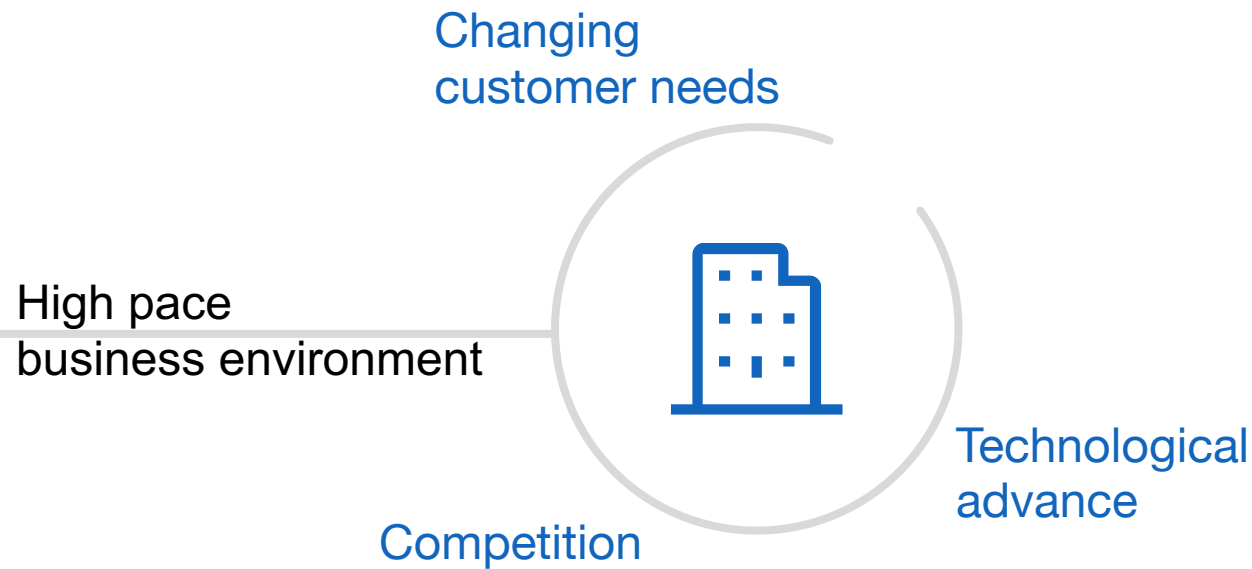
Sophie Buchelt, Kick-Off Presentation Master's Thesis – Munich, 13.01.2020

Chair of Software Engineering for Business Information Systems (sebis)
Faculty of Informatics
Technische Universität München
www.matthes.in.tum.de

Outline

1. Motivation
2. Research Questions
3. Related Work
4. Research Approach
5. Initial Results
6. Timeline

The research field of agile transformation is increasingly becoming relevant



- The **increasing pace of business transformations** requires organizations to adopt to new circumstances apace [1] [2].
- Agile methods empower organizations to **respond to changes in a timely and effective manner** [3] [4].
- In a business transformation context, organizational change can lead to challenges and **stress** [5] [6] [7].
- **Organizations** in this sense are **comparable to humans** who feel stress. Stress can have negative but also a positive effects on the progress of the transformation [7] [8] [9].

Large-scale agile transformations are a research field of **high scientific and industry relevance** [1] [3]. **Stress situations** during large-scale agile transformations is a topic, which has not yet been sufficiently investigated in research [5].

To investigate the stated issue, I formulate the following research questions

What are reasons for organizations to undergo agile transformations?

RQ 1

What are stress situations organizations undergo during large-scale agile transformations?

RQ 2

What are origins of stress situations in large-scale agile transformations?

RQ 3

How can stress situations in large-scale agile transformations be classified?

RQ 4

How do stress situations within large-scale agile transformations impact an organization?

RQ 5

Related work can be found in two streams of literature



Literature on the topic of agile transformation

- Focus on literature reviews and case studies on change management and agile transformation projects
 - Dikert, K., Paasivaara, M., Lassenius, C.: “Challenges and success factors for large-scale agile transformations: A systematic literature review” [10]
 - Barroca L., Dingsøyr T., Mikalsen M.: “Agile Transformation: A Summary and Research Agenda from the First International Workshop” [11]
- Challenges in agile transformations:
 - Fuchs, C., Hess, T.: “Becoming Agile in the Digital Transformation: The Process of a Large-Scale Agile Transformation” [5]
 - Gerster, D., Dremel, C., Kelker, P.: “Agile Meets Non-Agile: Implications of Adopting Agile Practices at Enterprises” [6]



Literature on the topic of stress

- A stressor is an environmental event that distracts a system away from the optimal track resulting in a state of lower utility. The perception of this situation can be positive and/or negative, depending on the individual. [7], [8], [9]
 - Kast, F., Rosenzweig, J.: “General Systems Theory: Applications for Organization and Management” [8]
 - Oken, B., Chamine, I., Wakeland, W.: “A systems approach to stress, stressors and resilience in humans” [9]
 - Hargrove, M.B., Quick, J.C., Nelson, D.L. Quick, J.D.: “The theory of preventive stress management: a 33-year review and evaluation” [7]
- Evaluation of stress situations
 - Mitroff, I., Shrivastava, P., Udwadia, F.: “Effective Crisis Management” [12]
 - Burnett, J.: “A Strategic Approach to Managing Crises” [13]

This research is based on a multiple case study approach

01 Case study design and planning

- Literature Review
- **Explorative** case study to identify large-scale **agile approaches**, and **stress factors**.

The image shows a screenshot of a research questionnaire. The title is 'Identifying Stress Factors in Large-Scale Agile Transformations: A Multiple Case Study'. It includes a TUM logo and a header for 'Software Engineering for Business Information Systems'. The questionnaire is divided into sections: 'Data', '1. General questions', and '2. Background'. The 'Data' section includes fields for 'Company', 'Location', 'Date', and 'Questionnaire No.'. The '1. General questions' section contains several multiple-choice questions about agile transformation experience and stress factors. The '2. Background' section includes a table for 'Questions (Q1-Q10)' and a 'Background' section with a table for 'Background information'.

02 Collecting data

- Semi-structured interviews of different roles (e.g. Agile Coach, Scrum Master, Chapter Lead, Platform SW Architect, Transformation Agent, IT Specialist, Change Leader, Area PO, etc.)
- 6 companies with 2-3 interviews each
- Duration: 60-120 minutes

03 Data analysis

- Analyzing and codifying interviews to identify answers to our research questions.

[14], [15]

We interviewed employees on a management level from seven companies

Company	Role	Date	Duration
Automotive Co. A	Transformation Agent UX	20.11.19	01:06 h
	Area Product Owner	22.11.19	01:45 h
	IT Specialist	26.11.19	01:39 h
Tech Co. A	Platform Software Architect	23.12.19	01:26 h
	Senior Agile Transition Manager	14.01.20	-
Automotive Co. B	Management SAFe	21.11.19	02:02 h
	Management Vehicle Engineering	08.01.20	01:37 h
Retail Co.	Head of Data Engineering	08.01.20	02:00 h
	Agile Coach	16.01.20	-
Insurance Co.	Agile Master	12.12.19	01:31 h
Tech Co. B	Agile Master	09.01.20	01:49 h

A deep dive on the stress situations shows three main descriptions of stress



Planning

- No definition of product structure
- Planning uncertainty
- Adoption of textbook approach to company specific format



Management

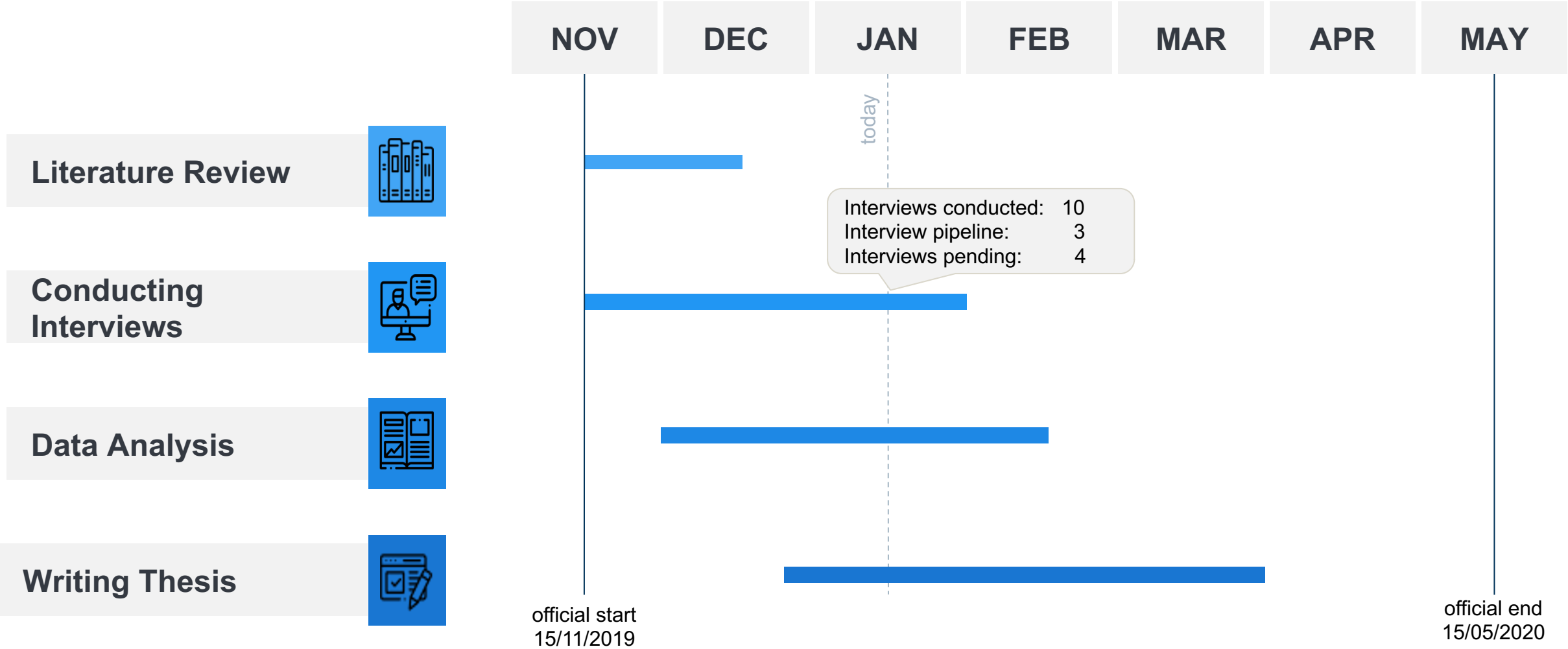
- C-level change
- Management buy-in



Communication

- Expectation management
- Control problem due to broken information flow
- Unclear communication

Next steps within this roadmap are further interviews and their analysis



Thank you!



Questions / Suggestions / Feedback

- [1]] Ömer Uludag, Martin Kleehaus, Xu, and Florian Matthes. (2017). “Investigating the Role of Architects in Scaling Agile Frameworks.” 10.1109/EDOC. (2017).
- [2] Peter Weill and Stephanie Woerner, “Thriving in an Increasingly Digital Ecosystem,” *MIT Sloan Manag. Rev.*, (2015), pp. 27–34.
- [3] T Torgeir Dingsøyr, Sridhar Nerur, VenuGopal Balijepally, and Nils Brede Moe. “A decade of agile methodologies: Towards explaining agile software development”. In: *Journal of Systems and Software* 85.6 (2012), pp. 1213–1221.
- [4] Ömer Uludag, Matheus Hauder, Martin Kleehaus, Christina Schimpfle, and Florian Matthes. “Supporting large-scale agile development with domain-driven design”. In: *International Conference on Agile Software Development*. Springer. (2018), pp. 232– 247.
- [5] Christoph Fuchs and Thomas Hess. “Becoming Agile in the Digital Transformation: The Process of a Large-Scale Agile Transformation”. In: *Thirty Ninth International Conference on Information Systems*, (2018).
- [6] Daniel Gerster, Christian Dremel, and Prashant Kelker. ““Agile Meets Non-Agile”: Implications of Adopting Agile Practices at Enterprises”, (2018).
- [7] Blake Hargrove, James Quick, Debra Nelson, and Jonathan Quick. „The theory of preventive stress management: a 33-year review and evaluation.“ *Stress and Health*, (2011), 182-193.
- [8] Fremont Kast, James Rosenzweig. „General Systems Theory: Applications for Organization and Management.“ *The Academy of Management Journal*, (1972) pp. 447-465.
- [9] Barry Oken, Irina Chamine, and Wayne Wakeland, “A systems approach to stress, stressors and resilience in humans,” *Behav. Brain Res.*, (2015), pp. 144–154.
- [10] Kim Dikert, Maria Paasivaara, and Casper Lassenius, “Challenges and success factors for large-scale agile transformations: A systematic literature review,” *Journal of Systems and Software*, vol. 119, pp. 87– 108, 2016.
- [11] Leonor Barroca, Torgeir Dingsøyr, Marius Mikalsen. “Agile Transformation: A Summary and Research Agenda from the First International Workshop.” *Agile Processes in Software Engineering and Extreme Programming – Workshops*, (2019), pp. 364.
- [12] Ian Mitroff, Terry Pauchant, and Paul Shrivastava, “The structure of man-made organizational crises,” *Technological Forecasting and Social Change*, (1988) pp. 83–107.
- [13] John Burnett, “A Strategic Approach to Managing Crises.” *Public Relations Review*, (1998), pp. 475-488.
- [14] Per Runeson and Martin Höst. “Guidelines for conducting and reporting case study research in software engineering”. In: *Empirical software engineering* 14.2 (2009), pp. 131
- [15] Robert K. Yin. *Case study research and applications: Design and methods*. Sixth edition. Los Angeles et al.: SAGE, 2018.



B.Sc.

Sophie Buchelt

Technische Universität München
Faculty of Informatics
Chair of Software Engineering for Business
Information Systems

Boltzmannstraße 3
85748 Garching bei München

Tel +49.89.289. 17132

Fax +49.89.289.17136

www.matthes.in.tum.de



Backup

