

# Coordination in agile development organizations

*A mixed-method study of meetings*

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# Abstract

**Background:** Meetings play an important role in facilitating coordination and communication in successful software developing projects. Despite its crucial role, not all meetings produce the intended benefits. However, little research has been done on the effects of high meeting loads, particularly when high demands of coordinated effort are needed, such as in large-scale agile development projects.

**Objective:** This study aims to gain an understanding of how meetings are conducted and how the meeting amount is perceived within software development teams. Furthermore, it investigates how perceptions of meeting load is related to meeting and job satisfaction.

**Method:** The empirical research was a mixed-method case study investigating one pilot team. A quantitative survey of 300 participants was analyzed to form the foundation for the study. Four semi-structured interviews were conducted with a pilot team, which included team members, team lead, and a consultant. The team was observed for six weeks during meetings and a workshop.

**Results:** The survey uncovered several tendencies and relationships between different measures of meeting perceptions. On average, employees at FinTech spent about 3-4 hours daily in scheduled meetings, much higher than indicated by previous research. Almost 30% of the time spent in scheduled meetings was perceived as wasteful. Nevertheless, meetings were generally seen as being useful. Active measures to facilitate consecutive hours of uninterrupted work, such as assigning meeting free time in the calendar and turning off notifications, improved meeting satisfaction in the pilot team.

**Conclusion:** Taking active measures to facilitate consecutive uninterrupted work, and to decrease time spent in meetings, may increase job satisfaction in agile software development teams. While this thesis's limited size and scope impart some limitations to the generalizability of the findings, this thesis may hopefully serve as a starting point for further research and analysis on the impact of meeting load on job satisfaction.



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# Chapter 1

## Introduction

Organizations today must be able to adapt to complex and unpredictable tasks in IT projects, where it may be necessary to quickly adjust according to customers' needs. Delivering results frequently and iteratively requires work and knowledge coordination on both project and team levels. Inter-team coordination is therefore critical when managing large projects involving multiple teams (Moe, Dingsøy, & Rolland, 2018). Despite the growing popularity of large-scale agile, inter-team coordination has proved challenging to practice (Berntzen, Hoda, Moe, & Stray, 2022). Software development projects often involve complex activities which requires multiple dependencies among experts, roles, teams, tasks, and various software components and systems. To handle this complexity and frequent changes, agile software projects need a high level of coordination between project participants (Mikalsen, Moe, Stray, & Nyrud, 2018).

Meetings are a common coordination mechanism in most industries, including software development. Agile software development also introduces agile practices in the form of meetings to help teams coordinate more frequently. However, little research has been done on the effect of a high meeting load, particularly when a high level of coordination is needed, like in large-scale agile development teams. Also, meetings serve as an important context for understanding organizational behavior and employee attitudes, as they can provide a window into the dynamics of the workplace (Allen, Lehmann-Willenbrock, & Sands, 2016).

### Motivation

During my time as a student, I have been active in several student associations. Because of this, collaboration and coordination are two very dear interests of mine. I frequently experienced firsthand that coordination through meetings could prove challenging. In addition, COVID-19 made



virtual meetings the new standard, which further introduced a new set of challenges. Balancing studies and two part time jobs with student association projects resulted in a high meeting load that could be fatiguing. Therefore, my interest in the effects of meetings continuously grew and how to balance one's workday. As a result, I wanted to examine this when choosing what to focus on in my master thesis.

## 1.1 Research Context

During my thesis research, I worked with representatives from SINTEF Digital and the Software Engineering Research Group under the Department of Informatics at The University of Oslo.

The aim of this research was to gain a deeper understanding of the perceived meeting load for employees in software development. Furthermore, I wanted to study the challenges they faced and investigate how to potentially improve their workday. To do this, I conducted a case study in a company developing software for Norwegian banks. The data collection was initiated by analyzing a survey regarding meetings in the organization. These findings then served as a foundation for interviews, observations, and a workshop with team members struggling with too many meetings. This resulted in a series of activities that was tested over a period of time.

### 1.1.1 Research Questions

This thesis aims to answer the following research questions:

**RQ1:** How are the meetings and meeting load perceived by agile employees?

**RQ2:** What are possible solutions to reduce perceived meeting load, and improve job and meeting satisfaction?

## 1.2 Thesis Structure

The remainder of this thesis is structured as follows:

**Chapter 2: Background and Related Work**, provides an overview and a theoretical foundation of the most essential parts of the field. This is a prerequisite for understanding the aim of this thesis.

**Chapter 3: Research Method and Design**, presents the choice of methodology, data collection procedure, and data analysis approach.

**Chapter 4: Results**, provides the findings and results from the collected data.

**Chapter 5: Discussion**, compares the findings to existing research literature, and discuss results and theory. Validity concerns and limitations will also be covered.

**Chapter 6: Conclusion**, summarizes and concludes the thesis as a whole.

## Chapter 2

# Background and Related Work

This chapter contains an overview of the background literature relevant to the thesis. The first section introduces theories on coordination and coordination in agile software development. Then, the concept of meeting satisfaction is presented.

Software development projects are often large and complex ventures which require a high degree of coordination, communication, and co-operation (Nyrud & Stray, 2017; Moe et al., 2018; Stray & Moe, 2020; Berntzen et al., 2022). Coordination, or managing dependencies between activities has been identified as a critical challenge for when it comes to conducting successful large-scale agile software development (Malone & Crowston, 1993; Dikert, Paasivaara, & Lassenius, 2016). A particular problem in applying agile work strategies to larger projects is how to handle inter-team coordination.

One of the main ways in which coordination occur is through the practice of meetings. Meetings serve a variety of purposes including information sharing, training, brainstorming, problem solving and decision making (Cohen, Rogelberg, Allen, & Luong, 2011). In addition, meetings can serve as a platform for managing and promoting positive employee attitudes (Allen et al., 2016).

Despite the many benefits associated with meeting-practices, a growing body of research has addressed a number of challenges related to meetings. These challenges include complaints about meetings being unproductive and costly, poorly planned and poorly run, time consuming, and contributing to higher perceived work loads and lower job satisfaction (Kirmeyer, 1988; Luong & Rogelberg, 2005; Cohen et al., 2011; Allen et al., 2016; Klünder et al., 2020).

To gain a better understanding on what factors contribute to effective and satisfying meetings,

and which factors that hinder them, it is important to understand the organisational situation and context in which meetings take place (Stray, Moe, & Sjoberg, 2020). Meetings, in turn, constitute an important context for understanding organizational behaviour and employee attitudes (Allen et al., 2016).

## 2.1 Research on Coordination

Coordination in organization studies and software development can be seen in different ways (Strode, Huff, Hope, & Link, 2012). This section will present the most relevant theories concerning coordination. The theories and definitions of coordination emerge from various fields and are necessary to address to establish context.

### 2.1.1 Coordination

According to Strode et al. (2012), effective coordination has been acknowledged as a critical element in organizations long before the start of agile software development. Agile software projects are often characterized as having a high degree of complexity and frequent changes. Therefore, effective coordination between the participants is required to ensure successful project execution (Strode et al., 2012).

Coordination across teams is defined as inter-team coordination and is essential in situations where tasks must be performed under certain constraints caused by inter-dependencies. As a result, a widely used definition of coordination is from Malone and Crowston (1993), who defined coordination as “managing dependencies between activities”. This definition emphasizes dependencies, which are situational constraints on action.

Another longstanding popular definition is by Ven, Delbecq, and Koenig (1976), who defined coordination as “integrating or linking together different parts of an organization to accomplish a collective set of tasks”. This definition categorizes all forms of coordination into two general categories: *programming* or *feedback*. Coordination programming integrates mechanisms using pre-established plans, schedules, forecasts, etc. This is classified as an impersonal mode, where minimal verbal communication is required between task performers. Coordination by feedback, however, is defined as “mutual adjustments based upon new information”, and is divided into two modes: personal mode and group mode. In the personal mode, individual roles serve as the mechanism for making mutual task adjustments through either vertical or horizontal communication channels. In group mode, coordination is achieved through scheduled or unscheduled meetings. Ven et al. (1976) argue that coordination, the act of linking together different parts of the organization, happens through communication channels or communication mechanisms. Together, impersonal mode, personal mode and group mode is used to coordinate work activities within an organization

(Ven et al., 1976).

### **2.1.2 Coordination in Agile Software Development**

In agile software development, effective coordination is necessary to manage the numbers of dependencies in a software project. In group mode, coordination at the team level is ensured through practices such as daily meetings, planning meetings, demonstrations, and retrospective meetings. However, despite being a popular practice, the daily stand-up meeting has been proved difficult to conduct in a way that benefits the whole team (Stray et al., 2020). Achieving group mode coordination via unscheduled meetings is best ensured at the team and inter-team level by team members and teams sitting together in the same office (Nyrud & Stray, 2017).

### **2.1.3 Coordination in Large-Scale Agile**

In large-scale software development, coordination is an important but challenging success factor (Nyrud & Stray, 2017). Agile development at a large-scale introduces a new set of challenges to organizations (Dybå & Dingsøy, 2008). As more teams work together in large-scale software development to achieve overarching project goals, inter-team dependencies are created. This comes as a result of requiring the output of one team as input for another team's work (Scheerer, Hildenbrand, & Kude, 2014). By introducing more dependencies between projects and teams, larger organizations face more uncertainty and complexity when using agile methods. In cases like this, with high uncertainty and complex projects, work relies heavily on coordination by feedback, particularly meetings and ad-hoc conversations (Ven et al., 1976). Furthermore, this high degree of complexity and dependencies between teams threatens the individual teams' autonomy, resulting in a trade-off between team autonomy and inter-team coordination. Despite the growing popularity of large-scale agile, inter-team coordination is challenging to both practice and research (Berntzen et al., 2022).

Successful coordination can be facilitated through the use of appropriate coordination mechanisms. These mechanisms can be defined as organizational arrangements such as meetings, roles, tools, and artifacts associated with one or more dependencies that allow individuals or teams to realize collective performance (Okhuysen & Bechky, 2009). In large-scale agile, mechanisms are used to enable coordination within each development team and at the inter-team level. Strode et al. (2012) introduced a concept of coordination strategies, which refer to a set of coordination mechanisms to manage dependencies. Berntzen, Stray, and Moe (2021) builds upon these strategies by further investigating inter-team coordination challenges and coordination strategies in large-scale agile, and how to mitigate these challenges (see Table 2.1). The study showed that the concept of a coordination strategy is useful for dependency management at scale, and that large-scale agile programs benefit from adapting coordination mechanisms to their specific needs.

<b>Challenge</b>	<b>Coordination strategy</b>
Choice of agile methods result in different team routines	<b>Aligning autonomous teams:</b> Inter-team standups and status meetings, tech lead forum, shared routines, co-location etc.
Large-scale makes it hard to maintain overview	<b>Maintaining overview in the large-scale setting:</b> Inter-team standups and status meetings, program demo, Slack, shared backlog in Jira, organizational map on Confluence, open office space, colocation etc.
Hard deadlines and many clients lead to prioritization challenges	<b>Managing prioritization:</b> Inter-team standup meetings, product owner meetings, temporary team arrangements (task force teams, taking on other teams' tasks)
Complex technical dependencies	<b>Architecture and technical dependencies:</b> Tech lead forum, Objectives and Key Results, Platform Team, temporary team arrangements

Table 2.1: Coordination Strategies for Large-Scale Agile (Berntzen et al., 2021)

## 2.2 Meetings

In this thesis, the following definition of a meeting will be used: “A meeting is a gathering of two or more people for purposes of interaction and focused communication” (Volkema & Niederman, 1995).

Meetings are an essential part of most software projects (Schneider et al., 2018). As software projects often comprise of multiple actors and teams, working together to solve complex problems, the need for a mechanism of coordination and communication is of crucial importance (Moe et al., 2018; Stray & Moe, 2020; Berntzen et al., 2022; Moe, Dingsøy, & Rolland, 2022). While meetings may serve to fulfil this service, the compounded cost of person-hours dedicated to meeting activity might represent a significant drain on workforce productivity (Cohen et al., 2011). Not only do meetings have direct costs in the form of salaries and participants’ time, but there are also indirect costs such as time away from primary tasks, employee stress, and reduced job satisfaction (Rogelberg, Shanock, & Scott, 2012). Effective team meetings are strong facilitators for successful projects (Kauffeld & Lehmann-Willenbrock, 2012). Therefore, they should be productive and efficient in order to maintain motivated and satisfied developers (Prenner, Klünder, & Schneider, 2018). Both planned meetings and unscheduled ad-hoc conversations provide an important venue for coordinating activities and sharing information across teams (Stray & Moe, 2020). Large software projects often involve complex and intricate activities, which can result in multiple dependencies among roles, teams and systems. To succeed, these projects require teams to coordinate their ideas and efforts.

According to Eisenbart et al. (2016), discussions held in unscheduled meetings may be more focused and lead to more effective decision-making than discussions in scheduled meetings. Nyrud and Stray (2017) also observed that informal communication and ad-hoc conversations were the most

important mechanism in inter-team coordination for large-scale software development. This came as a result of the teams being co-located in an open office space. When co-location was not possible, such as with distributed teams, the amount of ad-hoc conversations was greatly reduced.

### 2.2.1 Meeting Satisfaction and Quality

Meetings play an important role in coordinating and informing teams. Nevertheless, not all meetings produce the intended benefits. Employees at all organizational levels spend some portion of their working days in ineffective meetings (Lehmann-Willenbrock, Allen, & Belyeu, 2016). Allen et al. (2016) found that poor meetings may have a negative effect beyond the meetings themselves, such as reduced job satisfaction, co-worker trust and well-being. Furthermore, a study conducted by Lehmann-Willenbrock et al. (2016) found that counterproductive meeting behaviors were linked to decreased employee engagement and increased emotional exhaustion, whereas good meeting behaviors were linked to increased engagement and decreased emotional exhaustion. These relationships were mediated via individual meeting satisfaction and perceived meeting effectiveness. Therefore, periodically reviewing meetings can prevent team members from becoming frustrated by unsatisfactory or unnecessary meetings.

Job-satisfaction theory has consistently found that characteristics of work and social setting (e.g., coworkers) are substantively related to job satisfaction (Brief & Aldag, 1975). Meetings, by their nature, contain both these elements. Rogelberg, Allen, Shanock, Scott, and Shuffer (2010) therefore argue that meeting satisfaction is a distinct facet of job satisfaction, and defines meeting satisfaction as: “the experience of one’s meetings being pleasant, enjoyable, or stimulating”. Klünder et al. (2020) found that some of the bigger issues hindering productive and satisfying meetings were inappropriate behavior such as complaining or insufficient preparation. Specifically, talking about problems without any attempt to solve them lead to lower motivation and team morale (Klünder et al., 2020).

Luong and Rogelberg (2005) argues that despite the fact that meetings can help achieve work-related goals, having too many meetings and spending too much time in meetings per day may have negative effects on the individual. The authors refer to the *daily well-being*, a set of outcomes, which include factors such as fatigue, perceptions of workload, and feelings of productivity.

In a study from 1988, Kirmeyer (1988) collected quantitative measures on work, interruptions, and competing demands. The findings revealed that the volume of work did not directly affect perceived role overload (having too much to do in the time available) but instead was mediated through interruption. Kirmeyer (1988) suggested that interruptions cause employees to leave tasks unfinished, thus requiring further effort to inhibit attention to them while also processing new information generated by the interruption. Consequently, this could result in perceptions of greater

role overload. Therefore, the total amount of time an employee spends in meetings in a day may be more responsible for increasing subjective workload than the sheer number of meetings attended.

When organizing a meeting, the decisions leading up to and during the meeting all impact the outcome. In a study conducted by (Cohen et al., 2011), 18 design characteristics associated with staff and team meetings were identified, and their relevance to perceptions of meeting quality was tested. By focusing on how meetings were designed, Cohen et al. (2011) found characteristics related to four categories: temporal, attendee, physical, and procedural natures of the meeting.

Temporal relates to how the meeting time is used, and includes characteristics such as meeting length, breaks, and promptness of meeting start and end. Luong and Rogelberg (2005) also found meetings that follow a good temporal courtesy were viewed as generally less disruptive. Attendee characteristics can refer to the number of attendees and the presence of a meeting facilitator (Cohen et al., 2011). The procedural natures of a meeting pertain to how it is conducted. These characteristics include formal agenda, whether minutes are taken, and whether the meeting is electronically recorded and the structure of the meeting (Cohen et al., 2011). The physical characteristics relate to aspects of the meeting setting and environments, such as lightning, meeting modality, space, and seating arrangement. These characteristics are important determinants of employee attitudes and behavior.



## Chapter 3

# Research Method and Design

The purpose of this chapter is to examine the methodological approach for this thesis and the reasoning behind it. The first section presents the research design. The next section describe qualitative research and the methods used. This include interviews and observations, as well as how they were conducted. The following section covers the analysis of the findings. The findings are further discussed in the coming chapters in the thesis.

### 3.1 Research Design

I conducted a case study in a large-scale Norwegian development organization developing software for Norwegian Banks. The organization offers a wide area of services and caters to both the consumer and professional market, and will hereby be referred to as FinTech. Counting both their in-house employees and consultants, FinTech is close to 650 employees. They work in self-organizing teams, but operate within frames and guidelines given by the organization.

This study aims to investigate how agile employees perceived meetings and meeting load. I chose a mixed-method approach to produce a more complete picture of the topic. This allowed me to draw upon the benefits of both qualitative and quantitative research, as recommended by Denscombe (2008). Qualitative research focuses on discovering and understanding a phenomena in its natural settings and the experiences and perspectives of individuals within that context. Interviews can give crucial insights into the thoughts of the subjects involved, while observation has the potential to uncover processes not necessarily articulated or formulated. Quantitative research attempts to achieve external validity by generalizing findings across different settings. Surveys can provide quantitative measures with the potential to predict and test hypotheses. By utilizing both these approaches, I allow a broader scope of inquiry. The qualitative approach offers a crucial context

for interpreting the quantitative data, and this is why I believe a mixed-method was best suited for this study (Denscombe, 2008).

### 3.2 Qualitative Framework

There are several different approaches to conducting qualitative research (Robson & McCartan, 2016, p. 146). As a framework of operations, Robson and McCartan (2016) presents two different design strategies: *fixed* and *flexible*. A fixed research design is theory driven, meaning it requires all the features of the design to be decided before the study is conducted. This requires the researcher to already have a substantial amount of conceptual understanding about the given phenomenon (Robson & McCartan, 2016, p. 102). On the other hand, a flexible design allows the researcher to adjust the research incrementally in response to the obtained data. While several different theoretical frameworks could have been possible, the nature of the object of inquiry as a living and dynamic workplace encouraged a more flexible approach. Using various methods of inquiry at different moments in time also opened up the possibility of using new knowledge to shed light on earlier findings. In addition, it was important for me that this study did not negatively interfere with the day-to-day business of the teams I would observe and interview. Thus, a more flexible approach was deemed most suitable.

Yin's Principles	My Approach
Use multiple sources of evidence	Survey, observations and interviews were used as data sources
Create a case study database	Raw data were collected and imported into a tool for analyzing qualitative data. Short notes detailing relevant information regarding the data was also created
Maintain a chain of evidence	All the raw data was organized by type and date collected. For observations, the date and time of events were recorded. The coding of the data was also done with traceability in mind

Table 3.1: Implementation of Yin's (2014) data collection principles

After choosing the flexible approach, the question of what methods to include inevitably arose. Case studies are commonly used in the social sciences, such as psychology, sociology, and political science. In these areas, case studies are conducted to increase knowledge about individuals, groups, and organizations, and aim to questions like “how?” or “why?” (Yin, 2008). Given the research context and research questions, I found the method of case study was a suitable match for this thesis. By investigating the meeting practices and experiences within FinTech, I gained an in-depth understanding of meetings and workload within a real-life context. When collecting data, the three principles of data collection presented by Yin (2008) were followed (see Table 3.1). The principles

<b>Data collection</b>		
<b>Type</b>	<b>Details</b>	<b>Time period</b>
Survey	300 respondents (60 questions)	November 2021
Interviews	4 interviews (mean length 26 minutes). Participants included: Team lead Team members Consultant	March 2022
Observations	6 hours of observation	December-April 2022
Documentation	Confluence documents, calendars, company presentations	March-May 2022

Table 3.2: Data collection details

were followed to increase the validity and reliability of this study, detailed in Section 5.4.1.

### 3.3 Data Collection

This thesis is based on data collected through mixed methods. Qualitative methods, such as observation and semi-structured interviews, were used as the primary data source. The results of a survey formed the quantitative data set. The findings from the survey were later used to form the basis for the questions in the interview guide. In addition, supplementary documentation such as company presentations and Confluence documents was collected and analyzed. The Confluence documents included minutes taken of previous meetings and information on recurring meetings and its participants.

I observed a team over a six-week period while examining how they adjusted to the proposed changes in their workday. The data collection lasted from autumn 2021 to spring 2022. After conducting the interviews, I took part in a workshop as part of the observations. Later followed weekly observations of Team Oslo. The details of the data collection can be seen in Table 3.2.

The pilot team, hereby referred to as Team Oslo, was task-driven, with specialized roles and little overlap in their work tasks. They were not a traditional development team, but a team that dealt with operation and management tools related to access control. Additionally, Team Oslo was involved in various projects and had an advisory status for access management. Team Oslo consisted of four employees and two consultants.

Team Oslo made use of several tools for communications, such as Slack and Microsoft Teams. Slack was used for communication through channels and direct messages. Additionally, Slack was used to inform the team members about incoming tickets regarding operation and maintenance for their systems, as well as other work-related tasks. Microsoft Teams is a collaboration application which allows for digital meetings, chats and shared file spaces. This tool was used when Team

Oslo attended meetings, such as daily stand-up and project meetings.

### **3.3.1 Survey**

Before I began the case study, a survey was sent out to all employees in FinTech. The survey was conducted by FinTech in collaboration with SINTEF Digital. I was given access to the answers to collect quantitative data and to analyze the results, which formed the basis of my study. Collecting data through the use of surveys allows for several advantages. For instance, they provide a straightforward approach to studying attitudes and beliefs and allow for data standardization (Robson & McCartan, 2016, p. 248). However, there are certain drawbacks: respondents may not respond accurately, and results may be influenced by factors such as the respondent's memory or motivation. (Robson & McCartan, 2016, p. 248).

The survey consisted of 60 questions, varying from multiple choice to free text answers. In total, 44 of the questions were presented in the form of a Likert-scale. The survey was sent out to all employees in FinTech. Out of 650, 300 employees filled out the survey, which resulted in a response rate of 46.15%. I discovered several interesting findings by manipulating the data and analyzing the result. These findings served as the building blocks for the interview guide and helped me locate the problem areas within the department. The survey questions are listed in Appendix A.

### **3.3.2 Interviews**

To collect qualitative data for this thesis, four semi-structured interviews were conducted. Using semi-structured interviews is a “flexible and adaptable way of finding things out” (Robson & McCartan, 2016, p. 286) as it allows for modification of questions and the order they are asked. Most importantly, semi-structured interviews allow for follow-up questions that were not planned in advance. This balance between strictness and openness provided the necessary depth and information to get a deeper insight into the team members' perception of meetings in their daily activities. This meant I could follow a relatively strict interview guide, where questions and topics were decided beforehand. Simultaneously, if the conversation would overlap with later questions, I could skip ahead to the current subject. Keeping this openness of discussion was important, as it would allow me to get accurate information without interrupting the interviewee's train of thought.

The interview guide was developed based on the research questions and findings from the survey. Therefore, a run-through interview was essential to maximize the data's potential authenticity. To do so, I performed two pilot interviews with colleagues from the university. The interviews were held and analyzed as normal interviews, but I noted any difficulties I had during the interviews and changed my interview guide accordingly. For instance, I noticed that other, more general questions

would answer several questions. As a result, the order was changed to simplify the interviewing process. Furthermore, I prepared additional questions if the interviewees were to finish early and marked the most important questions if we were to run out of time. The interview guide are listed in Appendix B.

Before the interviews were conducted, I sent an application to the “Norwegian Centre for Research Data” (NSD) asking for permission to conduct interviews of this type, and the application was approved. All interview subjects were given a written agreement form, outlining what they agreed to with the interviews. The interviewees were informed that they could withdraw from the interviews at any point without giving a reason, and this notice was given both verbally and in writing as part of the agreement structure. The interview data was made anonymous and stored on a secure server with the consent of the interviewee.

All the interviews were conducted over the course of a day. The interviews were, in theory, confined to a time limit of 20 minutes. However, this varied between **19** and **32** minutes. The time limit was set at the department’s request, as the interview subjects had little time to spare. The interviewees included both employees with personnel responsibility and employees without any personnel responsibility. The interviews were conducted digitally over Microsoft Teams, which made them easier to record. This allowed me to rewatch the examples the interviewees shared on their screens. After the interviews were completed, the recordings were transcribed. All the interviews were conducted in Norwegian, so the transcriptions were also done in Norwegian. As a result, all the quotes presented later in this thesis have been translated into English. The translated quotes have been slightly altered to preserve the original meaning.

When transcribing the interviews, I gained a solid overview of what had been said and by whom. This made it easier to categorize the information based on the interviewees’ roles and backgrounds. In addition to this, it allowed me to start coding the interviews. Further details about this can be found in Section 3.4 *Data Analysis*. The interviewees shared screenshots of their calendars, showing their typical work week. In addition, they gave me some insight into how they used their tools, such as the incident management tool “Remedy” and the work management tool “Microsoft Planner”. These documents were added to the analysis tool, sorted by time and date, and then coded to relevancy. This data gave me a better perception of the meeting frequency and work load.

### **3.3.3 Observations**

A considerable part of the data collected during this study was through observations. One significant advantage of observation as a technique is its directness. Instead of asking people about their feelings or attitudes, the researcher watches what they do and listens to what they say. Data from direct observation contrasts with, and can often usefully complement, information obtained

Observations				
Type	Total	Role	Participants	Length
Presentation of survey result	1	Department	55	60 min
Intro to experiment	1	Team, department	5	20 min
Onboarding pilot team	1	Team, department	9	40 min
Workshop	1	Team, department	6	120 min
Status meetings	6	Team, department	5-7	15 min

Table 3.3: Overview of observations

through other techniques (Robson & McCartan, 2016). So in order to get further insight into their way of working, I observed a team in charge of access management in the banking industry. The observations were done over a two-month period in order to further supplement the data gathered in the semi-structured interviews. Together, the semi-structured interviews and observations formed the primary data source. The different types of observations are shown in Table 3.3.

Using different techniques of observation allowed me to collect data in various settings and with varying degree of involvement. This was done through direct observation and participant observation. While direct observation was used mostly used, participant observation was used during a workshop with the department and Team Oslo, as this allowed me to participate actively while gathering data. Participant observation is a qualitative method widely used in flexible designs (Robson & McCartan, 2016), and is a special observation mode. Here, the researcher is not merely a passive observer but may assume various roles and even participate in the events being studied. Under direct observations, the observer does not take part in the study. This is done to avoid influencing the results and keep the observation as representative as possible. The different techniques may also have an impact on the study’s validity and will be discussed in Section 5.4 *Limitations*.

To ensure that no information would be lost, I took notes during and immediately after observing the meetings. During the meetings, general information such as the number of participants, meeting length, and what was said and by whom were documented in the notes.

### 3.3.4 Supplemental Material

As a final data source, I supplemented my findings with secondary data. This included Confluence documents, calendar screenshots, overview of tools such as Planner and Remedy, and minutes of meetings.

After analyzing the calendar screenshots, three example calendars were made using software for making diagrams and charts. These calendars are presented in Section 4.2.1 and portray what a typical meeting week looked like for the interviewees. The content of the original calendars was generalized and made into different categories. The categories were then given a separate color to

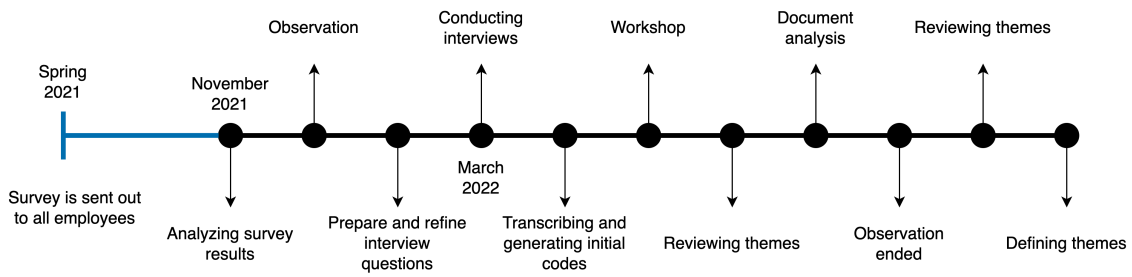


Figure 3.1: Data analysis process

showcase the weekly amount. All information was also anonymized.

## 3.4 Data Analysis

Before any conclusions could be made, the raw data had to be analysed. One of the underlying challenges after collecting data is how to best preserve the richness and quality of it. Therefore, the analytical part is a delicate process that involves moving from a qualitative data set to a concrete understanding of the participants and their situation. The data was grouped into relevant groups: survey, interviews and observations, and then analysed respectively and combined after analysis. This was done to distinguish between the settings in which the various results appeared in. A timeline for this whole process, including data collection, can be seen in Figure 3.1

### 3.4.1 Initial Data Collection and Analysis

During the first months of this study, I worked on analyzing the results of the survey. In order to analyze on the collected data, the results were presented in a spreadsheet in Excel. This allowed me to manipulate the data and sort out certain groups of respondents based on their answers. This gave me an overview of the department's issues related to meetings and workload. After reading through all the information in the survey, I identified several questions that I wanted to investigate deeper. These results were visualized graphically to uncover variations based on the different answers.

As previous research has shown, employees with management or personnel responsibility spend on average more time in meetings than employees without management or personnel responsibility. (Cohen et al., 2011; Stray, Sjøberg, & Dybå, 2016; Stray & Moe, 2020). This led the respondents to be divided into two groups: *managers*: employees with management or personnel responsibility, *non-managers*: employees without management or personnel responsibility. The manager group in the survey had a broad definition, and included: team leader, tech lead, area leader, subject leader, project leader, department leader and position with personnel responsibility. When manipulating

the data, I kept the two groups separated. This division allowed me to compare the answers within the two groups without impacting each other's results. The initial findings from the survey were reported back to the FinTech, which was later used in a department meeting where the management presented the survey results.

After the first preliminary analyses, the data-set was imported into SPSS, a statistical software platform. When analysing the results from the Likert-scale items in the survey, I performed an independent-samples T-test to examine whether there were any systematic differences in mean scores between the two groups. The items with significant differences in means at the  $p < 0,05$  level are marked with an asterix in Table 4.3.

I was interested in examining how the items were related to each other, so I created a correlation matrix in SPSS using the Analyze - Correlate - Bivariate command. Due to the sheer size of this matrix I chose to only graphically represent rows which included correlations above  $r = 0.5$  with a significance level of  $p < 0.001$ , as shown in Table 4.4. Correlation coefficients whose magnitude are between 0,5 and 0,7 indicate variables which can be considered moderately correlated (Schober, Boer, & Schwarte, 2018).

Because the survey included different items designed to pick up several different constructs and perceptions in the responders, there was no point in addressing the inter-item reliability of the items. The survey was not designed as a scale to measure a single construct, so the value of inter-item-reliability-coefficients such as Cronbach's Alpha would not provide any meaningful information on the reliability of the different measures.

On the other hand, if there were some items which correlated more with others, I wanted to examine these relations. Regarding the face validity of items in the test, I expected responders who spent many hours in daily meetings to have less time in between meetings, and responders who experienced more time in meetings as wasteful to evaluate meetings as less useful to them.

To explore the patterns of distribution, I performed a univariate general linear analysis between different set of items. A model was made representing the relationship between item 4 "Hours spent in scheduled meetings" as the dependent variable, and item 23 "I work on several things in parallel, therefore I have many meetings in a week" as the fixed factor. This model is represented graphically in Graph 4.6. The plot represents the Likert-scale values along the horizontal axis and the hours spent in meetings along the vertical-axis.

Another univariate linear analysis was conducted to examine the relationships between item 16: "The meetings I attend are conducted in a good way" as the dependent variable and item 14: "The



meetings I attend are useful to me” as the fixed variable. The model is represented graphically in Graph 4.5. The plot represents the Likert-scale values of item 14 along the horizontal axis and the values of item 16 along the vertical-axis. The included error-bars represents a confidence interval of 95%.

The findings presented in 4.1 were performed in IBM SPSS version 28.0.1.1 and represented using Microsoft Excel version 16.61.1 for MacOS Big Sur 11.4.

### **3.4.2 Using Data Analysis to Refine Interview Questions**

Analyzing the survey provided me with valuable insight into the potential challenges the department presented with. The next step was to gather more in-depth data and engage in conversations with the employees. While working on the survey, I created a tentative interview guide that contained several areas I wanted to explore further. However, the employees struggled with too many meetings, which meant the interviews had to be reduced to 20 minutes. This resulted in an interview guide that was too broad and comprehensive, and I had to significantly narrow the questions and themes. In order to refine the interview guide, I had to focus on the core issues from the survey. I also observed two meetings where the team leader and the whole team were introduced to the experiment. Here, I got some insight into their working methods and some potential problems I could investigate further in the interviews.

### **3.4.3 Transcribing Interviews and Open Coding**

After completing the interviews, I transcribed them using a tool called F4transkript, which is a software program for annotating audio. This allowed me to spend more time getting to know the data and reflect on what was said during the interviews. To aid with the data analysis, the transcript files were uploaded to a software program called Nvivo 12. This software is designed to analyze qualitative data categorizing and coding the data into nodes. I structured the data into folders and began open coding on each data type. The process of identifying the themes was iterative, and therefore several changes were done before the final themes were defined.

To analyse the collected data, I used thematic analysis. Thematic analysis is a qualitative research method that is used to systematically identify, analyze, organize, describe, and report themes found within a data set (Braun & Clarke, 2006). Analysis of the interview data was therefore performed according to these principles, where I searched for recurring themes and patterns in the data. According to Braun and Clarke (2006), there are two main ways of identifying themes: *inductive* or *deductive*. While a deductive approach tends to be more analyst-driven, where the researcher codes with a specific research question, the inductive approach is more data-driven. Here, the researcher codes the data without trying to fit it into a preexisting coding frame. As I had very

open research questions, I chose the inductive way. It is easier to disregard data deemed irrelevant at later stage, than to go back in time and gather data if something is missing. This approach also allowed the research questions to evolve through the coding process.

#### 3.4.4 Workshop and Observations of Status Meetings

In March, I attended a workshop regarding the meeting load for Team Oslo, where FinTech wanted to investigate what could potentially solve their meeting problems. The workshop's goal was therefore to identify potential solutions to aid with Team Oslo's high meeting load. In preparation for the workshop, one team member created an overview of all the scheduled recurring meetings Team Oslo attended, which can be seen in Table 3.6 and 3.7. While some meetings only occur quarterly or monthly, most of the meetings happen bi-weekly.

The workshop included an individual task where each team member specified all the work tasks they perform in a week. When all the team's tasks and responsibilities had been identified, they were sorted based on their type. The tasks were either repetitive, high priority, or low priority. The tasks were then divided based on who initiated the task: from the team, from someone external. This can be seen in Table 3.5. It was essential making the divide between who initiated the tasks, as the team's work is twofold. The tasks initiated by Team Oslo were related to their daily work regarding operation and management, which was a constant and steady flow of work. The other tasks were related to projects that presented with much more sudden deadlines and demands. After placing all the tasks into their respective areas, potential improvement measures to facilitate fewer meetings per unit of time were discussed.

In order to further categorize the different improvement measures, I divided them into three categories based on who was in control of the change: *personal*, *team*, and *organizational*. All the improvement measures can be seen in Table 3.4. Since some improvement measures would be difficult to measure accurately in the test period, and others would require organizational changes, the improvement measures were divided into short-term and long-term activities. The short-term measures became the focus of the test period. To better categorize what was being tested, the improvement measures divided into five different activities.

1. Facilitate consecutive hours of uninterrupted work
2. Reduce interruptions
3. Schedule activities later in time
4. Improve technical meeting measures
5. Stop starting and start finishing

Every week of the test period, I observed one of Team Oslo's weekly status meetings. Here, the

Type	Potential improvement measures	When
Personal	Group meetings to facilitate time for uninterrupted work	Short-term
	Lock time in the calendar to complete ongoing activities	Short-term
	Complete ongoing tasks before starting a new one	Short-term
	Shielding in digital channels and tools	Short-term
Team	Distribute meetings between the team members when possible	Short-term
	Sort similar work tasks into blocks	Short-term
	Workload leveling	Short-term
	Specialize work tasks, fewer members in each meeting	Short-term
	Use external resources to relieve the workload	Short-term
Organizational	Improve processes, e.g. change requests, workflow in development department	Long-term
	Improve meeting invites, focusing on agenda, roles, goal and preparations	Short-term
	Facilitate self-service for service managers and role owners	Long-term
	Establish routines and improve processes that ensure early involvement for all parties	Long-term

Table 3.4: Improvement measures categorized by type

	Repetitive	High priority	Low priority
Initiated by team	Create documentation Budget management Release and bug fixes Clearing backlog Handling change requests Follow-up of OKR Follow-up of suppliers Team management Experience sharing	Audit and certification Follow-up of projects Project management Project services Service implementation Handling change requests	Improve customer supplier relationship Communication with other units Coaching (internal/external) Self education
Initiated by external	System deviation handling Dialogue with HR Onboarding of new companies Offboarding of new companies Organizational changes Handle incoming cases Case management and support	Follow-up projects CMR implementations Azure implementations Process improvement Organizational changes	

Table 3.5: Weekly work tasks

team reported and discussed the effects and potential challenges. The effects of these improvement measures will be presented in Section 4.3.

Overview of all scheduled meetings					
Type	Organizer	Participants	Length	Frequency	Topic
Case handling + Remedy	Team lead	4	30 min, 1 hour	Daily	Handling case queue in Remedy. Friday is used to look at old cases
Operation and management, Monday commitments	Team lead	5	1 hour	Weekly, Monday	Weekly status and scheduling of tasks in Planner
Team status meeting	Team lead	10	30 min	Weekly, Tuesday	Status and information, all projects
Team improvement work	Team lead	3	6 hours	Weekly, Wednesday	Reserved time to work on improvement measures
Review of change requests	Team lead	3	1 hour	Monthly	Review of change requests in backlog
Case handling	Team member	3	30 min	Weekly, Wednesday	Review of cases, access management
Project X challenges	External	5	30 min	Weekly, Tuesday	Discuss project challenges, sharing of plans
1:1 conversations	Team lead	4	30 min	Biweekly	Conversations between team lead and team members
Team status + collaborator	Team lead	3	1 hour	Monthly	Status and exchange of info
Department meeting, support tools	Department lead	11	1 hour	Monthly	Department status
M365 operations	M365 team lead	Multiple	1 hour	Monthly, Wednesday	Information exchange across teams related to M365
Team workshop M365	Team member	Multiple	1 hour	Biweekly, Wednesday	Follow-up of roadmap, sky services

Table 3.6: All scheduled recurring meetings, part 1

Overview of all scheduled meetings					
Type	Organizer	Participants	Length	Frequency	Topic
IT department meeting	IT director	Multiple	1 hour	Monthly	Information meeting
Development department meeting	Lead coordinator	Department	30 min	Monthly	Information meeting
Privacy talk	Privacy representative	3+	1 hour	Monthly, Wednesday	Information from privacy representative
Delivery demo	External	3+	1 hour	Biweekly, Thursday	Delivery demo, open for all
OKR live	External	All team leads	1 hour	Quarterly, Thursday	Team status OKR
Experience sharing team management	External	All team leads	45 min + lunch	Biweekly, Thursday	Experience sharing for team leaders
Experience sharing PO	External	All team leads	1 hour	Biweekly, Thursday	Experience sharing: PO, all team leaders invited
Experience sharing continuous improvement	External	All team leads	1 hour	Biweekly, Thursday	Experience sharing: continuous improvement
Experience sharing	External	All team leads	1,5 hour	Biweekly, Thursday	Experience sharing: presentations, specialization, external lecture
Change request forum	Team lead	Multiple	TBA	TBA	Prioritization of change requests

Table 3.7: All scheduled recurring meetings, part 2

# Chapter 4

## Results

This chapter presents the results of the data collection and analysis. First, the results from the survey are presented. Then, findings from the interviews and observations will be described together with the improvement measures derived from the workshop. Lastly, the final results from the test period will be summarized.

### 4.1 Survey

As explained in Section 3.4, the respondents were divided into two groups: *managers*: employees with personnel responsibility, *non-managers*: employees without personnel responsibility. Figure 4.1 shows descriptive statistics on a selection of data collected from the survey.

According to the survey, employees spent a mean time of 2,9 hours in scheduled meetings every day. The reported amount of time spent in unscheduled meetings has a mean value of 1,01 hour per day. This amounts to an average just below 4 hours of scheduled meetings per day. There were no significant differences between the two groups, but managers spent on average slightly more time in meetings than non-managers.

While the time spent in meetings is an interesting measure, it does not address the quality of the time spent in said meetings. Therefore a proxy-measure of productivity was included in the form of percentage of meeting time experienced as wasteful.

The reported perceived percentage of time wasted in scheduled meetings were interestingly similar between the non-manager and manager groups. Among non-managers the mean value of perceived time wasted in scheduled meetings amounted to 29,24%. In the manager group, the amount of

	Unit	MANAGERS				NONMANAGERS				TOTAL			
		N	M	SD	Median	N	M	SD	Median	N	M	SD	Median
4: Hours spent in scheduled meeting daily	Hours per day	112	3.79	1.53	4	181	2.40	1.39	2	293	2.93	1.59	3
5: Hours spent in unscheduled meeting daily	Hours per day	113	1.12	0.97	1	183	0.94	0.79	1	296	1.01	0.87	1
6: Percent of time experienced as waste in scheduled meetings	Percentage of time	114	26.58	16.23	25	184	29.24	19.60	20	298	28.22	18.40	20
7: Percent of time experienced as waste in unscheduled meetings	Percentage of time	112	9.46	11.77	10	184	10.00	13.75	10	296	9.80	13.02	10
10: Preferred amount of daily consecutive hours of meeting free time in order to think and produce	Hours per day	110	3.41	1.17	3	174	4.05	1.57	4	284	3.80	1.46	4
11: Actual amount of daily consecutive hours of meeting free time in order to think and produce	Hours per day	111	1.81	1.30	1	168	2.91	1.70	3	279	2.47	1.64	2

Figure 4.1: Different units of meeting time

perceived time wasted in scheduled meetings had a mean value of 26,58%. It is worth noticing that there is some significant variance in the perceived time wasted, with 2% of the responders reporting 80-90% of perceived time wasted in scheduled meetings. This is in stark contrast to the perceived time wasted in unscheduled meetings.

The reported perceived percentage of time wasted in unscheduled meetings among non-managers had a mean value of 10,0%, and among managers 9,46%. While the similarities between both groups once again were striking, there was much less variance in perceived time wasted in unscheduled meetings compared to scheduled meetings. 44,6% of the total responders cited 0 hours perceived as waste, and only 0,6% reported 80-90% of time perceived as waste.

Another important measure to assess the perception of meeting activity is the difference between the preferred number of consecutive hours without meetings and the actual amount of consecutive meeting free time. While non-managers preferred to have on average 4 hours of consecutive meeting free time daily, managers were satisfied with only 3,5 hours of consecutive meeting free time. Despite both groups preferring 3-4 hours of actual consecutive meeting free time, only 2,47 hours were reported on average, with managers reporting less than 2 hours of consecutive meeting free time on average each day.

To further assess the employees' experiences, I examined the test items administered using a Likert-scale ranging from (1) Completely disagree to (6) Completely agree. Among the 44 items presented

	MANAGERS				NONMANAGERS				TOTAL			
	N	M	SD	Median	N	M	SD	Median	N	M	SD	Median
14: The meetings I attend are useful to me	114	4.69	0.88	5	185	4.52	0.91	5	299	4.59	0.90	5
16: The meetings I attend are conducted in a good way	114	4.28	1.00	4	185	4.34	1.01	5	299	4.31	1.00	4
17: I have an appropriate amount of meetings in a week	114	3.21	1.26	3	185	3.70	1.29	4	299	3.51	1.30	3
19: I find it challenging to say no to meetings I am invited to	114	3.91	1.36	4	185	4.03	1.42	4	299	3.98	1.40	4
21: I am often interrupted by messages in various channels which leads to less focus	115	4.41	1.12	5	185	4.05	1.28	4	300	4.19	1.23	4
22: I often feel that I am working on too much in parallel	114	4.81	0.99	5	184	4.34	1.28	4	298	4.52	1.20	5
23: I work on several things in parallel, therefore I have many meetings in a week	115	4.65	1.26	5	184	3.82	1.44	4	299	4.14	1.43	4
24: I schedule time for meeting free periods in my Outlook calendar so that I can think and produce	115	3.14	1.78	4	184	2.71	1.77	2	299	2.88	1.78	2
27: I feel we are more effective when using Teams/Slack than meetings to clarify something	115	4.50	1.21	5	184	4.40	1.17	4.5	299	4.43	1.19	5
29: I find it more difficult to keep focus in digital meetings than in physical meetings	115	3.46	1.61	4	185	3.15	1.62	3	300	3.27	1.62	3
34: I do not have time to take breaks in between meetings	114	4.56	1.32	5	185	3.73	1.50	4	299	4.05	1.49	4
35: The meetings I attend have a clear agenda	115	3.79	1.32	4	184	3.90	1.30	4	299	3.86	1.31	4
39: There are too many scheduled meetings in the team / department	115	3.23	1.28	3	183	3.19	1.39	3	298	3.20	1.34	3
40: There are too many unscheduled meetings in the team / department	115	3.41	1.26	3	184	3.02	1.21	3	299	3.17	1.24	3
49: I think it is more efficient to clarify something orally than it is in writing	114	3.95	1.38	4	183	3.66	1.39	4	297	3.77	1.39	4
52: If my day mainly consists of hybrid meetings, I prefer to work from home	114	3.91	1.63	4	182	4.38	1.58	5	296	4.20	1.61	5
57: I often need to reschedule my day because of sudden meetings I must attend or invite to	114	3.36	1.42	3	183	3.19	1.36	3	297	3.25	1.38	3
59: I find it easy to jump from one meeting to another and still be focused	114	3.31	1.38	3	183	3.34	1.36	3	297	3.33	1.37	3

Figure 4.2: Likert scale: Likert: Completely disagree (1) - Completely agree(6)



Difference in mean scores between manager and non-manager			
	M	SD	Median
14	0.17	-0.03	0
16	-0.06	-0.01	-1
17	-0.49*	-0.03	-1
19	-0.12	-0.06	0
21	0.36*	-0.15	1
22	0.47*	-0.30	1
23	0.83*	-0.18	1
24	0.43*	0.01	2
27	0.10	0.04	0.5
29	0.31	-0.01	1
34	0.83*	-0.18	1
35	-0.11	0.02	0
39	0.04	-0.11	0
40	0.39*	0.05	0
49	0.29	0.00	0
52	-0.47*	0.04	-1
57	0.17	0.05	0
59	-0.03	0.03	0

\* . Difference in mean score is significant at the 0.05 level (2-tailed)

Figure 4.3: Differences in mean scores

with a Likert-scale, I sampled 18 items that seemed most relevant for this investigation. The results are presented in Figure 4.2.

The first question addressed the perceived usefulness of meetings. Considering the high estimate of perceived time wasted during meetings, it was interesting to examine whether this also was reflected in the perceived usefulness of meetings. Most of the responders mostly agreed with the statement “The meetings I attend are useful to me”, with an average score of 4,59. This item also had the lowest variance among the sampled items, with a standard deviation of 0,9. These findings clearly indicate that meetings are an important and valuable aspect of employees work activities.

Another item with a high degree of agreement was item 27: “I feel we are more effective when using Teams/Slack than meetings to clarify something”. There were no significant difference between the two groups, with a total average score of 4,43 and a median value of 5. Item 21 “I am often interrupted by messages in various channels which leads to less focus” also had a high amount of agreement from employees. While Slack and Teams appear to be valuable assets to the employees, the survey also displayed some of the disadvantages of unregulated use.

In total there were few large differences in means between managers and non-managers in the responses on the Likert-scale part of the survey. The difference scores between managers and non-managers are presented in Figure 4.3. The largest difference in median score was observed

Correlations<sup>c</sup>

	4: Hours spent in scheduled meetings daily	6: Percent of time experienced as waste in scheduled meetings	10: Preferred amount of daily consecutive hours of meeting free time in order to think and produce	11: Actual amount of daily consecutive hours of meeting free time in order to think and produce	14: The meetings I attend are useful to me	16: The meetings I attend are conducted in a good way	22: I often feel that I am working on too much in parallel	23: I work on several things in parallel, therefore I have many meetings in a week	34: I do not have time to take breaks in between meetings	35: The meetings I attend have a clear agenda	Unit scale
4:	1	-.138*	-.516**	-.695**	.171**	0.022	.300**	.608**	.612**	-0.038	Unit scale
5:	.301**	0.077	-0.109	-.265**	-0.050	-.175**	0.119	.224**	.222**	-0.101	
6:	-.138*	1	.325**	-0.009	-.665**	-.474**	0.020	-0.108	0.025	-.297**	
7:	0.008	.467**	.206**	0.008	-.367**	-.149*	0.039	-0.046	-0.012	-0.070	
10:	-.516**	.325**	1	.575**	-.345**	-0.085	-.180**	-.387**	-.386**	-0.073	
11:	-.695**	-0.009	.575**	1	-0.020	0.064	-.319**	-.582**	-.573**	0.037	
14:	.171**	-.665**	-.345**	-0.020	1	.472**	-0.066	.129*	0.008	.280**	
16:	0.022	-.474**	-0.085	0.064	.472**	1	-0.053	-0.002	-0.070	.539**	
17:	-.384**	-.423**	0.033	.488**	.405**	.350**	-.342**	-.420**	-.427**	.227**	
19:	0.060	.203**	0.122	-0.076	-.219**	-.157*	.173**	.210**	.149*	-.135*	
21:	.175**	0.034	-0.044	-.161*	0.063	-0.012	.354**	.248**	.307**	-.145*	
22:	.300**	0.020	-.180**	-.319**	-0.066	-0.053	1	.562**	.431**	-0.100	
23:	.608**	-0.108	-.387**	-.582**	.129*	-0.002	.562**	1	.612**	-0.075	
24:	.323**	-0.008	-.190**	-.254**	0.008	-0.035	.211**	.345**	.306**	-0.080	
27:	-0.005	.161*	0.070	-0.003	-.139*	-0.080	-0.048	0.025	0.038	-0.061	
29:	-0.017	0.054	-0.066	0.020	-0.052	-.188**	0.073	0.048	-0.015	-.201**	
34:	.612**	0.025	-.386**	-.573**	0.008	-0.070	.431**	.612**	1	-0.094	
35:	-0.038	-.297**	-0.073	0.037	.280**	.539**	-0.100	-0.075	-0.094	1	

\*\* . Correlation is significant at the 0.01 level (2-tailed). \* . Correlation is significant at the 0.05 level (2-tailed). c. Listwise N=244

Figure 4.4: Correlation matrix from SPSS

in item 24: “I schedule time for meeting free periods in my Outlook calendar so that I can think and produce”. Managers were more likely to schedule time in their calendar for meeting free periods than their non-manager counterparts. This stands to reason as managers often have more autonomy to book their own schedule, while non-managers in general have less freedom to do so.

Item 23: “I work on several things in parallel, therefore I have many meetings in a week”, and item 34: “I do not have time to take breaks in between meetings” had the largest differences in mean score between managers and non-managers. Managers were on average more likely to agree with these items compared to non-managers.

Correlations between the different items in the survey are presented in Figure 4.4. I included both the items from the section with Likert-scales and the section assessing units of time to see if there were any meaningful relationships between the different measures of perceived meeting load and the perceived or actual time measures.

As initially suspected, there was a moderate to strong inverse relationship between hours spent in scheduled meetings and item 11: ”Actual amount of consecutive meeting free time in order to think and produce” ( $r = -.695$ ). There was also an inverse relationship between the percent of time experienced as waste in scheduled meetings and item 14: ”The meetings I attend are useful to me”

( $r = -.665$ ). As also shown in Figure 4.4, item 23: "I work on several things in parallel, therefore I have many meetings in a week" has some interesting correlations with other items in the list:

Firstly, there is a moderate correlation between item 23 and item 4: "Hours spent in scheduled meetings daily" ( $r = .608$ ). Employees who responded that they worked on several things in parallel also spent more time in scheduled meetings.

Secondly there is a moderate negative correlation between item 23 and item 11: "Actual amount of daily consecutive hours of meeting free time" ( $r = -.582$ ). Employees who responded that they worked on several things in parallel also reported fewer hours of consecutive meeting free time.

Thirdly, there is a moderate correlation between item 23 and item 22: "I often feel that I am working on too much in parallel" ( $r = .562$ ). Employees who responded that they worked on several things in parallel also reported to work too much in parallel. While these questions do indeed sound similar, they also contain some interesting discriminating factors. Item 23 is concerned with how working in parallel can lead to more meeting activity. Item 22 is concerned with the perceived load of working on many things at the same time. Respondents that agreed with the statement "I work on several things in parallel, therefore I have many meetings in a week" were more likely to also agree that they were working too much in parallel.

Lastly, there is a moderate correlation between item 23 and item 34: "I do not have time to take breaks in between meetings" ( $r = .612$ ). Employees who responded that they worked on several things in parallel also reported less time to take breaks between meetings. Taken together, these results indicate an association between working in parallel and spending more time in meetings, having less time for breaks between meetings and having a feeling of doing too many things at the same time.

There was also a relationship between item 16: "Thee meetings I attend are conducted in a good way" and item 35: "Thee meetings I attend have a clear agenda" ( $r = .539$ ). There were no significant differences in means between the two groups. Employees who experienced their meetings had a clear agenda were more likely to also evaluate how the meetings were conducted in a more positive way.

In general, employees who perceived meetings as conducted in a good way also perceived meetings as useful to them. But even more interestingly, some employees who rated meetings as not very useful to them did in fact rate meetings as conducted in a good way. The relationship between these two items are presented in Figure 4.5.

As seen in the graph in Figure 4.5 there was large variance among those who rated meetings as

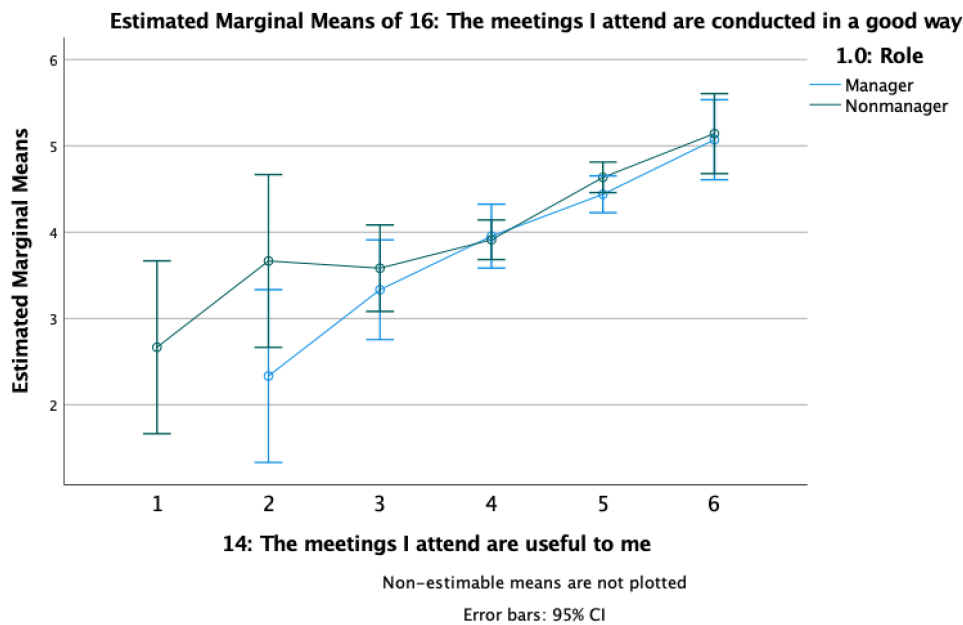


Figure 4.5: General linear model representing relationship between usefulness of meetings and perception of meeting conduct

useful in a negative way, but generally good agreement among those who rated the usefulness of meetings in a favorable way. While the regression model proved statistically significant on the  $p < .001$  level, it had a moderately low goodness-of-fit, with an R Squared value of .230. In general, employees agreed more to the statement "The meetings I attend are conducted in a good way" than they perceived meetings as useful to them.

Working on several things in parallel and the time spent on meetings were also related to one another. Employees who felt they were working on many things at the same time were more likely to spend even more time in scheduled meetings. The relationship between two items addressing this issue is presented in Figure 4.6. The predicated amount of hours spent on daily meeting based on the Likert-scale from item 23 had an R-squared value of .395. Almost 40% of the variation of time spent in meetings could be explained by the assessment of working on many things in parallel.

To sum up the findings from the survey, there appears to be an inverse relationship between hours spent in scheduled meetings and amount of consecutive meeting free time to think and produce. Employees who spent more time in meetings also have less time for productive work between meetings. Employees who experience a larger portion of the time spent in meetings as wasteful were also less likely to view meetings as useful to them.

While employees in general agreed to the statement "Meetings I attend are useful to me", almost

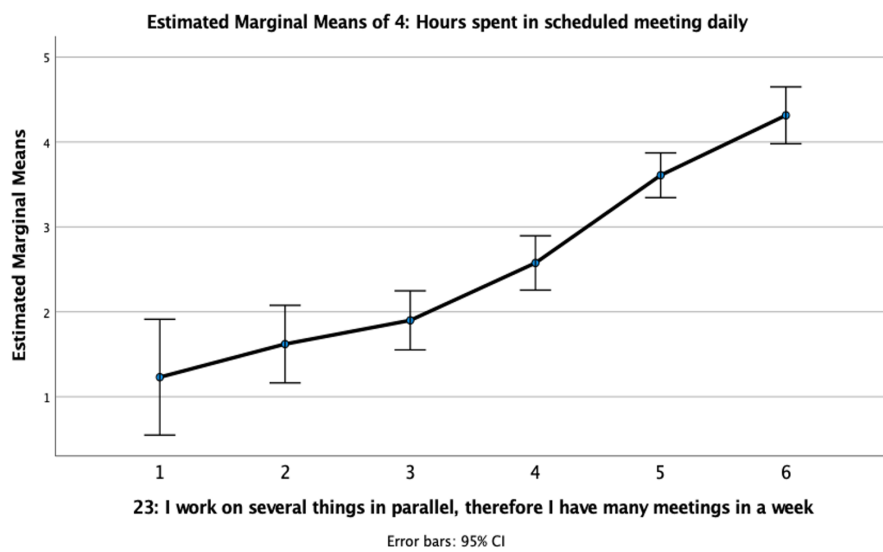


Figure 4.6: General linear model of estimated mean hours spent in scheduled meetings

30% of the time spent in scheduled meetings were viewed by employees as a waste of time. Managers reported an average of less than 2 hours of actual amount of daily consecutive hours of meeting free time, while also reporting not having time to take breaks in between meetings.

While Slack and Microsoft Teams were viewed as time effective communication, there were also some drawbacks that could hinder productivity. Employees who agreed with the statement "The meetings I attend have a clear agenda" were more likely to also agree with the statement "The meetings I attend are conducted in a good way". These findings highlight the importance a clear agenda can have on the perception of meeting satisfaction.

## 4.2 Pilot Team

To further look into the issues unveiled in the survey, a pilot team (Team Oslo) volunteered to undergo an experiment regarding their meeting culture and workload. During the interviews, the interviewees all shared their typical work week. The following sections present an insight into their calendars.

### 4.2.1 High Meeting Load and Full Calendars

Several of the informants reported they spent a large part of their workday in meetings, which became evident when inspecting their calendars. To help the employees with their meetings, FinTech had previously adjusted the standard time for invites in their calendar. Instead of auto-filling the time slot to one hour, the proposed time was changed to 50 minutes. The goal was to facilitate more time between meetings, especially in cases where the employees had back-to-back

meetings. However, one informant revealed that this did not always work as intended:

*“There is a warning when you have 5 minutes left, but it often continues because someone wants to talk about or finish something. So you almost have to interrupt to move on to the next meeting”* [Interviewee 3]

Every Wednesday, Team Oslo had a recurring series of meeting on their calendar. This meeting, called “improvement work”, was used to lock in 6 hours for the team to work uninterrupted on improvements related to processes and the systems they manage. However, because of the many projects and tasks the team was involved in, the “improvement time” was rarely used as intended. Because of their full calendars, the team regularly received meeting invites that collided with their allocated improvement time. As a result, they regularly had to forgo their plans to improve their processes:

*“We also have Wednesdays where we use a meeting to lock in time for improvement work, but we spend a lot of time constantly putting out fires, so we do not have time to work on improvements. Even though we have the day locked, we still get called into meetings. So it does not work so well”* [Interviewee 3]

Upon further inspection of the informants calendars, it became evident that the majority of Team Oslo spent a large part of their week in scheduled meetings. To portray the content of these calendars, an example week has been set up where different colours represent different meetings and appointments:

- *Orange*: Recurring series of meetings
- *Purple*: Meeting, not recurring
- *Green*: Work-related tasks
- *Blue*: Informational meeting
- *Pink*: One-on-one talk with team member
- *Yellow*: Personal appointment

Figure 4.7 presents informant 1’s calendar. This informant worked as a consultant, and attended relatively few meetings compared to the rest of Team Oslo. Except for the weekly recurring status meetings, all meetings in their calendar were initiated by the informants them-self. These meetings were mainly used for information gathering whenever the informant had a specific question. Interviewee explained: *“There are often specific things I need information on, so they either know the answer or not”*. Therefore, the meetings usually only included one other person, and it rarely lasted more than 20-30 minutes.

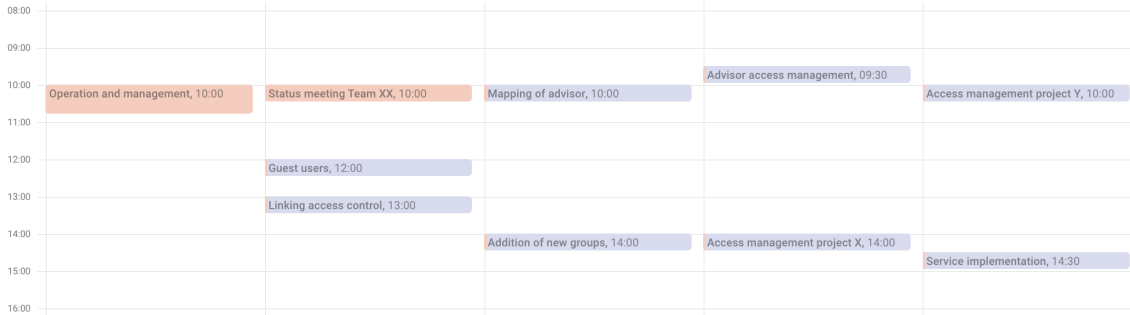


Figure 4.7: A typical week in Interviewee 1's calendar

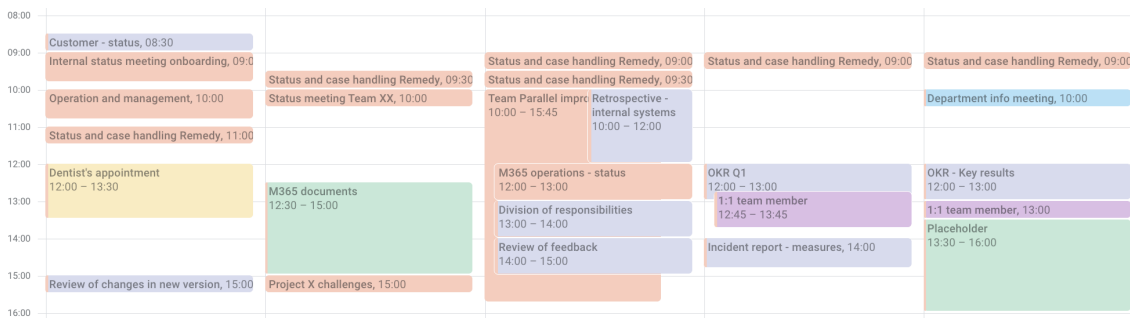


Figure 4.8: A typical week in Interviewee 2's calendar

Though informant 1 did not personally experience any issues with a high number of meetings, they encountered problems with other employees and teams availability. As a consultant, informant 1 was frequently dependent on others to complete their work. When the informant's colleagues had full calendars, this acted as a bottleneck for the informant's work:

*“A problem for me is that many others are in a lot of meetings, so it is difficult to fit into their calendar. A number of key people sit in meetings all day, and when I need a meeting with them, I have to go two weeks in ahead in their calendar to find a vacant slot. And then my work also gets very delayed” [Interviewee 1]*

In contrast to informant 1, informant 2 and 3 struggled with a rather high meeting load. As seen in Figure 4.8 and 4.9, both spent a large portion of their workday in scheduled meetings. While most of their meetings were recurring series (orange meeting blocks), some of their time was also spent attending unplanned meetings and other project-related arrangements. Together, this filled up a large portion of their workday, leaving little time to work on their tasks.

As Team Oslo often worked with organizations located elsewhere in the country, many of their meetings were digital. As the employees in FinTech were allowed to decide where they wanted to work from, not everyone were physically at the office simultaneously. Team Oslo therefore aimed

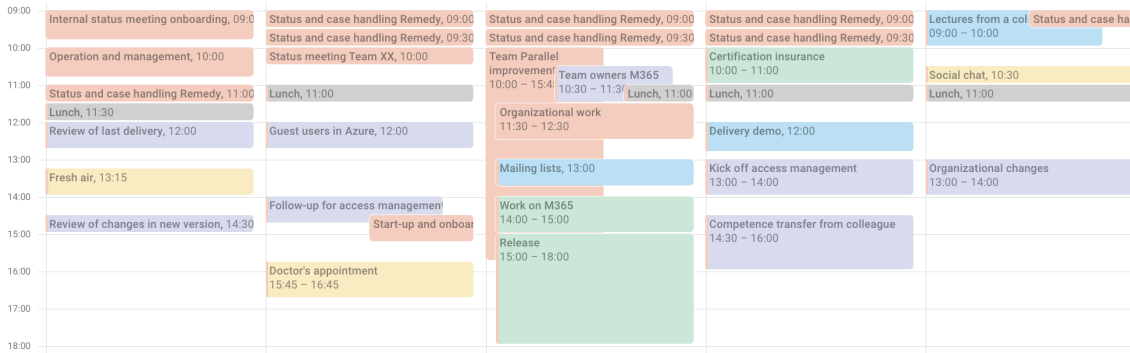


Figure 4.9: A typical week in Interviewee 3’s calendar

to sit co-located in the office two to three days a week. When working from home, the team was dependent on Slack and Teams for communication. While Slack was used for mainly written communication, the team would use Teams when attending or inviting to unplanned meetings. When co-located, most of their communication and unplanned meetings took place directly at their work desk. This setup allowed for quick and easy access to discuss and ask questions:

*“We sit physically close to each other, so the chatter goes on half the day, except when we are in meetings. So we don’t invite each other to meetings, we talk about it then and there, it is sort of an ad-hoc carpet-meeting, where you ask questions, and everyone contributes”* [Interviewee 1]

Since Team Oslo wanted more meeting free times, the team lead tried to avoid scheduling the team’s meetings during the middle of the week. *“I try to gather meetings on Mondays and the first part of Fridays. And that leaves some space in the middle for working on tasks, but it does not always work”*. This led to Mondays being spent attending meetings, and as a result, Team Oslo often spent this day working from home. Because of the heavy meeting load, Informant 3 would regularly create a booking in their calendar called “Fresh air” (yellow meeting block). This was done to allow themselves a break from all the meetings and avoid fatigue.

*“When at the home office, I have created a recurring scheduled meeting in my calendar called “fresh air” due to the many meetings, so I have tried to squeeze in one meeting to get some air every day”* [Interviewee 3]

#### 4.2.2 Challenges Identified in Interviews

After analyzing the data collected from the interviews, it became evident that Team Oslo suffered from high meeting load and full calendars. These problems appeared to be caused by three main challenges: (1) work in parallel and context switching, (2) late involvement in external projects,



and (3) unproductive meetings.

### **Work in Parallel and Context Switching**

The survey results showed that many employees experienced that working on several parallel tasks in turn led to more meetings. The details of this were investigated during the interviews. Since Team Oslo's work involved implementing several systems, they were often engaged in multiple project activities simultaneously. In addition to this, they also had continuous responsibilities regarding management, operation, and supplier contact. Because of this, several informants reported challenges with keeping focus when jumping from one activity to another. One informant said the following:

*“We often have several ongoing projects from different teams that do not see the total amount of work that we have. We cannot necessarily postpone something, for everything should happen simultaneously. So during one day, I can work on many different things, where I jump through things, and I never get to complete a single thing. There are never any days where I only work with one activity”* [Interviewee 3]

When new management and operation cases arrived, Team Oslo had a service-level agreement (SLA) they had to follow. This agreement described the provided service and set the time limit for when the cases had to be handled. They operated with an SLA of one hour, meaning they had to start working on the case within this time. One informant reported that this sometimes forced them to start working on something new instead of finishing what they were already working on, resulting in context switching. When new cases arrived, they always had to look into what sort of case it was. Sometimes the issue could be solved quickly or handed off to another team, other times it would require more work. According to one informant, another reason for starting on new tasks was not necessarily because of the number of ongoing projects, but rather the need for something productive to do.

*“We might be working on eight services, and when all of these are in “wait mode”, I start on a ninth service because I want something to do. So the slower the progress, the more I have in parallel, and that is very unfavorable”* [Interviewee 1]

### **Late Involvement in External Projects**

Another challenge Team Oslo reported was the late involvement in external projects. These projects would often already have a specific deadline set, which left the team with little influence over the timeline and their own schedule. This resulted in the team having a rather unpredictable calendar. One informant reported joining meetings and realizing they should have been included a long time ago, which meant there would be a lot of activities to be able to keep up with the project. As these

tasks could be both large and time-consuming, the team experienced an ever-growing backlog of project and operation and management tasks. One informant explained Team Oslo' enrollment into projects:

*“The way it is in practice is that a project starts without us being involved from the beginning, and then they come to a point where they see that it is necessary to involve us. Then we are suddenly pulled into a meeting because they need us to clarify something. We cannot always answer quickly, so we must stay on as part of the project. This often happens a little out of the blue, and usually, with projects we know nothing about”*

[Interviewee 2]

Because these projects already had a specific deadline set, they were often prioritized over Team Oslo's already ongoing tasks. According to several informants, this was done so as not to delay the entire project. The team was left with trying to fit their own schedule around the many projects.

*“If two units are merging, I cannot say that they will have to do it a little later. The merge is happening, and someone has decided the system will be moved on a specific date. I just have to deal with that and do what I can for us to keep up. So we are pulled into processes where it is nearly impossible to place it on the calendar”* [Interviewee 4]

Furthermore, this led to Team Oslo having to put their own plans on hold while completing other projects.

*“We have projects that have been put on hold in anticipation of it being prioritized”*

[Interviewee 2]

*“They need to have a better understanding of who we are and what we do, so that they know when to bring us in”* [Interviewee 4]

## **Unproductive Meetings**

The informants all reported their most valuable and productive meetings were the Monday-commitments meetings and the daily 30-minute status meetings. In the Monday-commitments meetings, the team planned out all their tasks for the week. This was done by reviewing the priority and status of the task, and if it was plausible to complete within the given time frame. The daily 30-minute status meetings functioned as a case dispatcher, where the team would review the backlog and inspect the new cases that had arrived. As the team members all had rather specialized fields of expertise, a joint review optimized their case handling and dispatching.

*“The productive meetings are the ones that go straight to the point, and together you manage to conclude what you need without spending unnecessary time. Instead of things getting stuck and you have to have more meetings to get to the finish line” [Interviewee 2]*

Although the daily status meeting was favorable within Team Oslo, the intra-team status meetings were not always equally productive. According to several informants, the lack of a clear agenda was partially to blame. Without a clear agenda and a goal for the meeting, the meetings ran a risk of digressing. Moreover, it could also result in additional meetings, as perhaps new discussions had to be scheduled to come to a decision. As one of the interviewees explained, the intra-team status meetings for the projects tended to carry on without a clear structure:

*“The many activities in the projects make you jump from theme to theme in the meeting, and so many parties are involved. Those status meetings often continue because you do not have an concrete list or agenda” [Interviewee 2]*

Furthermore, the lack of a clear agenda would sometimes lead to further uncertainty about which participants needed to be present for a meeting. Informant 3 reported experiencing many meetings that could have been addressed in an email or as a quick clarification on Slack. Instead, they were invited to meetings with four to five resources from the external team, when they could have solved the issue by talking to just one person. Also according to informant 4, they would occasionally attend meetings without knowing if they were the ones who were supposed to be there:

*“Sometimes you are invited, but then they actually need someone else, and that leads to a new meeting” [Interviewee 4]*

On other occasions, Team Oslo experienced being invited to meetings solely as a precautionary approach:

*“Sometimes I go to meetings where I discover it has nothing to do with me, I am just invited as a precautionary approach because they think I may have some input. And sometimes it’s the opposite, where there are meetings I should have attended. And then I have to schedule a new meeting to find out what happened” [Interviewee 4]*

### **4.3 Results from Test Activities in the Pilot Team**

To aid with Team Oslo meeting load, five main activities were tested. An overview of the activities and measurements can be seen in Table 4.1. The rate of successfulness reflects Team Oslo’s opinion on how each of the measurements facilitated the corresponding activity. The following sections

#	Activities	Measures	Successfulness
1	Facilitate consecutive hours of uninterrupted work	a) Group meetings to facilitate time for uninterrupted work	Moderate successful
		b) Lock time in the calendar to complete ongoing activities	Very successful
		c) Sort similar work tasks into blocks	Not successful
2	Reduce interruptions	Shielding in digital channels and tools	Very successful
3	Schedule activities later in time	Workload leveling	Not successful
4	Improve technical meeting measures	a) Specialize work tasks, fewer members in each meeting	Moderate successful
		b) Distribute meetings between team members	Moderate successful
		c) Improve meeting invites, focusing on agenda, roles, goal and preparations	Moderate successful
5	Stop starting and start finishing	Complete tasks before starting a new one	Not successful*

Table 4.1: Effects of the short-term test activities

further present how the team responded to the different improvement measures, as well as findings from the observations.

Test activity 1 aimed to facilitate consecutive hours of uninterrupted work. Team Oslo tried grouping their meetings back-to-back or on the same day. Several informants reported that they preferred to have meetings on Mondays and Fridays while keeping the middle of the week open to work on tasks. Furthermore, many presented the same ideal meeting day in terms of the time of day, meaning they would like to spend their mornings working on tasks and the afternoon on meetings. Therefore, the team was highly optimistic about gathering together their internal meetings, as this opened up for more consecutive hours of uninterrupted work. Despite the advantages of grouping meetings, some informants experienced downsides. When spending the majority of the working day in meetings, the participants were more easily exposed to meeting fatigue. This became especially true for Mondays, as the team would generally work from home this day. To help with this, one team member regularly scheduled 30 minutes of fresh air in their calendar to force themselves to take a break and go for a walk. Still, since many of the team’s meetings were initiated externally, they continued to experience interruptions in their workday.

A second improvement measure to facilitate consecutive hours of uninterrupted work was locking time in the calendar to complete ongoing activities. As a result of grouping meetings together, Mondays were primarily used as a meeting day. On Tuesdays, Thursdays, and Fridays, Team Oslo locked their calendar from 8:00-12:00. On Wednesdays from 10:00-16:00, the team already had their weekly scheduled time for “improvement work”, and this period continued to be locked for further meeting activities. Since Team Oslo already had some scheduled meetings during these periods, the effects took a few weeks to show. Once it did, the team reported that out of all the test objectives, locking the calendar proved the most successful in improving their workday. Another positive outcome of these measures was that it appeared Team Oslo received a new perspective on

their time. During the status meetings, the team reported they would tell others to reschedule if they attempted to invite them to meetings during their blocked time. This was an interesting turn, as the team had previously operated with Wednesday being blocked but still attended meetings during this day.

*“Blocking the calendar works, I let people know if they do not check the calendar before inviting me”* [Interviewee 4]

The third improvement measure to facilitate consecutive hours of uninterrupted work was a suggestion of sorting similar work tasks into blocks. Unfortunately this measure was not sufficiently tested, and the team did not experience any effect from this.

Test activity 2 sought to reduce the amount of context switching during their workday. Team Oslo attempted to shield themselves more from interruptions to reduce the amount of context switching. While FinTech uses several digital tools, their primary tool for communication was Slack. As part of their work related to operation and management, Team Oslo also received inquiries regarding support cases through Slack. To reduce context switching, Team Oslo therefore attempted not to answer inquiries sent in direct messaging and instead let everything come through the official channels:

*“I have turned off sound and vibration, but in the last two hours I have gotten four or five inquiries that should have been sent in as a case through the official channels. It ruins my workflow and steals the whole day”* [Interviewee 3]

To further reduce the number of interruptions, Team Oslo attempted to shield themselves in digital communication to a greater extent than before. As the team operated within several work areas, they were part of many different channels. Disabling notifications for specific channels or within a given time frame allowed the team members to work uninterrupted. In addition to muting channels, the team was also encouraged to be more reserved when answering direct messages. One informant said this was something they had always wanted to try, but never did because they would feel guilty. As a result of being encouraged to do so now, they felt their own time was more valuable. Whereas most of Team Oslo welcomed the change, others were scared of missing out on important information. Informant 4 reported *“We use Slack so much during the day, I’m afraid of shielding too much”*. To continue with this, it became apparent that the team had to further experiment with notifications and the level of shielding to find the correct individual balance. Nevertheless, the team still reported that shielding themselves in digital channels led to less context switching and improved concentration.

Test activity 3 suggested scheduling activities later in time, also known as workload leveling. Team Oslo was tasked with workload leveling to reduce the number of meetings per unit of time. It became clear throughout the test period that this measure was more challenging than first assumed. Given that a significant number of Team Oslo's tasks came from external projects, workload leveling became dependent on the team being included earlier in the projects. This led to Team Oslo starting an internal marketing campaign to educate others on who they are and what they do. This activity, therefore, shifted toward a long-term goal rather than a short-term one. While this test activity did not produce any immediate results to be assessed in this study, the incentive might play a role for how the company deals with workload leveling in the future non the less.

Test activity 4 aimed to improve technical meeting measures through three concrete measures. The first measure was to specialize work tasks and reduce the amount of members in each meeting. The second measure suggested distributing meetings between team members, and the third measure encouraged a stricter focus on agenda, roles, goal and preparation to meetings.

Since Team Oslo operated with rather specialized roles, they had little overlap in their work tasks. Despite this, the whole team would often be invited when receiving meeting invites. Therefore, to reduce the number of meetings, Team Oslo worked on better administrating meetings between their members. This not only required a change in Team Oslo's habits, but an overall focus in the FinTechin regards to the quality of the meeting invites.

With a clear agenda and goal for the meeting, the team could send the correct member to the correct meeting, while allowing the remaining members to work uninterrupted. Although this would take some time to implement fully, Team Oslo already noticed the benefits. This also sparked a more significant awareness around meeting attendees, which made them thoroughly think through each meeting invite and who needed to be present. If the agendas were too vague, Team Oslo would request further information about the goals for the meeting. Eventually, this would lead to fewer meetings per team member.

*“We try to find out if it is important that everyone participates. In some cases, there is so little information in the invites, so we don't really know what they need us for, and we all have different areas of responsibility. So maybe we have to bring a technical resource in case there is something technical they ask about, or perhaps the team leader”*

[Interviewee 3]

Since Team Oslo is part of a larger organisation, the implementation of these measures relied not only on themselves, but also on the systemic structure around them. In the process of implementing

	Before improvement measures	After improvement measures
<b>Team member 1</b>	January: 3,65 meetings daily February: 3,9 meetings daily	April: 3,2 meetings daily
<b>Team member 2</b>	January: 3,9 meetings daily January: 3,9 meetings daily	April: 2,6 meetings daily Sick leave
<b>Team member 3</b>	February: 4,4 meetings daily March: 4,2 meetings daily	

Table 4.2: Number of meetings before and after implementing improvement measures

these measures, the team also contributed to an increased awareness on the issues related to improving meeting invites to other branches of the organisation. While this study mostly was concerned with the single team, it was interesting to see how this evolved to impact the environment in which the team operated.

For test activity 5, Team Oslo were tasked with trying to complete ongoing activities before starting new ones. Since external parties often initiated the majority of Team Oslo tasks, they often felt they had little control over their work and schedule. This measure therefore attempted to mitigate working on too many tasks in parallel. However, as new external tasks were regularly initiated without the team’s knowledge, and operation and management cases came in with an SLA to uphold, this proved challenging. As explained by one of the informants:

*“While we still have ongoing older cases to complete, we have to start on new things due to the SLA. Although we should try to leave them to finish the old cases [...] So I have to start working on several things at the same time because I am beginning to run out of time”* [Interviewee 3]

The measure in test activity 5 was therefore not feasible in the reality of Team Oslo’s work context. While the sentiment of the measure seemed to be appreciated, it was an unrealistic ask to have the team complete tasks fully before starting new ones. Nevertheless, due to the increased meeting free time allocated through the measures of activity 1, the team did in fact experience completing their tasks at a higher rate than before. So while this measure did not succeed on its own merits, it did in fact materialize as a natural consequence of locking in meeting free time in the calendar.

To investigate whether the number of meetings had decreased, the three informants who struggled with high meeting load was tasked with finding how many meetings they had attended in the previous months. This created a baseline for comparison. Table 4.2 shows the number of meetings before and after implementing the improvement measures. Because of sick leave, one team member were unable to report their number of weekly meetings. The other two informants reported a reduction in their daily meetings.

## Chapter 5

# Discussion

This chapter will discuss the findings presented in Chapter 4. Firstly, my findings on how employees are affected by meetings and workload are discussed to answer RQ1. I discuss the results from the survey administered to my sample group of 300 participants in FinTech, and provide further context by supplementing from the interviews and observations I did with Team Oslo.

I then answer RQ2 by providing insights from the pilot conducted with Team Oslo. The measures applied by the team were aimed at managing meetings to improve job and meeting satisfaction. Secondly, I will address implications of practice directed toward organizations wishing to improve meeting culture. Finally, the limitations of the thesis are presented. My findings will be discussed in light of existing research to provide a more informed answer to the research questions and establish how my contribution fits into existing research.

First, we revisit the research questions:

**RQ1:** How are the meetings and meeting load perceived by agile employees?

**RQ2:** What are possible solutions to reduce perceived meeting load, and improve job and meeting satisfaction?

### 5.1 Meetings and Perceived Meeting Load

This section discusses the first research question on how meetings and meeting load is perceived by agile employees. While meetings have been shown to contribute to achieve work-related goals (Luong & Rogelberg, 2005), socialize, solve problems (Cohen et al., 2011) and be related to over-all



job satisfaction (Rogelberg et al., 2010), negative meeting perceptions may lead attendees to have pessimistic attitudes toward meetings and undermine meeting outcomes (Bennett, 1998).

Providing meeting attendees with more positive meeting experiences may have lasting impacts beyond the meeting themselves (Cohen et al., 2011). Some research has found that employee meeting satisfaction is an important predictor of job satisfaction (Rogelberg et al., 2010). Given the prevalence and importance of meetings (Cohen et al., 2011), it is important to understand and work to improve perceptions of meetings and meeting load.

Results from the survey uncovered an array of temporal, procedural and attendee characteristics of meetings and how employees related to and evaluated these. Interviews and observation helped shed light on how these characteristics affect the work life of Team Oslo and to uncover their concerns and opinions related to these.

I have divided the following chapter into subsections each describing temporal, procedural and attendee characteristics. While this division can provide a useful framework to distinguish between important factors related to meetings, working on this thesis also uncovered that these factors in many ways are inter-dependent, each affecting and interacting with the others in different ways.

### **5.1.1 Temporal Characteristics**

#### **Frequency and Duration**

The initial findings from the survey showed that the employees in FinTech mostly spent 3-4 hours daily on scheduled meetings, and on average approximately 1 hour daily in unscheduled meetings, with a total average of 4-5 hours. While non-managers spent on average 3,34 hours in meetings each day, managers spent on average 4,91 hours in meetings daily. Of the 300 employees who responded to the survey from FinTech, 6% of the responders reported spending between 6-8 hours in meetings daily.

In comparison, in a study by Stray et al. (2016) administered to a sample-population drawn from the subreddit /rprogramming, the average amount of hours spent in daily meetings amounted to 1,4 hours (Stray et al., 2016). This is less than half of the amount the employees at FinTech reported. In a longitudinal study of a large software company with distributed teams across several different countries and time-zones, Stray and Moe (2020) uncovered significant differences in the time spent in meetings between managers and other roles. In their study, managers averaged a total of 5,5 hours in meetings daily, while the total average across all roles amounted to 1,55 hours per day. In another study, Cohen et al. (2011) cited middle-managers to spend a weekly average of 2,4 hours a day in meetings.

While group differences between the managers and non-managers were also observed in this study, the differences were much smaller. One of the reasons for the small difference can be attributed to the amount of hours non-managers spent in meetings compared to the findings cited above. According to the longitudinal study by Stray and Moe (2020), employees in the company they investigated spent nearly 40% more time in meetings compared to other companies (1,55h). The employees of FinTech nearly doubled the amount of hours spent in meetings (2,93h) compared to the sample investigated by Stray and Moe.

While Luong and Rogelberg (2005) argue that meetings are an important tool to achieve work-related goals, spending too much time in meetings may have negative effects on employees daily well-being. Given the numbers above, more often than not, employees at FinTech spent around half of their weekly work time in meetings. Perhaps as a consequence of spending most of their days in meetings, a large portion of the time spent in meetings were generally perceived as wasteful. Despite meetings in general being perceived as useful, almost 30% of the time spent in scheduled meetings were perceived as waste.

Klunder et al. (2020) describes negative perception of meetings, such as complaining about meetings being a waste of time, as a hinder to productive and satisfying meetings. In a StudyResponse survey on meeting perception among 183 working adults in the United States, Shanock et al. (2013) found a relationship between negative perception of meeting effectiveness, emotional exhaustion and intent to quit. (Rogelberg et al., 2012)

It is an interesting finding that both managers and non-managers perceive almost 30% of the time spent in scheduled meetings as a waste of time. Since both subsets of the population seem to agree with such close proximity, one can suspect that this hints at something more than merely a perception of wasted time. With almost a third of scheduled meeting time being a waste of time, and an average of 3 hours spent in scheduled meetings every day, this amounts to roughly 230 hours wasted every year, for every employee, considering a standard Norwegian work year of 230 workdays.

On the other hand, as referred in Cohen et al. (2011), a study by Mosvick and Nelson in 1987 indicated that over 50% of meeting time is wasted, and that the compounded loss of person-hours represents a significant drain on productivity. Comparing to these findings, there is an obvious improvement between the sample studied by Mosvick and Nelson, and the sample included in this thesis. Nonetheless; improving the efficacy of temporal meeting characteristics might still compound to significant savings in person-hours and increase productivity.

Another interesting finding was the difference in perceived waste of time between scheduled and

unscheduled meetings. While the mean amount of wasted time in scheduled meetings was reported to roughly 30%, only 10% of unscheduled meetings were perceived as wasteful. Scheduled meetings had a significant disadvantage in the experience of wasting time, compared to unscheduled meetings. This might be because unscheduled meetings more often have a clearer formulated problem that needs to be addressed, is characterized by more urgency, or have shorter duration (Eisenbart et al., 2016; Moe et al., 2022). This does not necessarily take away from the benefits of regularly scheduled meetings, but it does indicate that there were some unaddressed issues concerning this team's scheduled meetings.

According to Eisenbart et al. (2016), discussions held in unscheduled meetings may be more focused and lead to more effective decision-making than discussions in scheduled meetings. Nyrud and Stray (2017) also observed that informal communication and ad-hoc conversations were the most important mechanism in inter-team coordination for large-scale software development. This came as a result of the teams being co-located in an open office space. When co-location was not possible, such as with distributed teams, the amount of ad-hoc conversations was greatly reduced.

An implications of employees having a large part of their day locked up in meetings is that it limits others to reach out for short, ad-hoc conversations. As an agile process relies on continuous deliveries and open communication, the aforementioned implication may be argued to be critical. Team Oslo described having problems fitting into colleagues calendars, sometimes having to book time two weeks ahead. This can slow down productivity if progression requires input from key people in co-dependant projects (Stray & Moe, 2020). This issue can easily compound when having multiple different codependent projects across different teams. While not being able to complete tasks because of needed input from key people in external teams, Team Oslo were incentivized to work on multiple different projects in parallel.

### **Consecutive Meeting Free Time**

The survey uncovered a sizeable discrepancy between employees preferred amount of consecutive meeting free time and their actual consecutive time between meetings. While most employees cited to prefer 3-4 hours of consecutive meeting free time, the mean amount of actual consecutive meeting free time was reported closer to half of this time, with 50% of employees citing 1-2 hours per day.

Team Oslo intended to spend Wednesdays to lock time for improvement work, but because of having multiple different projects running, these days were often filled with meetings aimed at emergency tasks. Having these days filled up with meetings reduced the amount of consecutive work time aimed at improvement, which again increased work load perception.

According to Kirmeyer (1988) there is an underlying relationship between meeting frequency and subjective workload based on attention capacity. This relationship can explain how interruptions lead to the perception of work overload. According to this theory, having to attend meetings while working on a different task requires effort to inhibit attention to said task, while also having to process the new information put forth in the meeting. The effort of inhibiting attention to unfinished and ongoing tasks contribute to an increase in cognitive work load. More meetings throughout the day contributes to more effort of inhibiting attention, more tasks left unfinished, and a greater perceived work load.

Team Oslo experienced that trying to create more meeting free time in the calendar, by moving more meetings on the same day, contributed to increased fatigue. To combat this, one team member tried scheduling 30 minutes of fresh air to combat the sense of work load. Despite the efforts, this strategy did not always lead to more consecutive hours of meeting free time nonetheless.

Due to the team often being engaged with multiple different project activities at the same time, they rarely had the opportunity to postpone tasks. In addition to these projects, Team Oslo also had continuous responsibilities related to management, operation and supplier support. The informants reported never having a single day working with only one activity, often jumping between many different tasks and projects.

As uncovered in the survey, working in parallel was associated with several unfavorable characteristics, such as having too little time for breaks between meetings and having a sense of working on too many things at the same time. There was a moderately strong association between the hours spent in meetings and working on many things in parallel.

### **5.1.2 Attendee and Procedural Characteristics**

Attendee characteristics refer to the number of attendees and factors such as the presence of a meeting facilitator. To organize and execute effective meetings, the right people must attend (Cohen et al., 2011; Stray & Moe, 2020). This is especially the case for distributed projects that rely on coordination between different teams (Stray & Moe, 2020). According to Stray and Moe (2020), when teams did not get access to remote key people, they also interacted less with other teams' external resources, leading to an overall decrease in communication. One of the reasons key people were unavailable, were due to being involved in several different projects at the same time, and therefore had little flexibility for organizing and attending new meetings.

The same effect was observed in the sample population surveyed at FinTech. Managers in general reported spending most of their day in meetings, while also reporting a high degree of working on many things in parallel. Being unable to communicate with key people also lead to frustration

within Team Oslo, who reported having to schedule meetings with key people two weeks in advance to continue progress on active projects. As a consequence, team members initiated new tasks and projects, leaving several others incomplete.

Another prerequisite for effective meetings is the number of attendees. According to Cohen et al. (2011), research has shown that group size fundamentally changes group processes and performance. The number of meeting attendees has an inverse relationship with perceived quality of meetings (Leach, Rogelberg, Warr, & Burnfield, 2009). Having too many or unnecessary attendees may serve as a distraction, lead to additional inefficiencies, and in general create a feeling of wasting time.

Team Oslo experienced being invited to meetings with four or five resources from an external team to solve problems that could have been solved with only one person. Moreover, they would sometimes be invited to meetings solely as a precaution, just in case they might have additional input. Other times, they were invited to meetings and it turned out they were looking for someone else. And sometimes it would be the opposite, where they should have been invited to meetings, but then have to schedule additional meetings to find out what happened on the meetings they were not invited to.

The interviews uncovered that inter-team meetings tended to drag on without structure, jumping from theme to theme because there were so many parties involved. The lack of clear agendas, the right participant notices, preparations and meeting leaders were exacerbating the perceived meeting load of the team, which again detracted from focusing work and finishing tasks.

While having a meeting facilitator was not found to directly correlate with perceived meeting quality in the study conducted by Cohen et al. (2011), there was an interaction between number of attendees and the value of a meeting facilitator. This corresponds to the findings by Stray and Moe (2020) that the larger the meetings, the less valuable they were perceived. Even though large scale projects often require many larger scheduled meetings with many attendees, these meetings are often most successful when reporting status, instead of coordinating efforts between teams (Nyrud & Stray, 2017). According to Nyrud and Stray (2017), the most effective coordination mechanism appeared to be ad-hoc conversations between two or more project members.

The analysis of the survey uncovered a relationship between the perception of meetings as valuable and the perception that meetings were conducted in a good way. Despite the high percentage of perceived wasted time in meetings, there was also a high degree of affiliation with the statement "The meetings I attend are conducted in a good way". Even among employees who rated meetings as less useful to them, there were many who still felt meetings were conducted in a good man-

ner. While this surely is an indication of the professionalism and experience of meeting organisers affiliated with FinTech, Team Oslo mostly cited inter-team coordinations as the biggest challenge.

The survey also uncovered a high degree of agreement to the statement "I feel we are more effective when using Teams/Slack than meetings to clarify something. The use of Slack as an effective coordination tool between distributed teams has been seen to increase team awareness and informal communication (Stray & Moe, 2020). Stray and Moe argue that Slack can be viewed as a group-mode coordination exercise because a group of people can follow and join in on the conversation. Because Slack is an instant-message-platform, it may contribute to quick information sharing and helps facilitate collaborations across locations.

Despite the many benefits of instant-message services like Slack, a high number of employees reported in the survey that they often were interrupted by messages in various channels which caused a loss focus. The wide spread use of Slack for communication was seen by Team Oslo as a hindrance to productive work time, as important messages would pour in throughout the day. When reflecting over whether to mute the channels for certain hours, the team reported some hesitance in fear of missing out on important communication from key people.

### **Summary: Meeting load and job satisfaction**

How people in organisations interact with one another in, through, and around their group and team meetings can relate to employee work-related attitudes (Luong & Rogelberg, 2005; Mroz, Landowski, Allen, & Fernandez, 2019). Workplace meetings provide a setting in which supervisors and subordinates come together and interact in meaningful ways. Therefore, organizations with a high meeting load might allow employees more opportunities for such meaningful interactions.

Quality interactions between employees are associated with trust, respect, and loyalty, and can result in beneficial effects related to organizational commitment and job performance (Allen et al., 2016; Mroz et al., 2019; Klünder et al., 2020). However, when organisations overuse group and team meetings it may affect employees attitudes in an unfavorable way (Mroz et al., 2019). If employees believe the organisation does not value their time and wastes it on unnecessary group and team meetings, they are less likely to have favorable attitudes towards their work.

While the survey included in this thesis did not contain any direct measures of job satisfaction, several items have relationships with job satisfaction established in the literature discussed in this chapter. Directly comparing meeting satisfaction with measures of job satisfaction, Rogelberg et al. (2010) argues for a direct and significant relationship.

As posited by Kirmeyer (1988) there is no direct relationship between meeting load and perceived

work load. Instead this effect is mediated by interruptions and the cognitive cost of context switching. According to Kirmeyer (1988) the amount of hours spent in meetings is associated with a heavier tax on subjective workload than the number of meetings. I argue that my findings support this claim, considering the difference in proportion of perceived wasted time in scheduled and unscheduled meetings and the respective duration of these different categories of meetings.

The interviews provided valuable insights into the subjective experience of team members and their perception of meeting load and job satisfaction. In trying to cope with the how the high meeting load effected the time of consecutive work, Team Oslo tried allocating more meetings to single days. This effect reportedly lead increased fatigue, and warranted counter measures such as booking time in the calendar for fresh air. Other measures intended to help relieve the teams perception of meeting load will be discussed in the next section.

## 5.2 How to Reduce the Perceived Meeting Load

This section discusses the second research question:

**RQ2:** What are possible solutions to reduce perceived meeting load, and improve job and meeting satisfaction?

The pilot experiment conducted with Team Oslo was aimed at exploring different measures to reduce meeting load, and to improve job and meeting satisfaction. The results revealed some key activities that had an advantageous effect on the perceived meeting load, which in turn lead to improved job and meeting satisfaction. Team Oslo tested five activities during the test period, and reported that three of these activities had measures that were moderately or very successful.

Locking time in the calendar to complete ongoing activities greatly helped facilitate consecutive hours of uninterrupted work. While the team already had tried to implement a similar measure to make time for improvement work, they often saw this time being consumed by meetings nonetheless. After implementing a more focused effort to lock time in the calendar, the team experienced having time to complete more ongoing activities than they used to.

Grouping meetings to the same day also contributed to these means, despite having the potential drawbacks of increased fatigue. As cited from Kirmeyer (1988) previously, it is not necessarily the number of meetings that contribute to increased perception of workload, but the cumulative time spent in meetings. Finding the correct balance between these measures might still prove to be an ongoing challenge. Nevertheless, an increased awareness on making time in the calendar for consecutive meeting free time might still contribute on its own premises.

While having the designated meeting free time to focus attention on completing unfinished tasks were important, finding ways to avoid interruptions from other communications and notifications proved to be paramount. According to the above mentioned Kirmeyer (1988), interruptions can be one of the largest contributors to cognitive load due to the taxing demands context switching has on attention. In support of this view, a large portion of the employees surveyed agreed that they often were interrupted by messages in various channels which led to them losing focus. Combined with the few hours of consecutive meeting free time, these factors appeared to negatively affect the perception of meeting load among the participants.

Active measures in reducing interruptions from instant-messaging services such as Slack led to less context switching and improved concentration. Disabling notifications for specific channels or within a given time frame allowed for more hours of uninterrupted work, resulting in a greater appreciation of their own time. In accordance with the findings from Mroz et al. (2019), positive evaluations of ones own value within an organisation can strengthen organizational commitment and job performance.

According to the findings of Luong and Rogelberg (2005) too many meetings or too many hours spent in meetings daily might have negative effects on perception of workload, feeling of productivity and fatigue. While these effects are off-putting on their own, Klünder et al. (2020) cites complaining and insufficient preparation as one of the biggest hinders to productive and satisfying meetings.

After implementing a measure aimed at improving meeting invites, focusing on agenda, roles goal and preparations, Team Oslo Oslo reported immediate benefits. While the context of Team Oslo provided some limitations to a complete implementation of this measure, it did spark an awareness concerning attendees and agendas. If agendas were too vague, the team would request further information, and this in turn had positive effects spreading to external partners. As the increased focus on that the right amount and the correct people were attending the right meetings lead to fewer meetings per team member, this in turn left more consecutive time to work on other unfinished tasks for the other members.

The activities suggested to improve technical meeting measures helped Team Oslo specialize their work tasks and better distribute meetings between team members. According to the informants, this helped reduce the perception of time wasted in meetings because they more often had time of focused work. While the team themselves worked on improving invites by focusing on agenda, roles, goals and preparations for their own initiated meetings, these factors continued to affect them when attending meetings initiated by external sources.



As a consequence of improved attention to attendee and procedural characteristics, the weekly average amount of meetings dropped significantly. Table 4.2, presented in Section 4.3, showed that the average number of daily meetings was reduced. In addition, Team Oslo reported on more effective and satisfying meetings overall. If the findings from Rogelberg et al. (2010) that meeting satisfaction significantly predicates job satisfaction ring true, I would argue that these measures contributed directly to an increase in job satisfaction.

Despite only applying measures to a single team in this study, Team Oslo is part of a greater ecosystem of other teams and work entities that influence each other in both directions. Positive meeting habits and conventions has potential to spread and take root across different teams and to influence the overall meeting culture, both within and between different organisations. The informants in Team Oslo remarked on how their own increased awareness on temporal, procedural and attendee characteristics of meetings seemed to spread into other branches of the organisation.

### **5.3 Implications for Practice**

The findings of this study provide a number of practical implications. As organizations progress into large-scale agile and work distributed to a larger degree than before, more teams may experience trouble with coordination. In order to succeed with large-scale agile, intra- and inter-team coordination is crucial. Organizations and teams therefore need to identify meeting characteristics that impact their meetings. The team members can collectively measure their meeting load by conducting a workshop and identifying their activities and potential challenges.

The results from this study showed that by implementing a set of improvement measures and creating awareness around the time spent in meetings, the perceived meeting load could be improved. The most successful measure was creating meeting free times in the calendar. Locking time in the calendar greatly facilitated consecutive hours of uninterrupted work. Taking active measures to shield from interruptions from messaging platforms such as Slack during these times contributed to more focused work. As established above, there are a number of unfortunate effects related to context switching, such as increased perception of workload (Kirmeyer, 1988). Grouping together meetings also facilitated more consecutive hours of work. However, this should be used with care as it could lead to meeting fatigue.

Furthermore, the organization should emphasize the importance of improving technical meeting measures, such a setting a standard for meeting invites. Employees can better prepare by having a clear agenda and goal for the meeting, and the chances of having the wrong people in the meeting are reduced.

However, there is not one solution that fits all teams within all organizations. As Team Oslo also experienced, team members may not be comfortable with the same level of shielding. Therefore, it is important to have an open dialogue within the team and experiment together. Finding the correct balance between preserving ones own time for productive and focused effort, while at the same time being sufficiently involved in coordination and communication with the multiple partners continues to be an ongoing process. Hopefully the findings from this thesis can support others in making this a more efficient and smooth process.

## 5.4 Limitations

In this section, I present the possible limitations of this study.

It is vital to consider the circumstances of this study. The team observed is one type of team in a specific context that was observed over a short period. Different results might occur when observing other types of teams over different periods. The most significant limitations are the time limitations and the fact that I only observed one team. If the project had lasted longer, I could have worked with multiple teams both within and outside of the organization and gathered a broader data set. This would have allowed me to draw parallels and comparisons between teams of different backgrounds in a larger scope.

While having the opportunity to collect a great deal of empirical and qualitative data from the observations and interactions with Team Oslo, the context and timeframe of this thesis did provide some limitations to the scope of inquiry. Due to unfortunate circumstances one of the informants had sick leave, and there were a week of vacation in the weeks following the implementation of the measures. Table 4.2, presented in Section 4.3, showed that the average number of daily meetings was reduced. Unfortunately I did not have enough data for a thorough analysis of the quantitative effects of the measures.

Furthermore, the quality of data gathered from interviews depends heavily on the researcher and the interviewees. My inexperience as a researcher may therefore have affected the study. Since I had been given a time limit of 20 minutes for each interview, I thoroughly discussed the interview guide with my supervisors. I did my best to avoid biases and to construct as concrete questions as possible. Still, as the interviews were conducted as semi-structured interviews, not all the questions were predefined. Because of this, neutral and non-leading questions were prioritized above all.

### 5.4.1 Reliability and Validity

#### Reliability

In order to strengthen the replicability of the results, multiple sources of evidence were used. The results presented in Chapter 4 were first identified in the survey, and then further investigated and confirmed through interviews and observations. Quotes from interviews and status meetings all back up and support the findings.

#### Construct Validity

Construct validity was supported by using several different methods for data collection, all of which are widely used and recognized within the software engineering field. Given the multiple sources of data, I intentionally gave data collected from the observations a lower priority than data from the survey and interviews. This was done to avoid any potential biases that could have influenced my observations. According to Yin (2008), there are several potential biases that can be produced when conducting participant-observations. First, the researcher has less ability to work as an external observer and may sometimes assume positions contrary to the interests of good scientific practice. Second, the participant-observer is likely to become a supporter of the group being studied. Third, the participant role may require too much attention relative to the observer role. Thus, the participant-observer may not have sufficient time to take notes or to raise questions about events from different perspectives, as a good observer might (Yin, 2008)

#### Internal Validity

Internal validity describes to what extent the research can be assured that external factors cannot explain the relationship established. To maximize internal validity, I therefore made sure to use multiple sources of evidence, such as interview transcripts and observational notes, before any claims were made.

A general limitation of this study is that I did not include any direct measure of job satisfaction. Despite my analysis of the items in the survey not being aimed at producing a reliable and valid scale to measure meeting satisfaction, the relationships presented in this survey might provide a decent starting point for anyone interested in such a venture.

Another limitation is that I did not conduct analyses to address the survey's response styles. I did observe that all mean values were above 3. While there seems to be a tendency in the data-set collected from the survey to slightly agree with all statements, the general spread does indicate that if there are any response style tendencies, they are not very big. Nevertheless, a thorough investigation would have strengthened the internal validity of my findings.

Because the survey was constructed to explore opinions across a vast array of different constructs and concepts relating to meeting activity, the items included in this thesis did not necessarily relate to each other in consistent ways. Conducting analyses on the internal consistency between items, such as using a Cronbach's alpha coefficient would not provide any meaningful information concerning the validity of the items included in the survey. As no other validity tests were performed on the data collected in the survey, the findings are limited to face validity.

The main goal of including the survey in this investigation was primarily as a guide how to approach the interviews and observation of Team Oslo. The qualitative exploration of the subjects included in the pilot was the main concern of this thesis.

A suggestion for future research would be to include validated measures of job satisfaction, of which several existing scales are available. Hopefully, the findings from this thesis can be expanded upon and used to help navigate which other aspects of meeting perception are important for job satisfaction.

### **External Validity**

External validity describes to what extent the research's findings are generalizable and can be applied to a broader context. There are clear limitations to the external validity of these findings considering there has only been one small sample. Nevertheless, the measures explored in the first test activity, "Facilitate consecutive hours of uninterrupted work", might be taken on face validity. These measures are easily implemented by any organization or team constellation that requires prolonged stretches of interrupted work. Regardless, conducting the research across multiple organizations would have significantly supported the external validity.

Team Oslo is also a specialized team working in a highly specialized environment. Some of the challenges they face might not be as relevant to other teams working in other areas. As much as I believe this to be an important evaluation of the general limitation to external validity, I also see the potential of my findings to have some degree of general implication.

Attending and scheduling meetings is not an activity reserved for specialized teams in software development working in agile environments. Lessons learned from Team Oslo might also prove valuable to teams working in different sectors.

## Chapter 6

# Conclusion

Meetings are an essential part of software development projects. This is particularly true at the early stages of large projects, where most communication takes part in scheduled meetings (Moe et al., 2022). However, meetings are often not as effective and productive as expected, leading to increased cost and dissatisfied software project employees (Rogelberg et al., 2012).

During the period between November 2021 and May 2022, I conducted a mixed-method case study by analyzing a survey administered to 300 participants and investigating one software development team in the same organization. The aim of this study was to shed light on meeting activity and perceptions of meeting load and job satisfaction in large-scale agile software development teams, and to provide effective strategies to improve job satisfaction.

Firstly, in pursuing this aim, I provide a background of related work to help the reader appreciate the context and importance of meeting load and meeting satisfaction. While meetings serve as an important mechanism for coordination and communication in large-scale projects, the compounded cost of employees spending time in meetings may have direct and indirect costs in the form of salaries, time away from primary tasks, stress, and reduced job satisfaction. While effective meetings are strong facilitators for successful projects, negative perceptions or expectations to meetings may reduce the effectiveness of meetings, while also compounding negative effects on job satisfaction.

Secondly, by identifying the challenges agile teams face relating to meeting load and meeting satisfaction, I provide an analysis of factors important to employee perception and attitudes towards meeting load and meeting satisfaction. The number of hours spent in meetings daily are related to several factors posing risks to job satisfaction, such as working on too many things in parallel, not having time to take breaks between meetings, few consecutive hours of productive work and

perception of wasting time. Meetings that are conducted in a good way, with a well defined agenda, correct amount of attendees and sufficient preparation are more likely to be viewed favorably and contribute to job satisfaction. While the amount of hours spent in meetings daily contribute to an increased perception of workload, consecutive uninterrupted time for productive work is related to job satisfaction.

Thirdly, by examining the factors important to employee perception and attitude towards meeting load and meeting satisfaction, I attempt to suggest a set of easily implemented measure designed to combat the negative effects of meeting load and improve job satisfaction. Locking time in the calendar and grouping meetings together can help facilitate consecutive hours of uninterrupted work. Combined with shielding in digital channels, this can lead to more focused work. Furthermore, improving technical meeting measures can lead to more productive meetings. Creating awareness around how we organize and attend meetings is therefore an essential step towards improving meeting satisfaction.

This research aims to contribute to the existing body of knowledge in the field by providing insights into the relationship between the coordination demands of working in agile software development and employees' perceptions of meeting load and job satisfaction. The main contributions of this paper can be divided into two main areas: (i) an exploration of the activity and perception of meeting load and (ii) effective strategies aimed at reducing perceived meeting load and increasing job and meeting satisfaction.

This study highlights the challenges associated with increased meeting load in agile software development projects. My findings suggests that easily implemented measures can be an effective tool to increase meeting and job satisfaction. While this study is intended as a preliminary exploration of the relationship between meeting activity and job satisfaction, further research should expand upon these findings by comparing the factors and measures suggested in this thesis with validated scales on job satisfaction.

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# Appendix A

## Survey Questions

1. Choose the role that best suits you
  - (a) Employee with personnel responsibility (manager)
  - (b) Employee without personnel responsibility
2. Are you a permanent employee or consultant?
3. How long have you been working in the organization?
  - (a) 0-2 years
  - (b) 2-5 years
  - (c) 5-10 years
  - (d) 10+ years
4. On average, how many hours do you spend during the day in scheduled meetings?
5. On average, how many hours do you spend during the day in unplanned (spontaneous) meetings?
6. On average, what percentage (0-100%) of the time in scheduled meetings do you experience as a waste?
7. On average, what percentage (0-100%) of the time in unplanned (spontaneous) meetings do you experience as a waste?
8. On a scale from 0 (worst) to 10 (best), how much do you enjoy digital meetings?
9. On a scale of 0 (worst) to 10 (best), how much do you enjoy physical encounters?
10. How many consecutive hours of meeting time do you prefer to have per day, to have time to focus and produce?
11. How many consecutive hours of meeting time do you have on average per day now?
12. What type of meetings do you want to have digitally? You can select several options
  - (a) General meetings

- (b) Info meetings
  - (c) Status meetings
  - (d) Standups
  - (e) Workshops
  - (f) Other
  - (g) Don't know
13. What are your best suggestions for improving our meeting culture?
  14. The meetings I attend are useful to me
  15. I usually contribute actively in the meetings I attend
  16. The meetings I attend are conducted in a good way
  17. I have the right number of meetings a week
  18. An unnecessarily amount of people are often invited to a meeting because they are afraid that someone will feel left out
  19. I find it demanding to say no to meetings I am asked to attend
  20. I often invite to meetings to get information or make clarifications
  21. I am often interrupted by messages in various channels which means that I do not get the job focused over time
  22. I often feel like I'm working on too much in parallel
  23. I work on several things in parallel, therefore I have many meetings in a week
  24. I set aside time in the Outlook calendar for meeting-free periods so that I have time to think and produce
  25. I always plan the working day before I start it
  26. I often invite to meetings because those I need to work with do not use the same digital interaction tools
  27. I believe that we are more efficient when we use Teams / Slack to a greater extent than meetings to clarify things
  28. I would prefer to participate physically in hybrid meetings
  29. I find it harder to stay focused in digital meetings than in physical meetings
  30. What could be the reasons why it can be difficult to stay focused in digital meetings?
  31. It is easier to end the meeting on time if it ends in full or half, than if it ends in ten in full, or five in half
  32. I think it is natural that we participate in digital meetings even when we are physically at work
  33. We must also be able to attend digital meetings directly from the desk in the office
  34. I do not have time to take breaks between meetings
  35. The meetings I attend have a clear agenda
  36. I am often encouraged to prepare for meetings

37. The tools we use in digital meetings are effective
38. Meetings are important to me both to meet and talk to colleagues
39. There are too many scheduled meetings in the team / department
40. There are too many scheduled meetings outside the team / department
41. I think we should continue with frequent information meetings from the management also after COVID-19
42. I have the most meetings with one person at a time
43. I often forward meetings to other colleagues so that more can participate
44. I mostly attend unplanned (spontaneous) meetings
45. What we agree on in the meetings is followed up
46. I often receive minutes from the meetings where this is relevant
47. Most of the meetings I want to convene will also be digital after COVID-19
48. I think it's okay to multitask in meetings
49. I believe that it is most effective to clarify things orally rather than in writing
50. I often call colleagues or external partners by phone outside of agreed meetings
51. I prefer to chat with colleagues / partners rather than call by phone
52. If my day consists mostly of hybrid meetings, I prefer to work from home
53. I prefer that all meeting participants are on the same channel (only physically or only digitally)
54. What percentage of the meetings do you want to be digital?
55. I prefer to meet when needed
56. I prefer to have regular meetings
57. I often have to reschedule the day because there are meetings I have to attend or invite to
58. I think it is fine for people to leave a meeting if the meeting is no longer relevant to them
59. I find it easy to jump from one meeting to another and still stay focused
60. Is there anything else you would like to mention in regards to meetings and meeting culture?

# Appendix B

## Interview Guide

### Introduction

- Thank you for participating
- Introduction (my name, background, goals for the interview)
- Inform about voluntary participation, anonymity and consent form
- Get confirmation that it's okay to record

### Meetings

- Can you start by introducing yourself and the work you do?
  - Do you have any other additional tasks?
- Can you show me a typical week in your calendar? Can you share your screen or send screenshots afterwards?
  - How many hours do you spend in meetings during a week / weekday?
  - Scheduled and unplanned meetings
  - Do you find that meetings often go over time?
- During a typical week - what kind of meetings do you attend?
  - Project methodology - retro, standup
  - Coordination - internally in the team, and across teams
- When do you feel that you have had a productive meeting?
  - What are the reasons for this?
  - If the meeting is digital, can you work on other things? (multitasking)
  - If the meeting is digital, would it be possible to reserve that time in your calendar and

enter the meeting only when you are needed?

- Do you find that some meetings are more valuable than others?
  - Which meetings does this apply to?
- Do you often invite others to meetings or are you invited?
  - Which meetings does this apply to?
- What does an ideal meeting day look like for you?

## Work tasks

- There is a concern within the organization that employees are working on too many things in parallel. What are your thoughts about this?
- How do you get new work assignments?
  - Do you get to choose for yourself?
- How do you structure your workday?
- How do you prioritize your work tasks?
  - Is there anyone else who prioritizes your work tasks? What is the process?
- How does the team get new work assignments?

## End

- Is there anything we have yet to discuss that you would like to address?
- Do you have any additional questions?
- Thank you very much for the interview