

## THEMATIC ANALYSIS AND DEVELOPMENT OF A CONCEPTUAL FRAMEWORK FOR AGILE MEETINGS' PROBLEMS

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Review Paper

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For Agile methodologies, it is extremely important to have a well-established communication system. In addition to the daily meetings of the project team members, there are also meetings before the start and after the end of each development cycle, when the client needs to express his opinion, proposals, and suggestions based on the delivered part of the product. Due to the great importance of having meetings, it is necessary to analyze the problems related to meetings. In this paper, inductive thematic analysis of the data obtained through a systematic review of the literature was carried out. The analysis was carried out using the software tool QDA Miner Lite by creating codes to determine the themes that represent problems in Agile meetings. Through thematic analysis, we want to show which problems occur at meetings in an Agile environment. Finally, we develop and present a conceptual framework encompassing the problems found in Agile meetings. This literature review offers a conceptual framework with identified key themes found in the literature: Meetings last too long, information is not shared with all team members, negative attitudes toward meetings, and less time is spent on tasks. The conceptual framework aims to help researchers and industry practitioners by presenting the issues. Developing a conceptual framework is important because if the problems presented in the mentioned framework are noticed in time, we believe that it is possible to intervene in time and solve a certain problem, which would increase the efficiency of work. Researchers can see how to create a conceptual framework based on the thematic analysis of data as well as extend this conceptual framework with more problems that may potentially arise. Based on the research findings, we discuss research implications and propose directions for future research.

**Keywords:** Agile methods; Agile meeting problems; Conceptual framework; Thematic analysis.

### INTRODUCTION

It can be said that thematic analysis (TA) is an accessible, flexible (Kiger & Varpio, 2020), and increasingly popular method (Kiger & Varpio, 2020; Xu & Zammit, 2020) of qualitative data analysis (Braun & Clarke, 2019). Through thematic analysis, we can see common meaning. According to Braun and Clarke (2012), 'TA provides entry into a mode of inquiry that might otherwise seem obscure, mystifying, conceptually challenging, and overly complex. It offers a path into qualitative research that teaches the mechanics of coding and

systematic analysis of qualitative data, which can then be linked to broader theoretical or conceptual questions. Cruzes and Dyba (2011) presented detailed guidelines with recommended steps for using the TA for the synthesis of research findings in software engineering research.

After implementing TA on selected literature sources, a conceptual framework was created. 'Conceptual model is the activity of deciding what to model and what not to model - 'model abstraction'. A conceptual model is a non-software specific description of a computer simulation model

that describes the goals, inputs, outputs, content, assumptions, and simplifications of the model' (Robinson et al., 2015). The conceptual framework is a representation of the relationship between the variables (characteristics) analyzed by the authors. Conceptual frameworks can be in the form of text or images and are usually created based on a literature review (Ravitch & Carl, 2019).

Based on aforementioned, the objective of this paper is to show the problems related to Agile meetings in IT companies identified by using the method of inductive thematic analysis and to explain their importance. Identified problems are arranged in a developed conceptual model.

This paper is structured as follows. The second section describes related works in the field of using thematic analysis in IT. The third part presents the background of Agile methods. The fourth part presents the method. The fifth part contains the findings and the development of the conceptual framework. The sixth section contains a discussion. The final part contains the authors' conclusions and directions for further research.

## RELATED WORK

Melo et al. (2013) developed a conceptual framework, using thematic analysis, where it was determined that Agile team management is the most influential factor in achieving productivity in Agile teams.

Gregory et al. (2015) presented a thematic analysis of Agile challenges collected from several Agile conferences and events in 2013 and 2014. The challenges were thematically analyzed by authors, seven themes were synthesized and enumerated, and 27 sub-themes were agreed upon.

A qualitative study by Sekitoleko et al. (2014) notes the challenges associated with technical dependencies and communication. Using TA, the authors identified five challenges: planning, task prioritization, knowledge sharing, code quality, and integration. Those challenges can have a major impact on product quality.

Mkoba and Marnewick (2020) created a proposed conceptual framework for auditing agile projects that are implemented using Scrum methodologies. The framework introduces revision processes into each process of the Scrum methodology. The quantitative research method used an online survey

questionnaire to validate the conceptual framework among IT professionals in South Africa.

Younus and Younis (2021) develop a conceptual model that allows members of the top management team, software developers, project managers, and researchers to gain insight and understanding of agile techniques and methods. Based on the findings of this research, this paper presents a conceptual model for the effect of agile project management on project performance in terms of timeliness, cost, and quality.

Moyano et al. (2022) presented the results of a study highlighting how business process modeling can be used in Agile projects. Through a systematic literature review, thematic analysis, and discussion with practitioners, they concluded that business process models are important when it comes to Agile projects.

## BACKGROUND

Since the mid-1990s, several practitioners have proposed and applied new methods and approaches and categorized them under Agile software development, leading to the proposal of the Agile Manifesto in 2001 (Chuang et al., 2014; Dingsøyr et al., 2012). The Agile approach, which is centered on people, has proven to be the best in recent times (Shakya, 2020). Many Agile methods were introduced. Scrum, Kanban, Extreme Programming (XP), Lean SD, Crystal, FDD, and TDD are some of the Agile methods (Gandomani et al., 2013). "Agile software development consists of a set of iterative and incremental software engineering methods that are inspired by the 'Agile philosophy', according to the Agile Manifesto (Dutra & Santos, 2020)". It can be said that the Agile approach is based on the following basic principles (Jovanović et al., 2016):

- 'Software development should take place continuously respecting client requirements' (Jovanović et al., 2016).
- Teams need to deliver the product on time (Hajjidiab & Taleb, 2011; López-Martínez et al., 2016).
- 'Software development should be done in short parts, to be delivered and discussed with the client' (Jovanović et al., 2016).
- Accept change requests from the client.
- 'Communication with the client, sponsors, stakeholders, and development team should be timely and continuous' (Jovanović et al., 2016).

- The software development team should be self-organized and ready to act flexibly.
- It requires strong teamwork and joint responsibility for the result.
- Encourage the software development team to be innovative.
- Meetings are events where you need to communicate to solve problems (Gaborov et al., 2023; Serrador et al., 2018).

Meetings and exchange of opinions and feedback are crucial for further effective work on software development (Dybå & Dingsøyr, 2008; Jovanović et al., 2016), this indicates the need to notice all problems that may arise. Social interaction between team members includes daily stand-up meetings, retrospectives, planning meetings, and product demonstrations (Strode et al., 2022). A sprint planning meeting is a meeting where the team plans the work for the next sprint. The team should be committed to the next sprint and should be realistic about the team's capacity and ability to maintain motivation. The main document that comes out of this meeting is the sprint backlog. The daily standup meeting is a daily 15-minute team meeting, which allows members to review work progress and remove obstacles. Each team member answers the following three questions: What have you been working on since the last meeting? What will you be working on until the next meeting? Did any interference occur? A sprint review meeting is a meeting where the team presents to its stakeholders what was done in the previous sprint. Stakeholders provide feedback and specifications for subsequent sprints. The purpose of the retrospective meeting is

to allow the participants to assess how efficient and effective the collaboration was during the sprint. Problems are observed, the cause of the problem and what are the solutions that should be implemented in the next sprint. The meeting contributes to better cooperation in the following sprints (Alqudah & Razali, 2017; Andersson, 2022; Guillot et al., 2017; Pauly et al., 2015).

## METHOD

This section presents details on collecting relevant literature using the systematic literature review method, analysis of selected publications by using inductive thematic analysis, and development of a conceptual framework based on identified themes in thematic analysis.

### Data Collection

While writing a systematic literature review for doctoral purposes (Kitchenham et al., 2009), studies were discovered that mentioned problems related to Agile meetings. Studies were found in well-known databases such as IEEE Xplore, Springer, Science Direct, Taylor & Francis, and Google Scholar. Primary studies were identified in which the analysis found problems caused by meetings. Table 1 shows the 7 primary studies that were selected for the thematic analysis. The table lists the data of each work, such as the title of the work, the names of the authors, the electronic library where it was obtained, and the year of publication.

Table 1: Selected primary studies

| Primary study (PS) | Authors               | Titles                                                                                                                                         | Database         |
|--------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| PS01               | Stray et al., 2013    | Obstacles to efficient daily meetings in agile development projects: A case study                                                              | IEEE Xplore      |
| PS02               | Singh & Strobel, 2022 | Exploring lived experiences of agile developers with daily stand-up meetings: a phenomenological study                                         | Taylor & Francis |
| PS03               | Stray et al., 2018    | Daily stand-up meetings: Start breaking the rules                                                                                              | IEEE Xplore      |
| PS04               | Stray et al., 2016    | The daily stand-up meeting: A grounded theory study                                                                                            | Science Direct   |
| PS05               | Moe et al., 2018      | To schedule or not to schedule? An investigation of meetings as an inter-team coordination mechanism in large-scale agile software development | Google Scholar   |
| PS06               | Stray et al., 2017    | Are daily stand-up meetings valuable? A survey of developers in software teams                                                                 | Springer         |
| PS07               | Stray et al., 2012    | Investigating daily team meetings in agile software projects                                                                                   | IEEE Xplore      |

## Thematic data analysis

When applying TA, a thematic framework with identified topics on the observed phenomenon (problem) is presented. Inductive thematic analysis proposed by the authors Brown and Clarke (2006), is used as a data analysis method. Applying the method, we created a thematic framework which was then mapped into a conceptual framework, so that each theme was mapped into one concept.

This is a method that identifies, analyzes, and reports on themes within the data while also describing and organizing the data set in detail (Brown & Clarke, 2006). The authors used the aforementioned primary studies for qualitative analysis. All qualitative data were prepared in PDF documents and imported into the QDA Miner Lite software tool for qualitative data analysis (Provalis Research, 2023).

The data were coded and reviewed and then relabeled. After that, the codes were combined, which resulted in the translation into themes. The authors performed a thematic analysis of selected studies to identify problems with Agile meetings. They verbally clarified the problems and agreed on the mentioned problems, after which they built a conceptual framework with the mentioned problems. The stages in the data analysis were:

- **Familiarizing with the Data.** The mentioned primary studies were saved as PDF documents. Primary studies were previously used for systematic literature review during which the authors got preliminary insight into the content.
- **Generating Initial Codes.** The initial coding was completely done in the QDA Miner Lite software. Below is Figure 1 with an example of what the coding looked like in the mentioned software. The codes are identified by reading the documents in the mentioned software. The cases represent all the documents that have been analyzed; they are all the primary studies that are listed in Table 1. The cases are listed in the software according to the title of the paper/document. The variables represent the properties of the documents entered for analysis. The following variables have been entered: title, category, document, year of publication, and reference. Each document is presented in the middle, and codes in different colors are marked on the right. The codes are identified by reading the documents in the mentioned software. In

each document, there are corresponding codes that have been determined by encoding.

- **Searching for Themes.** The focus of the analysis shifted to looking for broader themes that would enable the organization of different codes into potential themes. Table 3 presents all primary studies with their codes.

The list of all the codes from all the documents that were determined by coding is presented in Table 2.

Table 2: List of identified codes

| Code | Code name                                                       |
|------|-----------------------------------------------------------------|
| C1   | The meeting lasted too long                                     |
| C2   | Information is not shared with all team members                 |
| C3   | There is a negative attitude of team members toward meetings    |
| C4   | Some team members receive more attention than others            |
| C5   | Meetings are held quite often                                   |
| C6   | There is a negative experience of leading a meeting             |
| C7   | Less time is spent on tasks                                     |
| C8   | There is an Insufficiently planned number of scheduled meetings |
| C9   | Not all team members always benefit from meeting every day      |

Table 3: Primary studies and their assigned codes

| PS   | CODE NAME                                                       | CODE |
|------|-----------------------------------------------------------------|------|
| PS01 | The meeting lasted too long                                     | C1   |
|      | Information is not shared with all team members                 | C2   |
|      | There is a negative attitude of team members toward meetings    | C3   |
|      | Some team members receive more attention than others            | C4   |
|      | Meetings are held quite often                                   | C5   |
| PS02 | Information is not shared with all team members                 | C2   |
| PS03 | There is a negative attitude of team members toward meetings    | C3   |
|      | There is a negative experience of leading a meeting             | C6   |
| PS04 | The meeting lasted too long                                     | C1   |
|      | Information is not shared with all team members                 | C2   |
| PS05 | There is an insufficiently planned number of scheduled meetings | C8   |
| PS06 | Information is not shared with all team members                 | C2   |
|      | There is a negative attitude of team members toward meetings    | C3   |
| PS07 | Less time is spent on tasks                                     | C7   |
|      | Not all team members always benefit from meeting every day      | C9   |



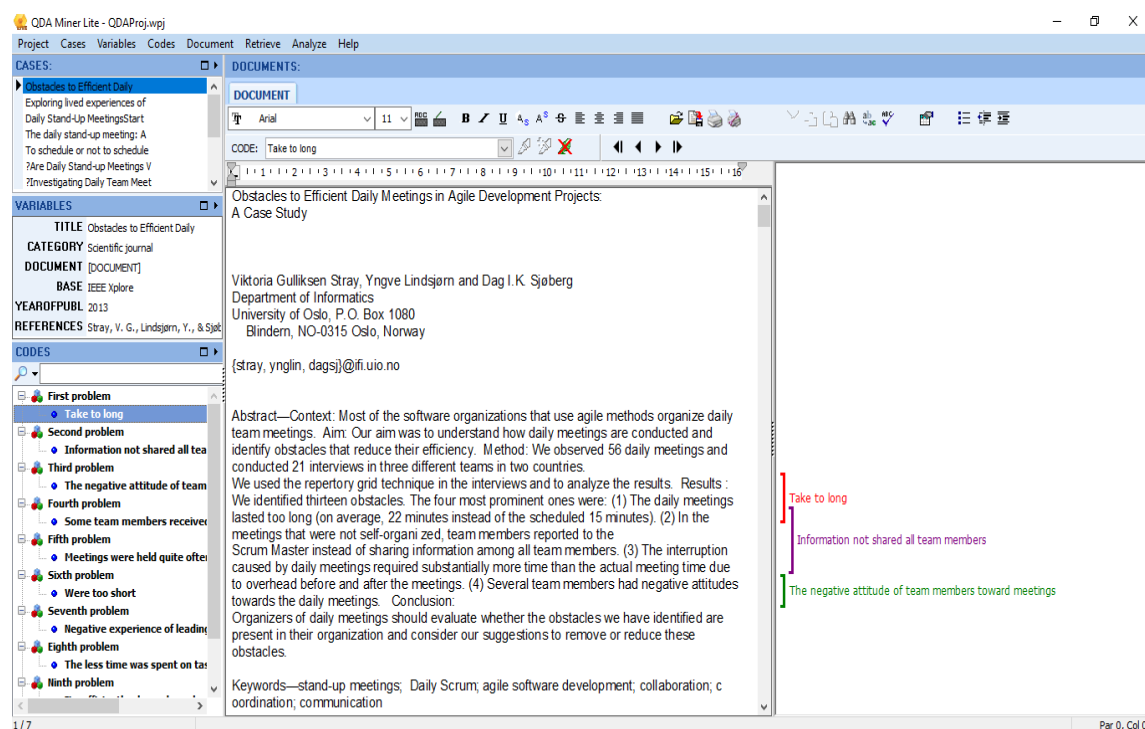


Figure 1: Coding in QDA Miner Lite

- **Reviewing Potential Themes.** The authors discussed the codes and used objects of different colors to highlight ways of thinking, as shown in Figure 2. Primary studies (PS) are indicated as a light blue square. Codes (C) are marked with burgundy circles. Several codes were identified in multiple primary studies. The codes are connected by arrows to the corresponding themes. Themes are marked with ordinal numbers in the image in the form of gray circles.
- **Defining and Naming Themes.** Theme 1 is actually a ‘Meeting last too long’ problem. Theme 2 is the problem of ‘Information is not shared with all team members’. Theme number 3 is represented by the problem ‘There is a negative attitude of team members toward meetings’. The fourth theme is ‘Less time is spent on tasks’. We identified the most important themes based on codes in primary studies. We emphasize that it is necessary to focus more attention on topics where more codes are associated with them.

The theoretical writings are fundamentally important for the development of the theoretical/conceptual framework as the main research finding of the study (Birks et al., 2008).

## RESEARCH FINDINGS AND DEVELOPMENT OF A CONCEPTUAL FRAMEWORK

The research results were developed as a conceptual/ thematic framework. According to the typology of qualitative findings (Sandelowski & Barroso, 2003), this study represents a conceptual/thematic description, since the findings are expressed as a set of developed themes integrated into a conceptual framework. The authors are aware that the conceptual framework is based on some literature sources, which could be modified and updated by including new literature sources in the analysis.

The concepts are presented in the conceptual framework in Figure 3. Concepts are derived from the identified themes. The creation of the conceptual framework is based on the analysis of published works that were collected using the systematic literature review method (Kitchenham et al., 2009). The selected studies are used to develop a conceptual framework representing the problems with Agile meetings. Each concept represents one of the identified problems. In Figure 3, the concepts are represented in the form of a light blue rectangle, where the concepts are connected by a double arrow. Each concept represents a corresponding problem related to encountering (or encountered) problems.

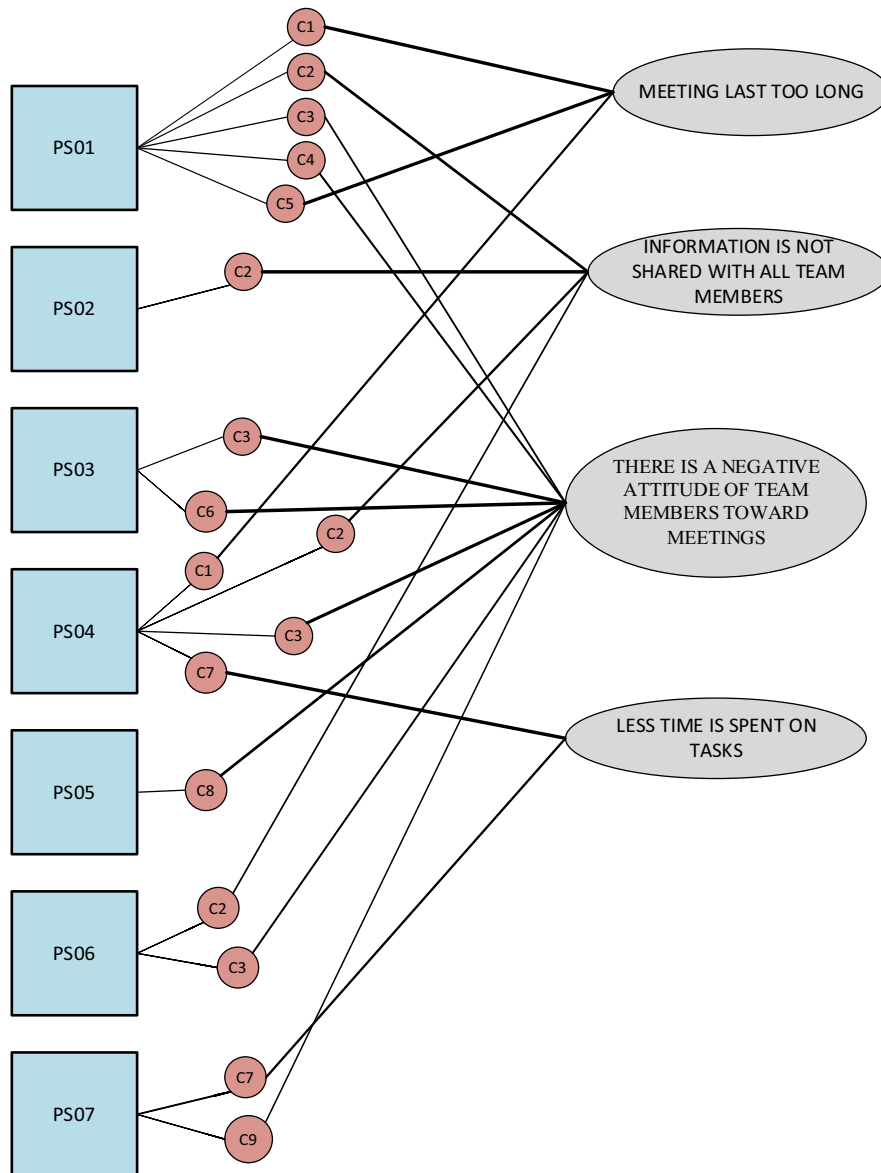


Figure 2: Development of themes based on codes identified in primary studies

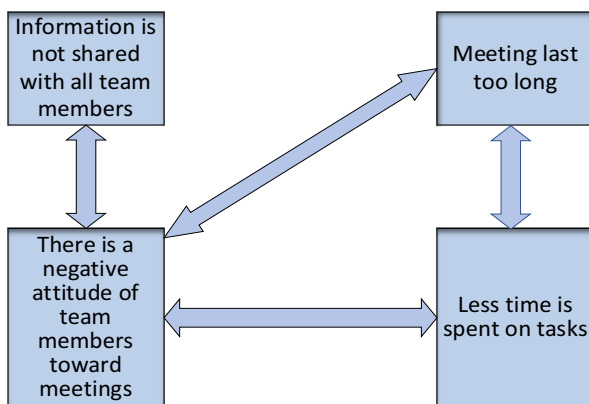


Figure 3: Conceptual Framework of Agile Meetings' Problems

## Concepts in the conceptual framework

### *The meeting lasted too long*

The meetings lasted a long time in the mentioned studies. It happens that meetings are longer than planned, but such meetings were useful. Many respondents complained about the duration of the meetings (Stray et al., 2013; Stray et al., 2016).

### *Information is not shared with all team members*

In a study by Singh and Strobel (2022), describing the lived experiences of 19 developers with daily stand-up meetings, developers who experienced such meetings said they were too short to allow for clear identification and resolution of problems.

Older developers are different from younger developers in terms of sharing information (Singh & Strobel, 2022; Stray et al., 2013; Stray et al., 2017).

#### ***There is a negative attitude of team members toward meetings***

Team members believe that meetings are held too frequently and that is why their attitudes are predominantly negative (Stray et al., 2013). A subsequent study (Stray et al., 2018) included 60 members from five countries. Many team members had a negative experience with meeting management, which reduced job satisfaction, trust, and the like. A study by Stray et al. (2016) was conducted to obtain attitudes about meetings. Positive attitudes towards meetings were when information was shared with the team and when the team had an opportunity to discuss issues. A negative attitude was when there was an excessive frequency of meetings because it affected other work activities that need to be done (Stray et al., 2013.; Stray et al., 2016; Stray et al., 2017; Stray et al., 2018).

#### ***Less time is spent on tasks***

Stray and others (2017) analyzed meetings involving two software development teams. Most of the meeting was spent identifying problems and discussing solutions to those problems. Less time was spent discussing tasks (Stray et al., 2012; Stray et al., 2016).

### **DISCUSSION**

Based on the qualitative thematic analysis, a conceptual framework was created and described. From the conceptual framework, it can be concluded that it is necessary to influence the duration of the project so that only those problems that are intended to be solved at the corresponding meeting are solved at the meeting. Employees do not like long meetings because then they will have less time to solve tasks and this can lead to employee dissatisfaction, but also to worse results, which affects profits. Also, care should be taken that there are employees at the meetings who need to hear information and the like. All information must reach every person to whom that information is important, primarily because the teams are working on the same project, so everyone must do their part as planned.

### **Research implications**

Implications of the research for industry practitioners and academic researchers are discussed in the following subsections.

#### ***Industry practitioners***

This conceptual framework can be used by industry practitioners. Although this conceptual framework contains only specific problems that arise in meetings, it can help practitioners to understand how important it is to organize a meeting in the right way, because the employees of the company must not feel bad and do their part of the work in the agreed way. Also, this could help practitioners realize that they should try to automate the meeting process so that employees have more time to complete the tasks assigned to them on the respective project. The process can be automated by the meeting organizer allowing employees to answer their questions without live chat, and employees would complete this process at the appropriate time and each employee would see the information posted by other members. This would reduce the duration of meetings, but all information would still be available to everyone who needs it, and employees would have more time to solve the tasks assigned to them on the corresponding project.

#### ***Academic researchers***

Researchers can learn from this paper how to create a conceptual framework that is created based on the thematic analysis of data. Using this conceptual framework, researchers can see some of the problems in organizing meetings and expand this conceptual framework with more problems that may potentially arise. Furthermore, the presented approach for developing a conceptual framework using the inductive thematic analysis can be adapted and implemented in other research projects.

### **Validity of the research**

We are aware that there are certain limitations to the validity of the research. So, the reliability of research findings can be increased by considering the limitations that affect the validity of the study (Wright et al., 2010), which includes considering internal and external validity.

During the thematic analysis, we followed the guidelines for conducting thematic analysis proposed by Brown and Clarke (2012) and clearly described the whole process. Possibly we have missed some case studies that were published in digital libraries that we did not search. The themes we listed were derived from codes that appeared mostly in multiple sources of literature, thereby reducing theme selection bias. All authors of this paper participated in the discussion and development of the findings and finally agreed on the defined themes in the conceptual framework.

The findings relate to problem-solving in projects that apply Agile methodologies because they are more popular than other methodologies. The latest projects and research in the IT industry are based on Agile methodologies, which increase the generalizability of the presented conceptual framework. A detailed description of the conceptual framework development process can be used to develop similar conceptual frameworks for other aspects of IT project management, which further increases the usability of the presented study.

## CONCLUSION

This paper presents the identification and systematization of problems related to meetings in Agile methodologies. All problems were identified and systematized using the method of inductive thematic analysis, after which a conceptual framework was derived. The main contribution of the presented research is that employees can spot specific problems related to meetings by recognizing which of these problems potentially occur in companies. These problems can greatly affect the success of the company. A detailed description of the analysis process leading to the conceptual framework is another important contribution of this research.

The long duration of the meeting leads to the fact that employees spend less time solving their tasks and more time in meetings, which leads to negative attitudes of employees towards meetings. Also, if important information is not communicated among employees, it can lead to a negative attitude toward employees.

The results of the research indicate a great need to ask how meetings are held in the IT industry and how to prevent problems. In the future, further work will be directed toward the development of

software that will help solve problems related to Agile meetings.

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## TEMATSKA ANALIZA I RAZVOJ KONCEPTUALNOG OKVIRA ZA PROBLEME AGILNIH SASTANAKA

Za Agilne metodologije izuzetno je važno imati dobro uspostavljen sistem komunikacije. Pored dnevnih sastanaka članova projektnog tima, postoje i sastanci pre početka i nakon završetka svakog razvojnog ciklusa, kada klijent treba da iznese svoje mišljenje, predloge i sugestije na osnovu isporučenog dela proizvoda. Zbog velikog značaja održavanja sastanaka, neophodno je analizirati probleme vezane za sastanke. U ovom radu izvršena je induktivna tematska analiza podataka dobijenih sistematskim pregledom literature. Analiza je sprovedena korišćenjem softverskog alata QDA Miner Lite kreiranjem kodova za određivanje tema koje predstavljaju probleme u vezi sastanaka. Kroz tematsku analizu ukazano je koji problemi se javljaju na sastancima u Agilnom okruženju. Konačno, razvijen i predstavljen je konceptualni radni okvir koji obuhvata pronađene probleme. Ovaj pregled literature nudi konceptualni okvir sa identifikovanim ključnim temama koje se nalaze u literaturi: predugo traje, informacije se ne dele sa svim članovima tima, negativan stav prema sastancima i manje vremena se troši na zadatke. Konceptualni okvir ima za cilj da pomogne istraživačima i industrijskim praktičarima predstavljanjem problema. Izrada konceptualnog okvira je važna jer ukoliko se na vreme uoče problemi predstavljeni u pomenutom okviru, moguće je intervenisati i na vreme rešiti određeni problem, čime bi se povećala efikasnost rada. Istrživači mogu da vide kako da kreiraju konceptualni okvir zasnovan na tematskoj analizi podataka, kao i da prošire ovaj konceptualni okvir sa više pitanja koja se potencijalno mogu pojaviti. Na osnovu nalaza istraživanja, razmatrane su implikacije istraživanja i predloženi su pravci za buduća istraživanja.

**Ključne reči:** Agilne metode; Problemi u vezi agilnih sastanaka; Konceptualni okvir; Tematska analiza.