

Fostering a Sense of Belonging in Hybrid Work within Agile Software Development

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Abstract. The Agile Manifesto emphasizes individuals and interactions over processes and tools. However, after the COVID-19 pandemic, interaction in software development changed, and companies are trying to find new practices in the hybrid environment. Hybrid work research points to the benefits for the individual, whereas companies have begun to form new rules and policies to get employees back to the office. To find a balance benefiting all, companies need to find new ways to connect and communicate. This paper explores how hybrid work impacts the sense of belonging in agile software development. We conducted interviews (N=38) and a workshop (N=15) with professionals from three case organizations. Our thematic analysis identifies key factors influencing belonging at the individual, team, and organizational levels. Our findings underline that continuous, conscious, and visible actions are needed at all levels to foster a sense of belonging. As hybrid work reduces spontaneous and random encounters, maintaining a sense of belonging requires planned efforts to recreate the informal interactions that once happened naturally.

Key words: hybrid work, sense of belonging, agile, hybrid agile development, random interactions

1 Introduction

Hybrid work, i.e., working partially from the office and partially remotely, e.g., from home, has changed the communication and connection between software professionals. It has challenged organizations on the management and maintenance of organizational culture, productivity, employee motivation, and commitment [4, 5]. Software development is a knowledge-intensive activity that tackles complex situations and scenarios. Therefore, successful software development usually requires teamwork, communication, and connection between different individuals [15, 30]. However, when the COVID-19 pandemic forced professionals to work from home, there was a decrease in synchronous communication and

an increase in asynchronous communication. Communication, collaboration, and connection became more difficult, static, and siloed [30, 13].

After the pandemic, not all software professionals wanted to return to their offices full-time [5]. Right after the pandemic, most companies were flexible in allowing different hybrid work arrangements. However, recently, a rising number of IT companies have imposed practices and rules to get people back to the offices, claiming that, e.g., culture, communication, and innovativeness would suffer from excessive remote work [14, 18]. There seems to be a mismatch of hopes and expectations regarding hybrid work between employees and employers. However, what has been missing in the discussion is the aspect of a sense of belonging. In a work environment, understanding the sense of belonging also helps in understanding how people contribute to the workplace and its success [10]. Therefore, investigating its role in hybrid work in agile software development could give a better understanding of how to succeed while working in a hybrid environment.

This study investigates the sense of belonging in hybrid work in agile software development via two research questions:

- **RQ1: How does hybrid work impact the sense of belonging in agile software development?**
- **RQ2: What strategies can support fostering a sense of belonging in hybrid work in agile software development?**

We address these research questions through empirical research, utilizing interviews of software professionals from two companies, as well as insights gathered from a half-day workshop on hybrid work that we organized for software professionals from three companies.

In the next section, we introduce the background literature on hybrid work in software development and the aspects of a sense of belonging, especially in the context of software development. In Section 3, we describe the research design. Section 4 presents the results of our analysis. Section 5 discusses our results and past research. Section 6 concludes the paper.

2 Background

Hybrid work blends remote and office settings, ranging from office-first to remote-first models [23]. Hybrid work offers several benefits to software professionals, such as flexibility, autonomy, reduced commute, improved well-being, and better work-life balance while enhancing team diversity [8]. However, it can weaken team connections, complicate management, and reduce informal interactions vital to collaboration and innovation [8, 24]. In addition, challenges such as isolation and a diminished sense of belonging make hybrid setups more complex [5].

In this paper, we define a ‘sense of belonging’ as a multi-dimensional experience that reflects an individual’s feeling of being accepted, seen, and valued

within a social group or organizational context. Building on Filstad et al. [10], we conceptualize belonging as a dynamic process shaped by social interactions, organizational culture, and shared practices. It involves continuously negotiating inclusion, experiencing boundaries, and actively engaging in workplace participation. Belonging is both a personal experience and a collective perception of being valued and equal within an organization. According to Scheide Miller and Giblin [22], a sense of belonging is a fundamental need that fosters commitment, motivation, and job satisfaction. They state that feeling valued improves self-worth, performance, and emotional well-being, shaping how employees find meaning in their work. They also claim that flexible schedules and supportive supervisors enhanced both job satisfaction and belonging.

Contrary to common concerns, Gajendran and Harrison [11] claim that hybrid work does not significantly harm workplace relationships or career prospects. However, according to them, extensive remote work may negatively impact coworker relationships. They suggest that these challenges can be managed through well-informed policies [11]. Furthermore, Belle et al. [2] state that remote workers value organizational belonging, experiencing it through work, shared values, or as a means to an end. According to them, belonging differs by individual, influenced by identity and personal freedom. Belonging seems to be multifaceted but central to the organization-employee relationship. Deep belonging blends personal and organizational identity, but for it to be impactful, it must be a shared experience [2].

In software engineering research, the concept of a sense of belonging has been investigated, for example by Trinkenreich et al. [26] via a theoretical framework where two organizational factors, work appreciation, and psychological safety, along with three diversity aspects, gender, tenure, and country culture, affect the sense of belonging within software delivery teams. Trinkenreich et al. [26] found that a lack of sense of belonging is linked to higher burnout levels among software developers. Belonging is also crucial for resilience, job satisfaction, and well-being. Guidelines are provided to foster a sense of belonging in software development teams, ultimately improving developers' well-being [27].

Although the sense of belonging in hybrid work within agile software development has not yet been studied widely, some studies have addressed aspects of it. For example, De Sousa Santos et al. [9] stated in a recent study that workplace relationships enhance belonging, mutual support, job satisfaction, motivation, and teamwork in software engineering. Tkalich et al. [25] found that a sense of belonging in a software development team enhances feelings of being valued and psychological safety, reinforced by frequent spontaneous office interactions and positive feedback exchanges. Moreover, according to De Sousa Santos et al. [9] the ability of software teams to work effectively in hybrid environments, under adverse conditions relies on a strong sense of belonging. Furthermore, De Sousa Santos et al. identified three key factors for a sense of belonging: consistent interaction to build team cohesion, internal feedback to foster inclusion and value, and mutual support from teammates, including non-work-related assistance.

According to Belle et al. [2], a sense of connectedness and belonging at work is strongly linked to employee engagement, which in turn drives productivity and performance. Osborne and Hammoud [19] state that a strong sense of belonging enhances employee engagement, which directly influences an organization's longevity and financial performance. They note that when employees feel connected and valued, their productivity improves, leading to better overall organizational outcomes. The COVID-19 pandemic accelerated the transition to hybrid work, driven also by software professionals' demand for greater flexibility and work-life balance [7]. This shift has fundamentally reshaped how organizations manage teamwork, culture, and collaboration [4]. As hybrid work can weaken employees' sense of belonging, fostering that is essential for maintaining engagement, productivity, and long-term success. Despite its importance, research on the sense of belonging in hybrid work in agile software development remains limited, highlighting the need for further studies in this area.

3 Research Design

We conducted a case study [31] to examine the impact of hybrid work in agile software development on the sense of belonging and to explore strategies that foster it. Case study research is commonly used in software engineering to examine a contemporary software engineering phenomenon by exploring multiple sources of evidence within a real-life setting [21]. Following the guidelines by Brereton et al. [3], we developed a case study protocol and refined it continuously during the research process. Given the importance of triangulation in empirical studies [20], balancing data richness with inherent low precision, we applied data source triangulation (three distinct case organizations) and methodological triangulation (semi-structured interviews and a workshop).

3.1 Case Selection

We examined three case organizations, that were purposefully selected: they were using agile software development in hybrid work environments. To ensure diverse perspectives, we selected companies differing in industry, size, and organizational culture, allowing for a broader understanding of these factors.

Case 1: Telecommunications and Networking Solutions. This global company, founded in 1918, operates in the telecommunications and networking solutions sector. 700 employees are based in Finland, working in one main location. It is known for its strong tradition, with an emphasis on reliability, stability, and long-term growth. While the company collaborates with other global sites, our study focuses on two R&D units employing 65 and 70 persons located on the Finnish site. The organization adopted a customized large-scale agile software development approach based on the Large-scale Scrum (LeSS) framework in 2009 and has continuously developed it further. Before the pandemic, everybody typically worked at the office. During our interviews, their hybrid working

mode had just changed from the recommended two days at the office to three office days.

Case 2: Clean Energy Industrial Solutions. Founded in 2017, this company focuses on clean energy industrial solutions and employs 700 people across multiple offices in Finland. It operates in a fast-paced, entrepreneurial environment, constantly innovating to meet market demands. Agile practices based on the Disciplined Agile Delivery (DAD) framework are utilized in the software development unit of around 50 people. The unit operates in three main offices located in different Finnish cities. All agile teams include members from at least two different locations. The hybrid working model is fully flexible, allowing individuals to decide their daily location. Unit days, organized every 1,5 months, collect the whole software development unit for a one-day planning and socializing meeting, while teams organize "team days" a few times per year.

Case 3: Digital Transformation and Technology Consulting. Established in 1996, the company specializes in digital transformation and technology consulting, with 2,100 employees spread across several countries in Europe, while our study focuses on the Finnish offices. It embraces an agile approach to software development and offers a hybrid working environment. This case participated only in the workshop. We will run the interviews later on.

In the results section we use descriptions such as Case 1, Case 2 and Case 3 and interviews ID's are running for Case 1 AI1-AI28 and for Case 2 BI1-BI10.

3.2 Data collection

We collected data through semi-structured interviews and a half-day workshop. Interviews were the key data collection method, offering insights into human actions, contexts, and historical information [31]. They are ideal for exploratory research, enabling detailed responses and clarifications [12]. A total of 38 interviews were conducted between October and December 2024, including 28 interviews from Case 1 and 10 from Case 2, with voluntary participation and informed consent. Interviewees were selected with the help of case organization representatives according to the wishes of the researchers to ensure diverse roles, experience levels, hybrid work preferences, and representation of different agile teams. The group included developers, coaches, managers, specialists, and Product Owners. 35 interviews were organized remotely via Microsoft Teams, with sessions recorded and transcribed. Three interviews were conducted face-to-face during a visit to the Case 2 organization and were voice-recorded and transcribed. The interview length ranged from 45 minutes to one hour. The interview guide included questions that were organized into topical groups: hybrid work practices, meeting practices and preferences, sense of belonging and community, well-being, productivity, and improvement suggestions on hybrid work. In this paper, we concentrate only on the topic group *sense of belonging and community*, including six questions. Participants were asked to describe what community and a sense of belonging meant to them, to identify the communi-

ties they feel connected to within their company, and to explain their role in those communities. They were also prompted to reflect on how occasional office interactions influence their work and sense of belonging. Additionally, we asked interviewees how they personally contribute to their company’s community and whether they belong to other work-related communities.

After the interview round, a half-day workshop was conducted, on the premises of the Case organization 1, in December 2024. Over twenty participants joined the presentations given by the three case organizations on their hybrid work practices, while 15 participants continued for the 1,5 hour interactive part: seven from Case 1, six from Case 2, and two from Case 3. The workshop participants were mainly managers, Product Owners, and coaches, most of whom we had interviewed during the interview round. The workshop used the World Cafe method [16], where participants were divided into four mixed groups of 3–4 participants from 2–3 companies. The groups rotated between rooms with different discussion topics around hybrid work: meetings, well-being, productivity, and the sense of belonging. Each topic had a facilitator from our research team who introduced the topic and posed questions on that specific topic. The questions about the sense of belonging (the topic we concentrate on in this paper) included potential threats to a sense of belonging, existing practices to mitigate these threats, and suggestions for new practices. Participants first wrote their answers on Post-it notes and then presented them to others. The facilitator grouped the answers and engaged participants in a discussion. The Post-its were collected for analysis. The discussions were not recorded for confidentiality reasons.

3.3 Data Analysis

To analyze the interview transcripts and the Post-it notes from the workshop, we used thematic analysis, a popular method for identifying patterns and categorizing data [6]. This method is commonly applied in software engineering research and was particularly useful for exploring the emerging theme of ”sense of belonging.” We applied an iterative thematic analysis approach using ATLAS.ti. First, responses to questions related to the sense of belonging were coded line-by-line using open coding. Emerging categories were then grouped into higher-level themes through axial coding. For the workshop data, participants and facilitators grouped the Post-it notes during the session. One researcher then reviewed these groups and integrated them with the interview themes. The analysis process followed recommended practices for qualitative thematic analysis in software engineering research [6].

The analysis combined both the interview and workshop data, refining themes to build a comprehensive understanding of the sense of belonging in a hybrid work environment in agile software development.

4 Results

Our analysis revealed that hybrid work in agile software development impacts the sense of belonging in *individual, team, and organizational levels*. As a summary of our analysis, we provide a framework for fostering a sense of belonging in agile software development. Next, the results are presented according to the three levels.

4.1 Individual level

At the individual level, *belonging* meant our participants being accepted, seen, valued, and being part of the team — but not necessarily being part of the company. The individuals, people who professionals work with and meet daily, were the key players in creating a sense of belonging at the individual level. These people were not necessarily from the respondents' own teams, but they had met them during unit days, in coffee rooms, or in the company's guilds, clubs, or events. In some of the cases, and especially with case 1, people had known their colleagues for decades and had built personal bonds between them beyond team or unit silos:

"Yes, but then it's not belonging at the company level because in that sense it doesn't have anything to do with the company. We are meeting in the company building. We are meeting there because we are working in the same company, but we are not stopping to talk because we belong to the same company, but because we have a good relationship personally." / Case 1, AI1

The challenges at the individual level regarding the sense of belonging were around feeling isolation and disconnection from colleagues, missing informal information ('gossips') which could help either apply for a position inside the company or get an overall understanding on the direction which company is going, lack of recovery time or overall that is not seen or known. As all of the companies had faced challenges due to the economic situation affecting also to the IT industry, some of the respondents highlighted that especially the need to be known and seen was also connected to the fear of potential layoffs. One interviewee described the impact of layoffs on the sense of belonging:

"Someone or yourself feels that you are respected and what you do has some value. That impacts a lot. And we might have some challenges on that nowadays because of some negotiations and changes that we had, so it didn't boost the feeling. Let's say that way." / Case 1, AI11

The feeling of psychological safety, the possibility to be yourself, trust others, and feel that you are treated equally and valued in the company was also strong among the respondents. One of the workshop participants stated:

"It's difficult to show your personality or bond with teammates remotely." / Workshop participant

When asked how interviewees personally contribute to the company's community, how they see their role in their community, or the solutions for the sense

of belonging challenges identified in the workshop, participants highlighted the importance of emphasizing the feeling that everyone is valued and seen, the importance of kindness in the working environment and overall just being a good colleague. One interviewee summarized the role of the individuals:

"Trying to be kind of a good team player and keeping up the good spirit when meeting colleagues, I think that's the key point. Taking others into consideration and always trying to do your best, whatever you are doing." / Case 1, AI7

Being able to share something personal and know colleagues on a personal level was highly important, especially in the interviews. Both in the interviews and workshop it was highlighted that at the individual level, the most important thing was that people contributed, to make an effort to know others and, for example, to make new colleagues feel welcome, like in this example:

"When I joined the team, some of my colleagues said that they are going to the gym almost every afternoon and asked me to join, and then my husband made it possible for me to join once a week, and it was kind of a 'nice 'excuse'. They kind of made me feel that they want me to be there too." / Case 1, AI24

4.2 Team level

When specifically asked about the community to which interviewees feel they belong, the most common answer was the team they worked for. A few also mentioned the unit they were working for.

The challenges around the sense of belonging at the team level were around a lack of team identity, unstable teams, effects of layoffs, and overall lack of emotional ties and alignment among team members because of not seeing them so often and sharing interactions with them. Sharing the workload equally in the team, trust in the team members, and feeling that team members value respondents' opinions were important, as stated by one of the interviewees:

"That someone or you feel that you are respected and what you are doing has some value. That impacts a lot." / Case 1, AI11

The difficulties in resolving conflicts among team members, especially in the virtual environment, were raised both in the workshop and in interviews. Direct harassment or inappropriate behavior was not mentioned, but in the virtual setup, participants raised challenges in recognizing other feelings or the 'tone' in their messages. There were also clear communication challenges in the virtual settings, both in the availability of colleagues if someone needed help or in the way they were communicating with others, for example, they felt that there was no empathy or caring in the communication. The importance of body language and the feeling that others were reacting and listening was stated as highly important for the sense of being seen and valued. One of the workshop participants summarized guidelines for how he hoped people would pay attention to the communication and connection:

"Be conscious how your behaviour impacts others. Can you be the light (or energy) for the other?" / Workshop participant

Investing in team building and bonding was considered extremely important for fostering a sense of belonging when working in a hybrid mode. The most frequent solutions offered for almost every challenge were around team building, team events, unit level events, afterworks, clubs, or just overall somehow interacting with others, sharing those personal aspects, and learning to know others. But, also learned something useful from the people from other teams, as one of the interviewees told:

"As I am in 'silo' of software development. We don't usually talk to those people (meaning: sales team), but they can bring problems that we have never heard about that come from people who are potentially buying our solutions." / Case 2, BI9

Some practical ways to improve the sense of belonging at the team level include one-to-one discussions with line managers or similar people, mentoring possibilities, and a master-apprentice setup. Overall, participants highlighted that learning together was important for them and gave a possibility to bond with the team members, but also members from other teams:

"Besides the people I already know, there are also colleagues from my team and other teams working in the same area. We got to know them, and plan to organize a learning session since they are working on something closely related to our team." / Case 2, BI1

4.3 Organizational level

On the organizational level, meaningfulness, shared mission and vision, and the company's impact on the world were some of the key things for a sense of belonging. This was regardless of the way of working—whether remotely, hybrid, or live. Furthermore, the practices for mandatory office days, fixed seating setups, or other hybrid work practices were mentioned really briefly.

The main challenges at the organizational level in hybrid software development were more around the feeling that the organization had siloed, and more 'us versus them' mentalities were reported, or worries about that kind of mentality. Especially in the workshop, there were also raised case examples of people stating that they work better alone, they only focus on their own tasks, and they stay in remote mode although there are a lot of possibilities for live interactions. One of the workshop participants stated his concern:

"One can focus only on his/her tech tasks and therefore lose the connection to the others." / Workshop participant

Interviewees and workshop participants were especially worried that the element of random interactions would vanish if people worked more only remotely, and solutions for that were seen to happen at the organizational level. Random interactions were a possibility to share something personal on the individual level, but also as they were a source of happiness and fun moments during the workdays, crystallization of the great atmosphere in the company, way to get a piece of informal information from the company and overall that you would be seen and noted in the coffee room were extremely important for people and their sense of belonging:

"In those face-to-face workshops or in some ad hoc coffee meetings at the office, when we go to the sofas in our team room after lunch, we start discussing something. So suddenly, we are, you know, surprisingly solving problems there. So I think this kind of relaxed, safe environment." / Case 1, AI17

Participants noted that people were not attending as regularly and in the same numbers as before COVID-19, in different social or sports clubs, or just some common activities together. However, there were signs that people were gradually coming back to these social activities, and several respondents said that just recently, they had started once again attending these events.

Furthermore, these clubs had been important places to get to know people from different teams and, in that way, feel that you would be part of a larger community than your own team. One of the participants also stated the concern that if social events inside the company were not attracting people anymore and people were encouraged to focus more on sport and other outsourced activities in their free time (with for example, sports benefits), companies would lose their most important tool for fostering the sense of belonging:

"It's going to model that you have this sports and culture benefit that you use how you want. Then people use it for the gym, you go wherever you go in the city center gym, but then it's a completely different thing, you are not doing it with your colleagues in a company gym or a sports club, but you are just exercising. When a company has a Sports Club, its employees play together, spend time together, and create a community." / Case 1, AI2

In addition to doing something social together, respondents highlighted clear and transparent practices as one impactful solution for challenges in the organizational-level sense of belonging. These practices included frequent polls and surveys, collecting feedback, giving it directly to the people, and solving challenges or pain points together after collecting them via survey. Overall, having company-wide practices and routines was felt important:

"Practices are important. Having the routines like dailies, tech meetings, cameras on, and preferably common in-the-office events, talks about seeking discussion, ad-hoc encounters etc." / Workshop participant

4.4 Recommendations for fostering a sense of belonging in hybrid agile software development

From our findings, we formed a framework for fostering a sense of belonging in hybrid agile software development (Figure 1). In our framework, we have three impacting levels: *individual, team, and organizational level*. Our analysis shows that actions from all of these three levels are needed and required to foster a sense of belonging.

In the organizational level, there are tools for regular, transparent practices such as surveys and polls, clubs and events, hybrid work practices (such as a number of office days in a week), creating cooperation between teams to avoid 'us vs. them' silos and overall have a clear, shared goal in the organizational level. What used

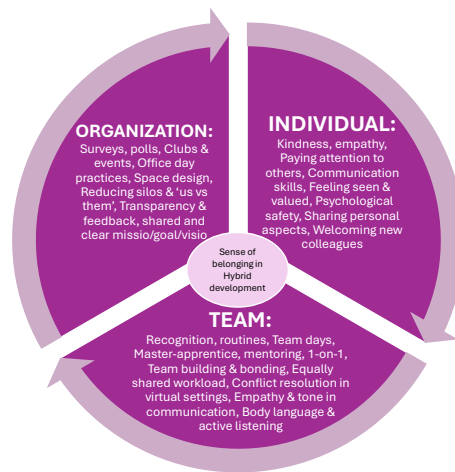


Fig. 1. Framework for fostering a sense of belonging in hybrid agile software development

to happen spontaneously through in-person encounters now requires intentional planning and structured organizational support.

At the team level, the importance of team days, mentoring and other aspects to help professionals grow, recognition of achievement, underlining empathy, tone and conflict resolution in communication, and making sure that workload is shared equally are highlighted. All the actions around team bonding are important.

Individuals also have many possibilities to foster a sense of belonging in companies. Showing kindness and empathy, paying attention to others, practicing good communication skills, supporting the feeling of being seen and valued and receiving that same feeling, supporting and acknowledging psychological safety, feeling open to getting to know colleagues, and welcoming new colleagues were important.

5 Discussion

Our research offers some key takeaways on what to take into account when fostering a sense of belonging in hybrid work in agile software development:

Firstly, the sense of belonging is built on multiple levels. *Secondly*, continuous and conscious actions are needed from all of the actors, especially managers, and that must also be made more visible when communicating about the sense of belonging in the companies. *Thirdly*, although it can feel that people are not joining social events like before the pandemic, it can be a good idea to give them more time to come back.

Our framework helps stakeholders identify their roles and current actions and prioritize the next efforts to foster a sense of belonging in hybrid work within agile software development.

5.1 RQ1: How does hybrid work impact the sense of belonging in agile software development?

Hybrid work in an agile software development environment influences the sense of belonging at the individual, team, and organizational levels. This supports the findings of Belle et al. [2] that belongingness is most impactful when it is a shared and interrelated experience among organizational members rather than just at an individual level. Our findings in the *individual level* show that belonging is primarily built through daily social interactions. Still, hybrid work limits spontaneous conversations and informal exchanges, making employees feel unseen or disconnected. This relates to the findings of De Sousa Santos et al. [9] that hybrid work creates physical barriers between team members, reducing interactions among professionals.

At the *team level*, we found that hybrid work complicates team identity and emotional ties, as limited in-person interactions reduce shared experiences and trust among members. Conflict resolution also becomes more difficult in virtual settings, where body language and tone are harder to interpret. On the *organizational level*, our study shows that hybrid work can create an "us vs. them" mentality and silos in organizations. This supports previous findings of Moe, Nils Brede, et al. in [17] that firm-wide remote work made the collaboration network more static and siloed. However, our findings show that people are slowly returning to social events and clubs, and that companies should give more opportunities and time for social activities.

5.2 RQ2: What strategies can support fostering a sense of belonging in hybrid work in agile software development?

At the *individual level*, our results show that employees in hybrid settings should actively engage in social interactions, practice kindness, and contribute to creating a welcoming team culture. Encouraging personal connections, such as inviting colleagues to activities outside of work, helps strengthen interpersonal bonds. At the *team level*, our findings include fostering psychological safety, ensuring equal workload distribution, and enhancing communication by emphasizing empathy and tone in virtual interactions. Team-building activities, mentoring programs, and cross-team learning opportunities can also improve belonging and collaboration. Regular in-person team events and structured check-ins with managers help maintain emotional connections and trust among team members. These findings support the findings of Scheide Miller and Giblin [22] that supportive supervisors enhanced belonging and also enlarge the research around psychological safety and belonging in software engineering [28, 27]. Our results give strategies, especially about the importance of tone and emphasizing empathy in virtual

settings. Furthermore, while some of the findings may appear intuitive, such as the value of social connection or informal communication, our results show that these elements require conscious effort and structural support in hybrid contexts. What was once spontaneous now demands strategic design.

On an *organizational level*, our results highlight strategies fostering a sense of belonging. It requires clear hybrid work practices and policies, transparent communication, and opportunities for cross-team interactions. Creating social spaces, such as coffee areas designed for informal interactions, and organizing company-wide events can enhance connections across different departments. Investing in social clubs, sports teams, and shared activities should be continued, although people would come back to them later than to the offices. Social interactions were also the place where professionals may hear about open positions inside the company, so in future research, it would be interesting to test whether the findings by Gajendran and Harrison [11], saying that remote and hybrid working does not significantly harm workplace relationships or career prospects, are still valid. Furthermore, although onboarding was not our focus, early experiences shape belonging, making structured onboarding crucial in hybrid settings. Future work could explore its role in newcomer integration in hybrid settings.

Overall, a strong sense of belonging in hybrid agile software development depends on balancing flexibility with structured engagement, ensuring that employees feel seen, valued, and connected at multiple levels.

5.3 Threats to validity and future work

Next, we discuss the threats of validity according to Wohlin et al. [29]:

Construct validity: Sense of belonging is a complex term without a shared agreement on how it should be measured, and its literature is broad and theoretically diverse [1]. Therefore, in this research, we approached the sense of belonging via understanding, frameworks, and practices used in software engineering research. In the future, we will expand our findings with an online survey and aim to identify differences between hybrid work practices and software business company models.

Internal validity: There can be a danger of self-selection bias, as participation in the study was voluntary. This may have influenced the fact that those with stronger opinions about the impact of hybrid work were more likely to agree to participate. In future research, we aim to mitigate this by collecting a more diverse and larger sample and incorporating also quantitative data.

External validity: The findings are based on three large companies and their software development professionals. This can limit the generalizability of the findings for companies in different sectors, sizes or working fully remotely.

6 Conclusions

As hybrid work is becoming the new norm in agile software development, understanding the connection, communication, and commitment of employees is

becoming more important. For this research, we conducted interviews (n=38) and a workshop on hybrid work in agile software development. Our findings show that fostering a sense of belonging happens at the individual, team, and organizational levels and requires constant and conscious work. Our framework helps identify what is already done and where to pay attention when companies desire to focus on fostering a sense of belonging in a hybrid environment.

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