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Fateme Broomandi, Emily Laue Christensen, Sonja Hyrynsalmi,
Maria Paasivaara

Work From Anywhere, Collaborate Everywhere: Agile in the Era of Hybrid Work

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Fateme Broomandi¹, Emily Laue Christensen^{1, 2}, Sonja Hyrynsalmi¹, Maria Paasivaara^{1,3}

¹ LUT University, Lahti, Finland

² IT University of Copenhagen, Copenhagen, Denmark

³ Aalto University, Espoo, Finland

Work From Anywhere, Collaborate Everywhere: Agile in the Era of Hybrid Work

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Preface

This report grew out of our shared interest in understanding how hybrid work reshapes agile software engineering. When the pandemic accelerated remote and hybrid work practices, many organizations faced uncertainty about how to maintain collaboration, productivity, and team cohesion. Our motivation was to provide clarity and practical guidance grounded in real-world experiences rather than assumptions. To achieve this, we partnered with several companies and engaged in interviews, surveys, and workshops to capture diverse perspectives.

The core of this report is a set of evidence-based recommendations designed to guide companies in shaping policies, meeting practices, team coordination, and workspace design for hybrid work environments. These recommendations aim to balance flexibility with purposeful collaboration and provide actionable steps for improving day-to-day work. To support these practices, we also introduce a conceptual house model that illustrates how hybrid work can be organized in agile software engineering settings. While the model offers a high-level framework, the emphasis of this report is on practical guidance that organizations can adapt to their unique context.

We thank the participating companies: Ericsson Finland, Kempower, Solita, and Housemarque, as well as all individuals who participated in our research, sharing their experiences, which made this work possible. Our hope is that these insights and recommendations will help organizations create hybrid work environments for agile software engineering that are both effective and sustainable.

Abstract

Hybrid work gained popularity in the post-pandemic era, yet many organizations continue to struggle with designing practices and policies that balance flexibility, collaboration, and long-term objectives. This research explored hybrid work in agile software engineering through a mixed-methods approach, combining interviews, surveys, and workshops across four Finnish organizations: Ericsson Finland, Kempower, Solita, and Housemarque. It examined hybrid work policies, office co-presence of teams, agile events and practices, knowledge-sharing and social activities, and their perceived impact on productivity, sense of belonging, well-being, and innovation.

The findings showed that even though fully flexible hybrid work policies were generally preferred by employees, they also valued coordinated in-person collaboration, especially at the team level. Preferences for office co-presence varied by organizational context, team distribution, role, and individual circumstances—underscoring the limitations of one-size-fits-all solutions in agile environments. The results further indicated that effective hybrid work depended not only on office presence but on the intentional design of agile events, collaboration norms, social and knowledge-sharing practices, and supportive workspaces. Coaching and continuous experimentation emerged as critical mechanisms for sustaining and adapting hybrid practices over time.

Based on these insights, the research proposes a conceptual model for organizing hybrid work in agile software engineering and offers actionable recommendations for practitioners. These contributions provide empirical evidence and practical guidance for organizations seeking to balance flexibility with meaningful collaboration.

Tiivistelmä

Hybridityö nousi suosituksi pandemian jälkeisenä aikana, mutta monet organisaatiot kamppailevat edelleen joustavuutta, yhteistyötä ja pitkän aikavälin tavoitteita tasapainottavien hybridityökäytäntöjen ja -toimintatapojen suunnittelussa. Tässä tutkimuksessa tarkasteltiin hybridityötä ketterässä ohjelmistokehityksessä yhdistämällä haastatteluja, kyselyitä ja työpajoja neljässä suomalaisessa organisaatiossa: Ericssonin Suomen tutkimus- ja kehitysyksikössä, Kempowerissa, Solitassa ja Housemarquessa. Tutkimuksessa keskityttiin hybridityökäytäntöihin, tiimien läsnäoloon toimistossa, ketteriin tapahtumiin ja käytäntöihin, tiedon jakamiseen ja sosiaalisiin aktiviteetteihin sekä niiden havaittuun vaikutukseen tuottavuuteen, yhteenkuuluvuuden tunteeseen, hyvinvointiin ja innovointiin.

Tulokset osoittivat, että vaikka työntekijät usein toivoivat täysin joustavia hybridityökäytäntöjä, he myös arvostivat koordinoitua henkilökohtaista yhteistyötä etenkin tiimitasolla. Mieltymykset toimistossa työskentelyn suhteen vaihtelivat organisaatiokontekstin, tiimin jäsenten maantieteellisen sijainnin, roolin ja yksilöllisten olosuhteiden mukaan – mikä korosti "yhden mallin" ratkaisujen rajoituksia ketterissä ympäristöissä. Tulokset osoittivat edelleen, että tehokas hybridityö riippui paitsi läsnäolosta toimistolla, myös ketterien tapahtumien tarkoituksellisesta suunnittelusta, yhteistyön normeista, sosiaalisista ja tiedon jakamisen käytännöistä sekä näitä tukevista työtiloista. Valmennus ja jatkuva kokeilu nousivat esiin kriittisinä mekanismeina hybridikäytäntöjen ylläpitämiseksi ja mukauttamiseksi ajan myötä.

Näiden tulosten perusteella tutkimus ehdottaa käsitteellistä mallia hybridityön organisoimiseksi ketterässä ohjelmistokehityksessä ja tarjoaa käytännönläheisiä suosituksia organisaatioille, jotka pyrkivät tasapainottamaan joustavuutta ja merkityksellistä yhteistyötä.

Acknowledgment

This research was supported by the Finnish Work Environment Fund under grant #240172 and the Kempower Electric Mobility Research Center (EMRC). We thank Ericsson Finland, Kempower, Solita, and Housemarque for their engagement in this research and their employees for generously sharing their time, experiences, and insights, which made this work possible. We are especially grateful to the practitioners and managers who participated in the interviews, surveys, and workshops.

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1. Research Background

To understand why hybrid work matters in agile software engineering today, the following sections describe this work setting and what it means for software engineering practices and organizations.

1.1. Hybrid Work

Hybrid work is not a new phenomenon, but its adoption accelerated after the Covid-19 pandemic, and research suggests it is likely to become a long-term norm in software engineering (e.g., [2, 3, 4]). In the current post-pandemic era, many employees favor hybrid work for the flexibility it offers, which has been linked to increased job retention [5, 6]. To attract and retain talent, software companies are increasingly embracing hybrid work [7]. For organizations, hybrid work may reduce costs for infrastructure, utilities, and communication services [5, 8]. For employees, it saves commuting time, provides more family time, and often improves focus and productivity by reducing distractions and offering greater control over schedules [5, 8, 6].

Hybrid work is a setting where some team members work mostly or completely from home, others mostly or completely from the traditional office, and others in some combination of the two—not quite distributed and not quite colocated—but individuals working from anywhere and touching base with the office intermittently [1].

Despite these benefits, hybrid work also introduces challenges for software teams. Common issues include communication gaps, reduced social interaction, limited in-person collaboration, and difficulties maintaining work-life balance or aligning across different working hours [9, 8]. In response, software companies are exploring ways to balance work from home with work from the office [7, 10].

1.2. Agile Software Engineering

Agile software engineering offers a flexible alternative to traditional plan-based methodologies through its iterative and incremental approach [11]. The Agile Manifesto emphasizes face-to-face communication as the most effective way to exchange information and places greater value on individuals and interactions than on processes and tools [12]. Today, agile methods are widely adopted across various domains, particularly in software engineering [13], and have expanded beyond this field [14].

1.3. Hybrid Work in Agile Software Engineering

Agile practices have traditionally relied on in-person interaction, so translating these practices into hybrid work settings raises important questions: when should teams meet in the office, how should agile events and collaboration norms be adapted, and how can social connection and knowledge-sharing be maintained across different work modes (working from home versus working from the office)?

Many organizations still struggle to define hybrid work policies that balance flexibility with meaningful in-person interaction. In agile software engineering, this means addressing the unique challenges of implementing hybrid work effectively. Historically, agile practices depended on collocated teams, but hybrid environments involve members working from different locations rather than sharing the same physical space [15]. Adaptation, however, is central to agility. Agile teams can respond to this shift by finding better ways to support hybrid collaboration [16]. This may include developing new tools, leveraging existing ones to facilitate agile events and practices, or creating processes that improve efficiency in hybrid work environments [17].

2. Research Purpose and Objectives

This research aims to offer evidence-based recommendations for companies on how to organize agile software engineering in hybrid work environments effectively. In the post-pandemic era, as most knowledge-intensive companies have adopted hybrid work, many continue to struggle to adapt agile practices to this context. This research seeks to identify the optimal balance and structure for hybrid work, such as how frequently employees in different roles should work in the office, which tasks are best suited to remote versus in-office settings, and how agile practices can be most effectively configured in the teams. It will also examine how hybrid work influences productivity, well-being, employees' sense of belonging, and their perceptions of their roles within the organization.

🎯 Research Objectives

1. To investigate how agile software engineering practices and processes are and need to be adapted to meet the evolving needs of hybrid work environments across different companies.
2. To investigate the effect of adapted practices for hybrid work in agile software engineering on individuals and teams, focusing on belonging, well-being, and productivity.
3. To explore the organization and practices of hybrid work in agile software engineering that maximize benefits and minimize disadvantages.

3. Research Methods

In this section, we describe the case organizations that participated in this research and outline the data collection and analytical methods used.

3.1. Case Organizations

To conduct our research, we collaborated with four companies: Ericsson, Kempower, Solita, and Housemarque, which are presented in Table 1. These case companies were selected for two main reasons: their established use of agile software engineering and their active engagement in hybrid work. To capture variation, we purposefully selected companies with distinct organizational contexts, differing in age, industry, and maturity, and that had differing hybrid work set-ups.

The Finnish R&D site of Ericsson represents a long-established organization in product and network security, cloud technologies, and 5G/6G research. Two multi-team units from Ericsson participated in this research. Kempower is a young company that provides electric vehicle charging solutions. The Kempower software development unit participated in this research. Solita, a digital transformation and technology consulting firm, is represented by two managers in this research, while Housemarque, a game development studio, participated at the whole-company level. Together, these cases offer diverse organizational contexts for examining hybrid work in agile software engineering.

Table 1
Overview of companies

Company	Founded	Industry	Involved
Ericsson Finland R&D site	1918	Product and network security, cloud technologies, 5G/6G research	Two units; Unit E1: 9 teams and Unit E2: 6 teams
Housemarque	1995	Game development studio	Whole company
Solita	1996	Digital transformation and technology consulting	Two managers
Kempower	2017	Electric vehicle charging solutions	One unit; Unit K: 5 teams

3.2. Data Collection Methods

This research employed a mixed-method approach, including interviews, surveys, and workshops, to thoroughly examine hybrid work within agile software engineering. By triangulating findings across multiple methods, we strengthen the credibility and robustness of the results. Semi-structured interviews offered detailed insights into how participants perceive agile practices in hybrid settings. Each interview lasted approximately 60 minutes. After each round of interviews, the main takeaways were presented to each company in separate feedback sessions. These sessions helped confirm the validity of our findings, as no revisions or objections were raised.

Following the Interview round 2, a survey instrument was developed based on the qualitative findings. The survey was distributed both within the participating companies (Survey 1) and internationally (Survey 2) to further enhance the validity and generalizability of the results. Finally, two workshops were organized to facilitate experience sharing between the companies, each involving participants from at least two companies. The workshop topics were suggested by the companies themselves, based on their current challenges and areas of interest. Following the Workshop 2, and drawing on the discussions that took place, we developed a survey instrument to further examine the sense of belonging within hybrid work environments and collected answers internationally (Survey 3). The details of all data collection methods are summarized in Table 2.

Table 2
Overview of data collection methods

Method	Date	Participants	Roles	Main themes
Interview round 1	Nov 2023 – Feb 2024	Ericsson: 27 Kempower: 12	Developers, product owners, specialists, managers	Daily routines, collaboration tools, meeting practices, communities of practice, social interactions, workspaces
Interview round 2	Oct – Dec 2024	Ericsson: 29 Kempower: 10	Developers, product owners, specialists, managers	Meeting practices, sense of belonging, well-being, productivity
Interview round 3	May – Jun 2025	Housemarque: 13	Developers, artists, managers	Meeting practices, sense of belonging, well-being, productivity, hybrid work practices
Workshop 1	Dec 2024	Ericsson: 5 Kempower: 6 Solita: 2	Team members, product owners, managers	Meeting practices, sense of belonging, well-being, productivity
Workshop 2	Nov 2025	Ericsson: 7 Kempower: 6	Team members, product owners, managers	Sense of belonging, brainstorming and innovation
Survey 1	Jun–Sep 2024	International participants: 65	Developers, managers, specialists, agile leaders	Office presence, meeting practices (e.g., multitasking, camera usage), well-being, productivity, future hopes for hybrid work
Survey 2	Mar–Apr 2025	Ericsson: 58 Kempower: 17	Developers, product owners, specialists, managers	Office presence, meeting practices (e.g., multitasking, camera usage), well-being, productivity, sense of belonging, future hopes for hybrid work
Survey 3	Dec 2025	International participants: 197	Developers, managers, specialists, agile leaders	Sense of belonging, retention, resilience, job satisfaction, burnout, autonomy, isolation

3.3. Data Analysis Methods

To analyze the data, we employed a combination of qualitative and quantitative methods tailored to the characteristics of each data source, including interviews, surveys, and workshops.

For the interview data, we conducted a qualitative analysis. All interviews were recorded and automatically transcribed using Microsoft Teams, after which the research team manually reviewed and

refined the transcripts to ensure accuracy and completeness. Each transcript was then independently coded by at least two researchers to strengthen analytic rigor and minimize individual bias. Following the independent coding rounds, the researchers met to compare interpretations, resolve discrepancies, and integrate their insights into a consolidated coding framework. NVivo and MAXQDA supported this process by enabling systematic coding, memoing, and cross-case comparison.

For the survey data, we applied both quantitative and qualitative techniques, tailored to the design and purpose of each survey. For Surveys 1 and 2, we conducted descriptive analyses of the closed-ended items to identify patterns, distributions, and initial trends in participants' experiences. Open-ended responses from these surveys were analyzed qualitatively using the same coding procedures and software tools applied to the interview data, ensuring methodological consistency across data sources. For Survey 3, which was designed to examine relationships among key constructs related to the sense of belonging, we conducted structural equation modeling (SEM) using SmartPLS. This allowed us to assess the measurement model, evaluate construct validity, and test hypothesized relationships within the structural model.

For the workshop data, we drew on multiple forms of documentation, including audio recordings, facilitator notes, and participants' sticky-note contributions. These materials were synthesized and analyzed qualitatively to capture collective reflections, group dynamics, and emergent ideas. The workshops provided contextual insights that complemented the individual-level data from interviews and surveys.

4. Results and Recommendations

In this section, we first present the main outputs of our research and then discuss our results. Based on the evidence gathered, we provide recommendations for practitioners. The results reflect the situation in the participating companies at the time of data collection.

4.1. Research Outputs

The main outputs of this research include six published papers on hybrid work in agile software engineering, authored by our research group. One paper is currently under review, and two are to be submitted for review. These nine papers are listed in Table 3, and the results are discussed in the following sections.

4.2. Hybrid Work Policies

The Covid-19 pandemic demonstrated that hybrid work is a viable alternative to traditional office work. Positive work-from-home (WFH) experiences and changing attitudes toward remote work [3] have increased software engineers' preference for flexibility [10], leading organizations to rethink workplace policies. However, despite interest in fully remote work, most employees still visit the office at least weekly [24], and many software engineers spend more than half of their time at the office [25]. Consistent with our findings, this suggests that in-person work continues to play an important role in hybrid work environments.

In this research, we identified and defined several types of organizational policies for hybrid work and present them as nine policy categories that span a broad spectrum: flexible, semi-flexible, fixed, semi-fixed, team-driven, remote-first, office-first, event-driven, and event-triggered. Further details about different hybrid work policies are provided in the following text box, *Hybrid Work Policy Definitions*. This categorization and definitions are useful because it provides organizations with a common language for discussing and comparing hybrid work policies, and can support companies in defining, evaluating, and refining their own hybrid work policies.

Table 3

Overview of research outcomes

Publication	Venue	Status
Hybrid Work meets Agile Software Engineering: A Systematic Mapping Study [18]	IEEE/ACM International Conference on Cooperative and Human Aspects of Software Engineering (CHASE)	Published – 2024
Hybrid Work in Agile Software Development: Recurring Meetings [19]	IEEE/ACM International Conference on Cooperative and Human Aspects of Software Engineering (CHASE)	Published – 2025
Fostering a Sense of Belonging in Hybrid Work Within Agile Software Development [20]	International Conference on Agile Software Development (XP)	Published – 2025
Hybrid Work in Agile Software Engineering: Current Research and Future Directions [21]	International Conference on Agile Software Development (XP Workshops)	Published – 2025
One Size Does Not Fit All: How To Organize Hybrid Work in Agile Software Development? [22]	ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM)	Published – 2026
What Shapes Hybrid Work Preferences and Behaviors in Agile Software Engineering? [23]	International Conference on Agile Software Development (XP)	Published – 2026
Agile in the Hybrid Era: Unpacking Meetings in Software Development	Journal submission	Under review – 2026
Revisiting Hybrid Work in Agile Software Engineering: A Systematic Literature Review	Journal submission	In progress – 2026
Sense of Belonging in Hybrid Work within Agile Software Engineering	Conference submission	In progress – 2026

Q HYBRID WORK POLICIES DEFINITIONS

The identified hybrid work policies and their definitions are presented in the Figure 1. These nine hybrid work policies describe different ways organizations structure employees' time between office and remote work. Flexible and semi-flexible policies give employees substantial choice, with semi-flexible including some limits. Fixed and semi-fixed policies require specific office days or a set percentage of office time. Team-driven policies let teams decide their own arrangements. Remote-first and office-first indicate a primary work location, with some room for exceptions. Finally, event-driven and event-triggered policies require in-person work either for scheduled gatherings or in response to specific events.










 Flexible	Employees choose how often they work from the office.
 Semi-flexible	Employees can mostly decide how often they work from the office, but some restrictions apply.
 Fixed	Employees must work from the office on specific days.
 Semi-fixed	Employees must work from the office a specific percentage of time, e.g., 1–3 days per week, but the exact days are not fixed.
 Team-driven	Teams choose how often and when to work from the office.
 Remote-first	Remote work is the primary option for most or all employees.
 Office-first	The office is the primary work location, but employees have the option to work remote on occasion.
 Event-driven	Employees must work together in person for scheduled events, e.g., quarterly or monthly gatherings.
 Event-triggered	In-person work is organized in response to certain trigger events, like emergencies, rather than a scheduled time-frame.

Figure 1: Hybrid work policies definitions [26].

During the Interview round 1 conducted at Ericsson and Kempower, our findings indicated that effective guidelines for organizing hybrid work in agile software engineering environments require strong organizational context awareness. Several factors shape what successful office-presence expectations look like in practice. These include the geographical distribution of employees and their proximity to the office, the maturity and current phase of the product or project, and the level of collaboration required at a given time. For example, early-stage product development often benefits from more frequent in-person interaction to build shared understanding, whereas nationally or globally distributed teams may require more flexible and adaptive policies. Additional details are provided in the following text box, *Hybrid Work Policies at Ericsson and Kempower*.

Q HYBRID WORK POLICIES AT ERICSSON AND KEMPOWER

During the Interview round 1, Ericsson required two office days per week globally, but the two studied units applied this differently. Unit E1 followed a fixed schedule: the whole unit met on Tuesdays and Thursdays at the office. This policy suited the unit because most employees lived close to the office and worked on a relatively new product with shorter tenure, which increased the need for co-presence and close collaboration. While Unit E2 used a semi-fixed policy, teams had the freedom to decide on how to choose the two office days. This policy aligned with the characteristics of the unit, as employees also lived relatively near the office, but worked on a more mature product with longer tenure and were already engaged in global and virtual collaboration.

Kempower’s software development unit, Unit K, operates multiple offices across four cities in Finland, with no team based entirely in one office. The unit used event-driven and team-driven guidelines. All employees met face-to-face in unit-level events every six weeks, while teams decided when and where to meet otherwise. For example, some teams had team days at one of the offices, where the whole team traveled to work together. These policies emerged out of necessity in Unit K, given that employees were distributed across multiple locations.

Moreover, based on Survey 1, we found that although respondents desired greater flexibility, they did not fully favor remote work. This suggests practitioners value autonomy in choosing their work location while still recognizing the benefits of some office presence. When examining hybrid work policy preferences, we found that individual situations are influential. For example, respondents with children preferred fully flexible policies, and none selected the office-first policy, highlighting the role of childcare responsibilities. Further details are provided in the following text box, *Individual Policy Preferences*.

Q INDIVIDUAL POLICY PREFERENCES

Based on responses from 65 participants in Survey 1, current and preferred hybrid work policies are presented in Figure 2.

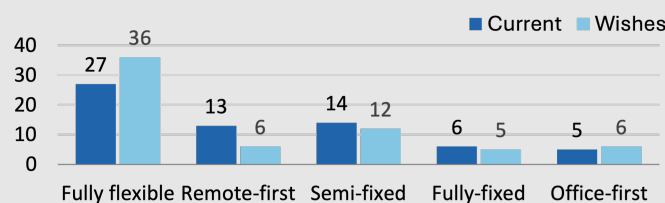


Figure 2: Current and preferred hybrid work policies [23].

A fully flexible policy was the most common, and even more respondents preferred it. In contrast, remote-first policies were far less popular, suggesting that practitioners want flexibility and autonomy but still value some degree of office presence. However, fully fixed policies, as well as office-first policies, were the least common both in current practice and in preferred policies.

Then we further examined the hybrid work preferences across different individual situations, which is shown in Figure 3. Senior practitioners showed a slightly stronger preference for fully flexible policies than junior and mid-level staff. Commute length had little impact, partly because among our respondents, many with short commutes worked in geographically distributed teams. Women were inclined slightly more toward the remote-first option. Respondents with children favored fully flexible policies, and none preferred office-first policies. Overall, hybrid-work preferences appeared to reflect a mix of personal circumstances, though the small sample warrants cautious interpretation.

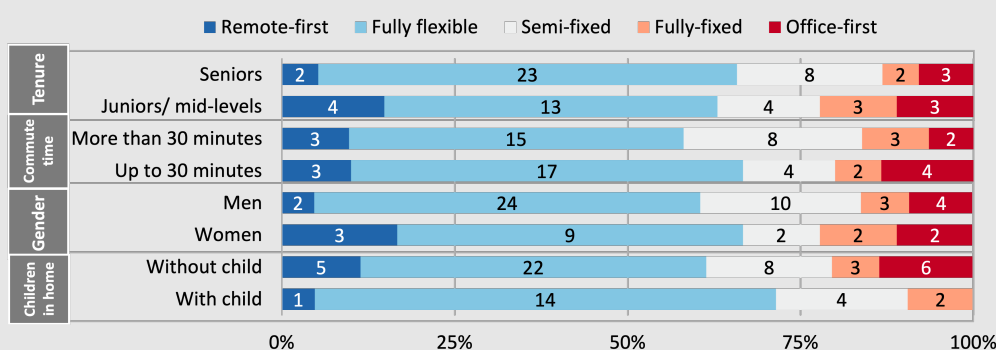


Figure 3: Hybrid work policy preferences across different demographic characteristics [23].

Our research indicated that organizations can benefit from piloting various hybrid work models, regularly collecting employee feedback through surveys or polls, and actively engaging them in the decision-making processes regarding the hybrid work arrangements. Transparent communication about the rationale behind hybrid work decisions and how employee input informed these decisions can increase understanding and acceptance of these decisions. Details about Housemarque’s hybrid work policy experimentation are provided in the following text box, *Hybrid Work Policy Experimentation at Housemarque*.

Q HYBRID WORK POLICY EXPERIMENTATION AT HOUSEMARQUE

After the pandemic, Housemarque started with a remote-first policy, then moved to a fully flexible policy. Over time, this led to challenges like weaker team connections, heavy reliance on asynchronous communication, and slow decision-making. To address the challenges, the company tested a more structured setup in early 2025: everyone should work at the office from Monday to Wednesday, with the trial running for a few months. At the time of our interviews (Interview round 3), Housemarque collected feedback through surveys and interviews, and the experiment was still ongoing. Participants highlighted several benefits of the trial, including having everyone at the office, improved cross-team communication, quicker feedback loops,

better conflict resolution, and a more balanced workflow. They also noted drawbacks such as long commutes, the reality that someone is almost always remote, and distractions at the office. After analyzing the results, Housemarque decided to continue with its current fixed policy, which required mandatory office attendance on Mondays, Tuesdays, and Wednesdays, as it fit the critical development phase of the product well. However, after passing that phase, they decided to reduce the office attendance to two days, Mondays and Tuesdays.

Overall, according to our research, organizations designing hybrid work policies should take into account their unique context and needs. Key factors include the geographical distribution of employees, their proximity to the office, the maturity and phase of the product or project, and the level of collaboration required. They should also consider individual preferences and recognize that office presence is valued primarily for meaningful interactions rather than proximity alone. Regular review and adaptation of policies, based on employee feedback and evolving organizational and personal circumstances, are essential.



Recommendation 1

- **Design hybrid work policies around organizational context and individual needs, prioritize meaningful in-person collaboration, and update policies regularly based on the evolving organizational circumstances and the employees' feedback.**

4.3. Teamwork Agreement

Connection and community remain the strongest drivers for coming into the office, especially the chance to socialize and collaborate [27]. Prior work [27] highlights not only practical advantages, such as meeting colleagues and coordinating teamwork, but also emotional benefits, including increased energy, spontaneity, informality, and peer support. Our findings similarly showed that although teams often allow individuals to choose their own office days, many respondents still preferred some level of shared presence, whether through fixed or ad hoc team days. This preference aligns with recommendations that teams actively discuss and negotiate their work patterns rather than relying solely on individual choices [24]. However, coordination by itself does not guarantee higher attendance, nor does physical presence automatically lead to meaningful interaction [28]. These insights suggest that organizations aiming to strengthen in-person collaboration need more than schedules; they need intentional practices that make time in the office genuinely valuable.

During Interview rounds 1 and 2 at Ericsson and Kempower, we found that employees strongly valued being in the office at the same time as their team. At Ericsson, where most teams had established teamwork agreements, several interviewees noted that coming to the office feels less meaningful when their teammates are not present. At Kempower, which did not have teamwork agreements and where employees mostly worked remotely or were in the office without their team, participants expressed a desire for more frequent, occasional team days to support social bonding and collaboration on shared tasks. We found that teams that rarely meet in person at the office can benefit from ad hoc joint office days and gatherings to strengthen collaboration and maintain social connections. It is important to discuss preferences openly, as this helps avoid assumptions and reduces the risk of misalignment within the team. More details about team work agreements are provided in the following text box, *Team Work Agreement at Ericsson and Kempower*.

Q TEAMWORK AGREEMENT AT ERICSSON AND KEMPOWER

During the interview round 1, in Unit E1 of Ericsson, all six teams were fully collocated and attended the office every Tuesday and Thursday in accordance with the established hybrid work policy. Four of the Unit E2 teams followed the same agreement as Unit E1, with two weekly collocated work days, whereas the remaining five teams had more varied agreements, from frequent office attendance to as little as once per month. None of the five teams in Kempower had agreed upon fixed office days.

Participants in Ericsson largely expressed satisfaction with their hybrid work setting, highlighting the balance between flexibility, collaboration opportunities, and focused remote work. In Kempower, participants largely emphasized the flexibility of their hybrid work setting. However, several interviewees at Kempower mentioned that more in-person days would help with alignment and team cohesion.

Between the Interview rounds 1 and 2, some teams in Unit K started organizing ad hoc joint office days. By the Interview round 2, over half of the participants said these gatherings should happen more often, ideally monthly, to support social bonding and collaboration on shared tasks. A tension emerged because employees who worked mostly remotely were more likely to advocate for regular joint office days, while those who spent more time in the office assumed remote colleagues might have personal constraints that limited attendance. This highlighted the need for open discussion about expectations for in-person collaboration rather than relying on assumptions.

Based on Survey 1, many respondents expressed a desire for joint office days with their team members, either ad hoc or fixed. When examining preferences for team work agreements, we found that contextual factors played an important role. Team distribution and size shaped how employees viewed team work agreements, and managers and leaders were slightly more supportive of agreed office days than team members or specialists. Further details are provided in the following text box, *Individual Preferences for Team Work Agreements*.

Q INDIVIDUAL PREFERENCES FOR TEAM WORK AGREEMENTS

Based on the responses from 65 participants in Survey 1, current and preferred team work agreements are presented in Figure 4. The figure shows that many respondents wanted more joint office days. A clear majority preferred having joint office time, either ad hoc or fixed, highlighting a strong desire for shared presence with their team members to support collaboration and team cohesion.

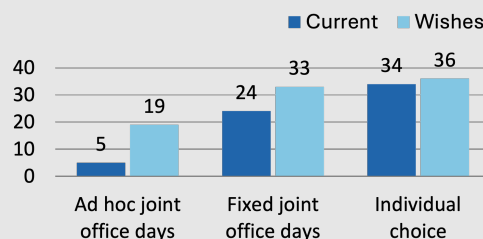


Figure 4: Current and preferred team work agreement [23].

We further explored how preferences for team work agreements vary across contextual

factors such as team distribution, team size, and role, as illustrated in Figure 5. Regarding role differences, managers and leaders reported a slightly stronger preference for agreed-upon team office days, both fixed and ad hoc, compared with team members and specialists. Team size also appeared to shape preferences: respondents in small and medium-sized teams (to 9 members) tended to favor more flexible arrangements, whereas those in larger teams (more than 10 members) showed a stronger inclination toward scheduled team days, likely because structured coordination helps manage communication complexity in bigger groups. Similarly, employees in geographically distributed teams preferred flexibility, while those in collocated teams, especially when based in the same city, were more likely to support planned office days, as in-person collaboration was easier and more beneficial for them.

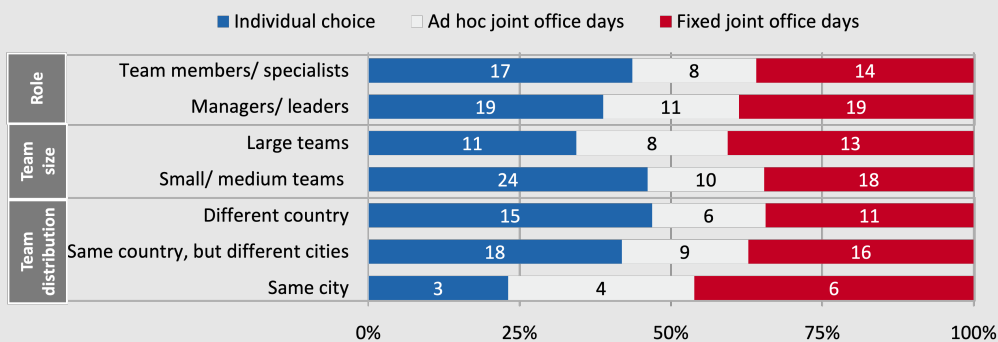


Figure 5: Team work agreement preferences by demographic groups [23].

According to our research on team work agreements, we found that individuals place a strong value on working together as a team being in the same place at the same time, whether for shared tasks or simply for social interaction that strengthens team cohesion. We found that it is beneficial for teams to experiment with occasional in-person gatherings, especially when they are rarely co-present, as this helps reinforce bonding and supports smoother collaboration. We also found that teams benefit from openly discussing their needs, avoiding assumptions, and jointly agreeing on office days, whether fixed or ad hoc, based on the nature of their work and collaboration requirements.



Recommendation 2

- **Encourage teams (especially larger ones) that rarely meet at the office to openly discuss their collaboration needs, agree on shared in-person days (fixed or ad hoc), and experiment with occasional in-office gatherings to strengthen coordination and cohesion.**

4.4. Office Workspaces

The importance of office redesign in hybrid work environments is emphasized by prior studies (e.g., [29, 30, 24]), which highlight the need for spaces that support both focused work and collaboration, along with adequate technological and infrastructural resources. Questions have also been raised about how well current office setups meet hybrid-work demands, suggesting that organizations may need substantial restructuring and investment in equipment such as 360-degree microphones, high-quality cameras, and digital whiteboards [24]. Additional work underscores the value of well-equipped conferencing tools, hybrid-collaboration software, and access to diverse meeting room types to support both effective

hybrid meetings and concentration in open offices [31].

Our findings align with this body of research, indicating that redesigning office infrastructure and expanding meeting room capacity are essential. However, from the Interview round 1 at Ericsson and Kempower, we found these efforts must extend beyond technological upgrades to include intentional planning that accommodates varied collaboration modes and work practices. Further details are provided in the following text box, *Workspaces at Ericsson and Kempower*.

Q WORKSPACES AT ERICSSON AND KEMPOWER

Both Ericsson and Kempower had open office layouts during the Interview round 1. Each company had various meeting spaces: large rooms with MS Teams Rooms tech for hybrid collaboration (bookable in advance), plus smaller spaces for private calls or focused work. Ericsson had other small rooms for two to four people, while Kempower had similar meeting pods. In Ericsson, meeting space issues varied based on unit needs. Unit E1 found small rooms cramped when too many people were present, and Unit E2 wanted more and better-equipped large rooms for hybrid meetings across sites. Kempower participants also reported limited availability of both large rooms and pods, calling meeting spaces a bottleneck. This was challenging since teams in Unit K were spread across offices and rely heavily on hybrid and virtual collaboration.

At the time of the Interview round 1, interviewees from Kempower reported challenges related to the office environment, particularly a shortage of meeting spaces, which had become a bottleneck for everyday work. Between the Interview rounds 1 and 2, Kempower relocated to a new office. During the Interview round 2, participants described generally positive experiences with the new workspace. Interviewees highlighted the improved accessibility of the location, the availability of a cafeteria and nearby restaurants, sufficient and functional workspaces, and a better balance between open and quiet areas. The open office layout was perceived as supporting communication and collaboration, while dedicated quiet spaces and well-equipped meeting rooms enabled focused work without distractions.

According to our research regarding office workspaces in hybrid work environments, we found organizations that rely on hybrid collaboration need office spaces that support both teamwork and focused individual work. A mix of open areas, quiet zones, and well-equipped meeting rooms helps avoid bottlenecks and frustration, especially when demand for hybrid setups is high. Reliable technology and easy-to-use configurations are essential to keep meetings running smoothly and prevent delays. As organizations grow, investing in functional spaces and dependable tech ensures employees can collaborate effectively without sacrificing productivity.



Recommendation 3

- **Provide a good mix of open areas, quiet spaces, and well-equipped meeting rooms at the office so employees can easily choose the right environment for collaboration or focused work.**

4.5. Seating Systems

Hot-desking, where employees book desks as needed rather than having permanent assignments, has been proposed as a way to address underutilized office space in hybrid work settings [5]. Prior work, however, points to important trade-offs. Fixed team zones can offer a stronger sense of a shared

home base [7], and aligning dedicated desks with coordinated office days can better support in-person collaboration [31].

Consistent with these insights, our findings from Interview round 1 at Ericsson and Kempower, indicated that hot-desking may be well-suited to organizations with geographically distributed teams and low simultaneous office presence, while environments with frequent co-location may benefit more from fixed desks or dedicated team areas. Further details about seating systems are provided in the following text box, *Hot-desking at Ericsson and Kempower*.

Q HOT-DESKING AT ERICSSON AND KEMPOWER

Both Ericsson and Kempower were using hot-desking during the Interview round 1, meaning employees did not have assigned desks and had to book them before going to the office.

At Ericsson, many employees found the system frustrating. They could not leave personal items like keyboards or mice on their desk, which made starting a new workday less convenient. Teams mentioned that booking seats together required extra effort and coordination, and some teams struggle to sit together, making collaboration harder. Ericsson later switched to fixed desks, and by the Interview round 2, employees reported higher satisfaction with having their own workspace close to other team members.

At Kempower, hot-desking wasn't seen as a problem. Because teams were spread across multiple sites and rarely all in the same office, there was little expectation to sit together. In fact, the system was viewed as flexible, helping accommodate visitors from other locations. Plus, employees who worked more frequently at the office had fixed desks, which gave them a familiar setup and comfort.

According to our research regarding seating systems in hybrid work environments, we found that companies like Kempower, especially as they grow and evolve, can benefit from hot-desking systems to optimize office space. With a workforce based in multiple locations and few team members in the same office at the same time, hot-desking allows for more flexible use of available workspace. However, for companies where employees are often at the office at the same time, like Ericsson, assigning fixed desks or team areas may be more effective.

Recommendation 4

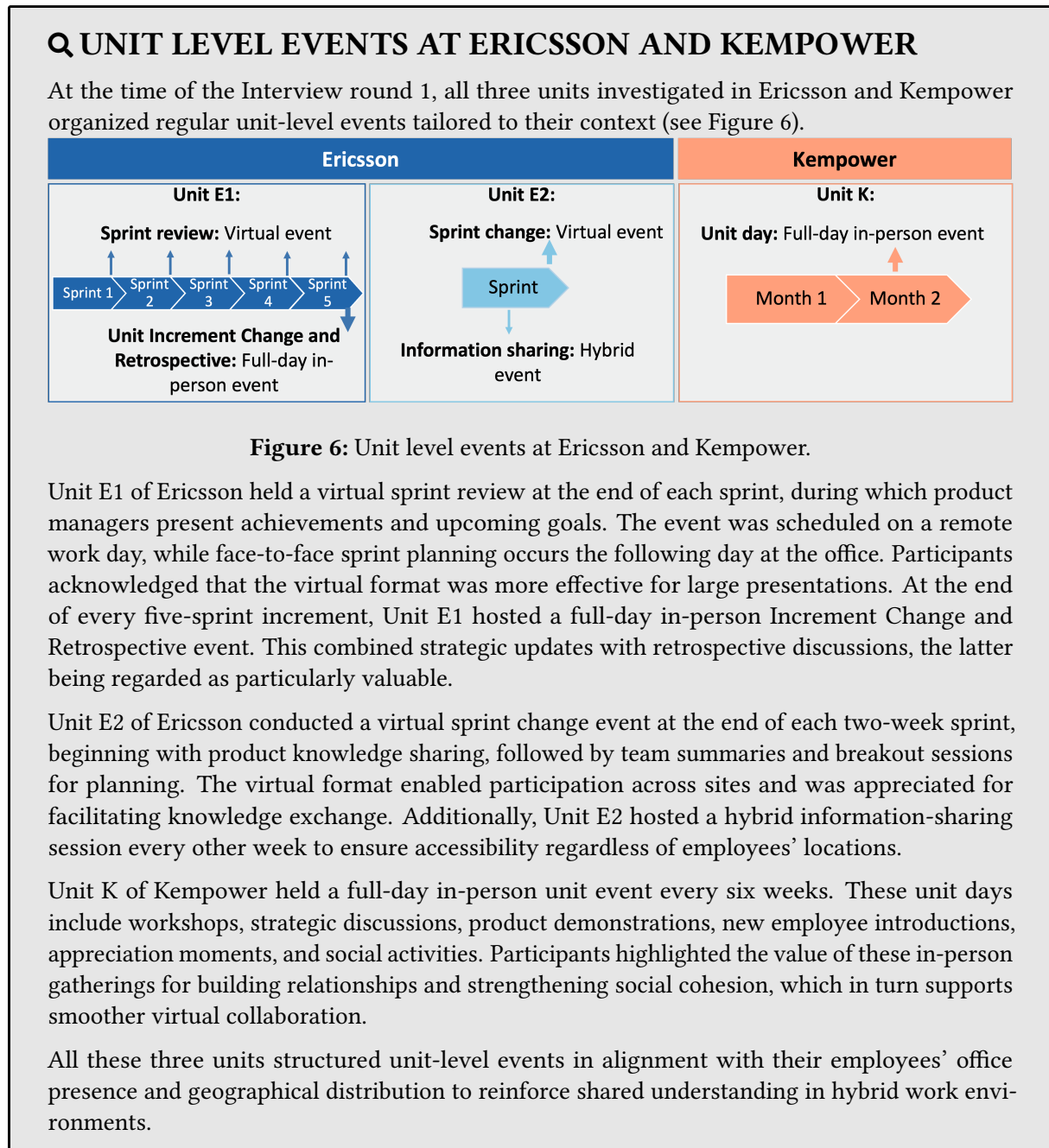
- **Align seating system with actual patterns of office presence. Hot-desking works well for teams that are rarely at the office at the same time, offering flexibility and efficient use of space. In contrast, when many employees are present simultaneously, fixed desks or dedicated team areas can better support stability, routine, and collaboration.**

4.6. Unit Level Events

Regular in-person events have been identified as an effective way to strengthen relationships and improve collaboration in hybrid work environments (e.g., [24, 31, 32, 29]). Events that emphasize project vision can build shared understanding and commitment [32], and structured gatherings, such as quarterly planning sessions or retrospectives, can encourage office attendance and ensure that in-person time is devoted to activities that benefit most from being physically together [29].

Our findings, according the Interview round 1 at Ericsson adn Kempower, showed that all units organized events to convey product-related information that is easily lost in hybrid work settings, though their formats differed. These results add nuance to how such events can be designed to support

shared understanding in hybrid work. Further details are provided in the following text box, *Unit Level Events at Ericsson and Kempower*.



According to our research, regular in-person unit gatherings can foster cohesion and a shared vision when teams are collocated, whereas hybrid or fully virtual formats may better support geographically distributed teams by enabling flexible participation. For organizations operating across multiple office locations, periodic in-person unit gatherings can effectively facilitate product updates, alignment, and social connection.



Recommendation 5

- **Structure unit-level events, in alignment with the employees' office presence and geographical distribution to reinforce shared understanding in hybrid work environments.**

4.7. Agile Coaching

The role of coaching in hybrid work settings within agile software engineering remains underexplored, though existing research indicates its value. Coaching has been shown to support smoother onboarding [33], help teams navigate the challenges associated with working from home [34], and strengthen collaborative culture, trust, and transparency in hybrid settings [35].

Our findings from Interview rounds 1 and 2 at Ericsson, further suggest that appointing coaches can meaningfully support both teams and individuals in hybrid work, particularly in maintaining agile practices, improving communication, coordinating team days, and fostering balance and connection. Further details are provided in the following text box, *Agile Coaching at Ericsson*.

Q AGILE COACHING AT ERICSSON

In both the Interview rounds 1 and 2, Ericsson employees described organizational coaches who supported teams with retrospectives, team-building, and communication practices. The agile coaches also organized learning sessions on feedback and collaboration, helping employees develop soft skills and improve teamwork. Interviewees viewed this practice as helpful, particularly in strengthening soft skills and fostering more effective collaboration within and across teams.

According to our research, we found that organizations using hybrid work can benefit from having coaches at the unit or organizational level to support both individuals and teams. Coaches can help employees maintain a healthy work–life balance, especially when hybrid work leads to long hours, stress, or isolation. They can also guide teams in setting up clear communication practices, agreeing on how and when to connect, and planning purposeful team days. Beyond that, agile coaches can reinforce the importance of collaboration, mutual support, belonging, well-being, and informal interactions, helping teams keep these values in mind in everyday work.



Recommendation 6

- **Consider appointing coaches to help teams and individuals with agile practices, communication, team days, and maintaining balance and connection in hybrid work.**

4.8. Communities of Practice

Prior studies indicate that hybrid work, where some employees are remote while others are in the office, can weaken informal interactions, shared identity, and spontaneous knowledge exchange, ultimately making it harder to maintain a sense of community [5, 7].

Consistent with these observations, our results from the Interview round 1 at Ericsson and Kempower, showed that the units in our research addressed maintaining a sense of community challenge in hybrid work environments by adapting their communities of practice to align with employees' patterns of office presence and collaboration patterns. Further details are provided in the following text box, *Communities of Practices at Ericsson and Kempower*.

Q COMMUNITIES OF PRACTICE AT ERICSSON AND KEM-POWER

At the time of the Interview round 1, Ericsson had closed CoPs for roles like architects and testers and open CoPs for broader knowledge sharing. Closed sessions focused on problem-solving, while open sessions shared best practices and experience exchange. Participants expressed positive views toward both CoPs, highlighting the value of open CoPs for exchanging best practices and improving awareness across the unit.

The implementation of CoPs differed across Ericsson's investigated units. Unit E1 conducted closed CoPs weekly or biweekly, either in-person or virtually depending on the agenda, in-person sessions were used for discussion and brainstorming, while virtual formats supported presentations and information sharing. Open CoPs followed the same logic. In contrast, Unit E2 holds both closed and open CoPs in hybrid or fully virtual formats to accommodate distributed collaboration and participation from other sites.

In Kempower (Unit K), Guilds served a similar purpose to closed CoPs, supporting role-based knowledge sharing, collaborative problem-solving, and agile practice development. Like Unit E2, these Guilds are hybrid by design, reflecting the organization's multi-office structure and the need to include employees working from different locations. These practices were still in place during the Interview round 2.

According to our research, inclusive, cross-functional communities of practice help employees share product and unit-level knowledge that might otherwise get lost in hybrid work. These forums create space for exchanging best practices, solving problems together, and building connections across roles and locations. By combining in-person and virtual formats, they make participation easier for everyone and strengthen collaboration beyond immediate teams.



Recommendation 7

- **Set up inclusive communities of practice or role-based guilds that meet regularly in person or virtually, so employees can share knowledge and information, solve problems, and stay connected in hybrid settings where such insights are easily missed.**

4.9. Agile Meetings

Many studies have explored the most effective locations for agile events and meetings in hybrid work settings. Prior research consistently showed that social interaction is a major reason employees choose to come into the office [5, 29, 36, 27], with recommendations that social activities [24] take place at the office.

Our findings reinforce this pattern. According to our results from Interview rounds 1 and 2, Survey 1 and 2, and also Workshop 1, we found employees value office time most for social get-togethers and brainstorming sessions, where relationship building and creative exchange are noticeably stronger in person. Overall, the evidence suggested that the real advantage of being co-located is not merely physical presence, it is the richer social connection and more effective collaborative problem-solving that the office environment supports. Further details about the best location for agile events are provided in the following text box, *Office Attendance for Agile Meetings*.

Q OFFICE ATTENDANCE FOR AGILE MEETINGS

Insights from the Interview rounds 1 and 2, as well as Workshop 1 showed clear patterns in meeting preferences. Participants agreed that brainstorming, planning, retrospectives, and design discussions work best in person. They highlighted faster discussions, the use of physical whiteboards, and the ability to read visual cues as key benefits. Information-sharing meetings were generally preferred in remote formats. Participants mentioned information-sharing and presentation meetings, noting they could be followed effectively virtual and sometimes alongside other tasks. However, some participants pointed out that in-person information meetings can still enable valuable before- and after-meeting discussions. Moreover, participants in Workshop 1 highlighted reporting and synchronization meetings, such as daily stand-ups, as well suited for remote participation. A smaller group of participants also mentioned troubleshooting or spontaneous meetings, where screen sharing is sufficient. Hybrid formats were mostly described as unavoidable. For example, at Ericsson, collaboration often takes place across global sites, while at Kempower, teams are not based in a single office.

Moreover, the results from Survey 1 and 2 confirmed this: social gatherings and brainstorming topped the list of meetings that benefit most from office attendance, followed by planning and retrospectives. Routine meetings like daily stand-ups and sprint reviews were considered fine online. Figure 7 shows which agile meetings participants think work best when everyone is in the office, from Surveys 1 and 2.

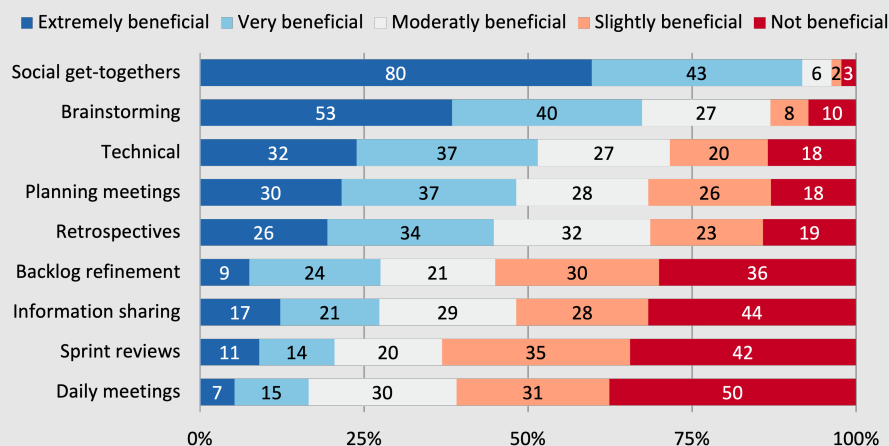


Figure 7: Degree to which meetings benefit from having all attendees together at the office.

According to our research regarding best format for agile events, we found that whenever possible, organizations should schedule collaborative and creative work such as brainstorming, planning, retrospectives, and design discussions for in-person sessions. Routine check-ins, status updates, and information-sharing meetings can be handled effectively online. Hybrid formats should be used intentionally when teams cannot be in the same location, and ensuring clear facilitation and inclusive practices so everyone can participate equally.



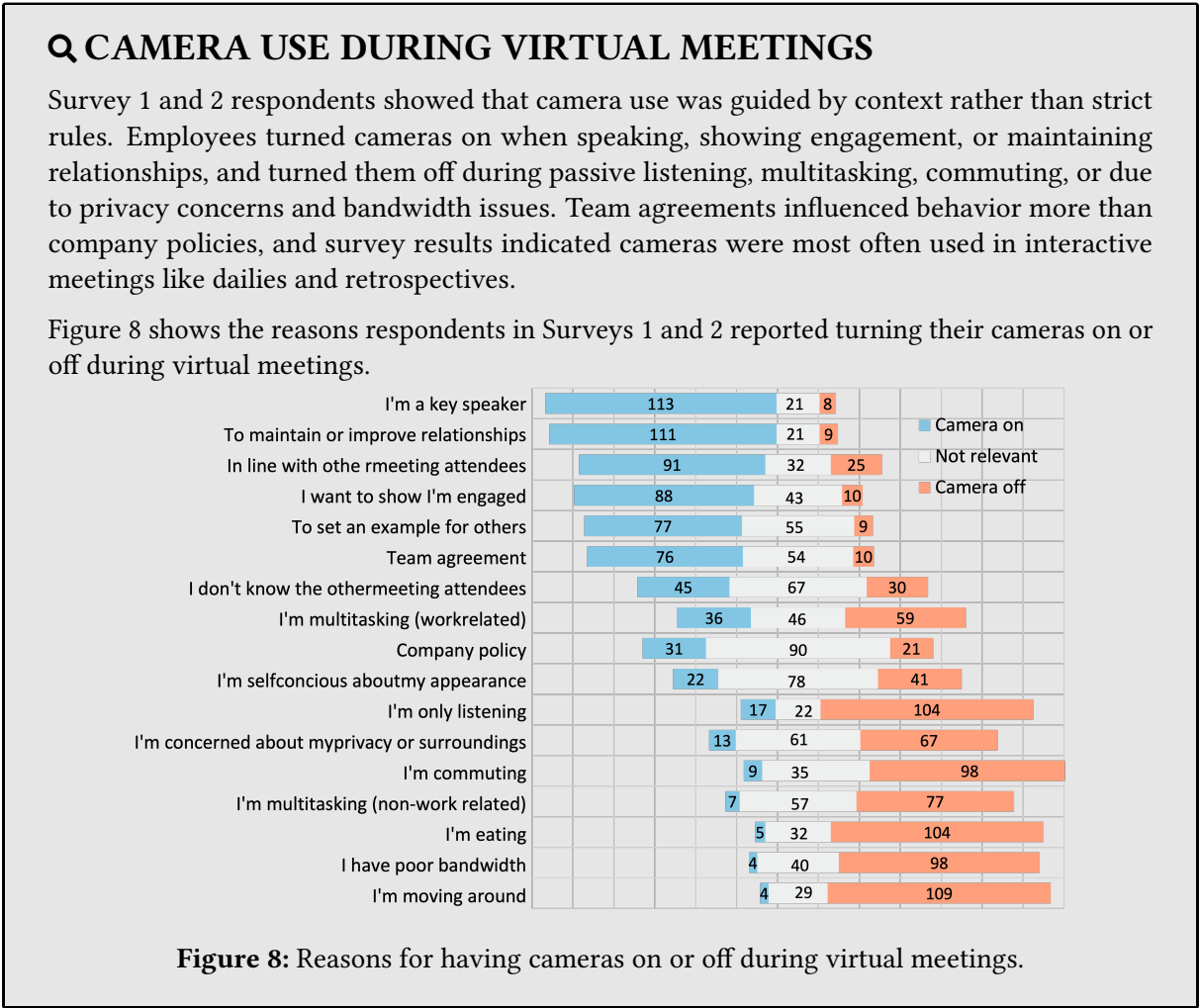
Recommendation 8

- **Prioritize in-person meetings for meetings that need discussions like creative and social activities and planning meetings, and use virtual for more routine meetings.**

4.10. Using Cameras in Virtual Meetings

Research on agile software engineering in hybrid work settings has largely emphasized practices and meeting formats, with comparatively little attention to individual behaviors in virtual meetings, such as camera use and multitasking. Although camera use is frequently recommended for its benefits [35, 37, 32], the motivations behind these choices remain underexplored. Prior work shows that cameras are often turned off to enable multitasking, eating being a common example, and that social conformity also shapes behavior, as individuals may avoid being the only one visible or feel uncomfortable with increased exposure [38].

Our findings similarly indicated that camera use was shaped more by situational and social factors than by formal expectations. Respondents in Surveys 1 and 2 tended to turn cameras on to signal engagement or maintain relationships, and turned them off for practical reasons such as moving, eating, commuting, or bandwidth limitations. Further details about camera usage are provided in the following text box, *Camera Use During Virtual Meetings*.



As hybrid work increases the number of virtual meetings, companies can benefit from setting clear expectations for camera use during meetings. According to our research, organizations can differentiate meeting norms regarding camera usage in hybrid work. Information-sharing and presentation meetings can allow camera-off participation, while interactive, decision-making, and relationship-building meetings should encourage camera use. Clear, purpose-driven meeting norms help reduce fatigue, respect autonomy, and improve overall meeting effectiveness.



Recommendation 9

- Encourage camera use in virtual meetings that rely on active discussion, such as team dailies and retrospectives, while recognizing that for technical or screen-focused sessions, cameras are less essential.

4.11. Multitasking in Virtual Meetings

Multitasking in virtual meetings is widespread and occurs more often than in face-to-face settings, likely due to changing work rhythms and the lower perceived risk of being noticed [39]. Although such behavior can have both positive and negative effects, prior research shows that it commonly involves activities like checking email, messaging colleagues, completing tasks, taking notes, or browsing the web [38].

Our findings from the Survey 1 and 2 reflected a similar pattern: respondents frequently multitasked with work-related activities, such as note-taking, emailing, and chatting, while non-work multitasking was uncommon. Further details about multitasking are provided in the following text box, *Multitasking During Virtual Meetings*.

Q MULTITASKING DURING VIRTUAL MEETINGS

Figure 9 shows how frequently respondents in Surveys 1 and 2 reported engaging in multitasking activities during virtual meetings. The most common multitasking activities included reading or writing emails, taking meeting notes, chatting with colleagues, and coding. These were primarily work-related and likely reflect efforts to remain productive or manage multiple communication channels during meetings. Non-work-related multitasking, such as web browsing, eating, or performing household tasks, also occurred but less frequently. Activities requiring greater physical engagement, including pet care, exercise, or childcare, were rarely reported.

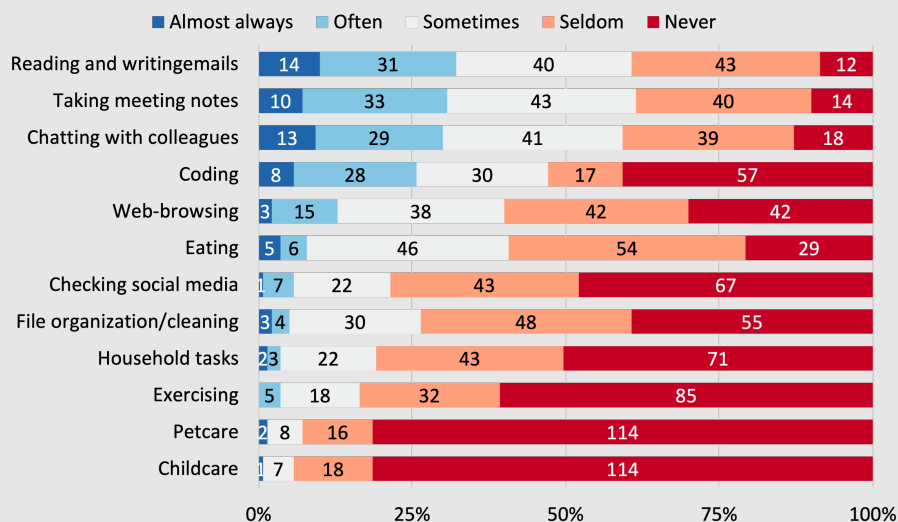


Figure 9: Multitasking activities performed during virtual meetings.

According to our research, multitasking was common in virtual meetings, mostly work-related. Meetings should be designed to keep participants focused, especially when discussion matter, and keep presentations concise to respect attention limits. Similar to camera usage, organizations can differentiate meeting norms. Information-sharing and presentation meetings can allow flexible attention, while

interactive, decision-making, and relationship-building meetings should encourage focused participation.



Recommendation 10

- **Expect some multitasking during virtual meetings, mostly work-related, and design meetings to stay focused when critical decisions or collaboration are required.**

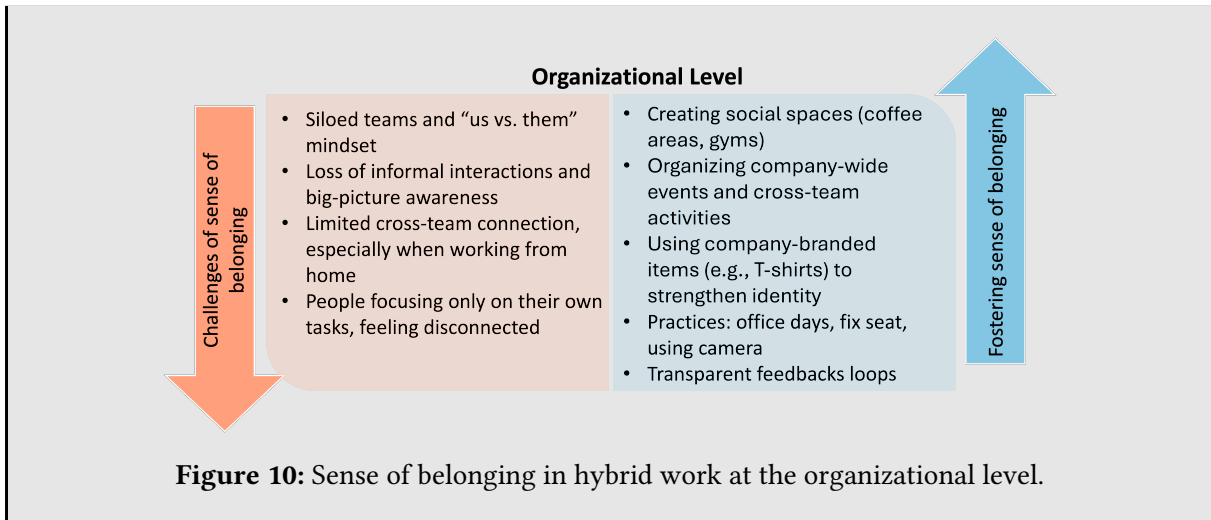
4.12. Sense of Belonging

Although hybrid work is often assumed to weaken workplace relationships or career outcomes, prior research shows this is not necessarily the case, except when remote work becomes extensive, and that well-designed organizational policies can mitigate potential downsides [40]. A strong sense of belonging remains critical: lack of belonging is linked to burnout, reduced resilience, lower job satisfaction, and diminished well-being among software developers [41], and is closely tied to engagement, productivity, and performance [42]. Research on belonging in hybrid work within agile software engineering is still limited, though related studies highlight its importance. Software teams' effectiveness heavily depends on belonging, supported by regular interaction, inclusive feedback, recognition, and mutual support that extends beyond task-related work [43]. Belonging also strengthens feelings of being valued and enhances psychological safety, aided by spontaneous office interactions and positive feedback [44].

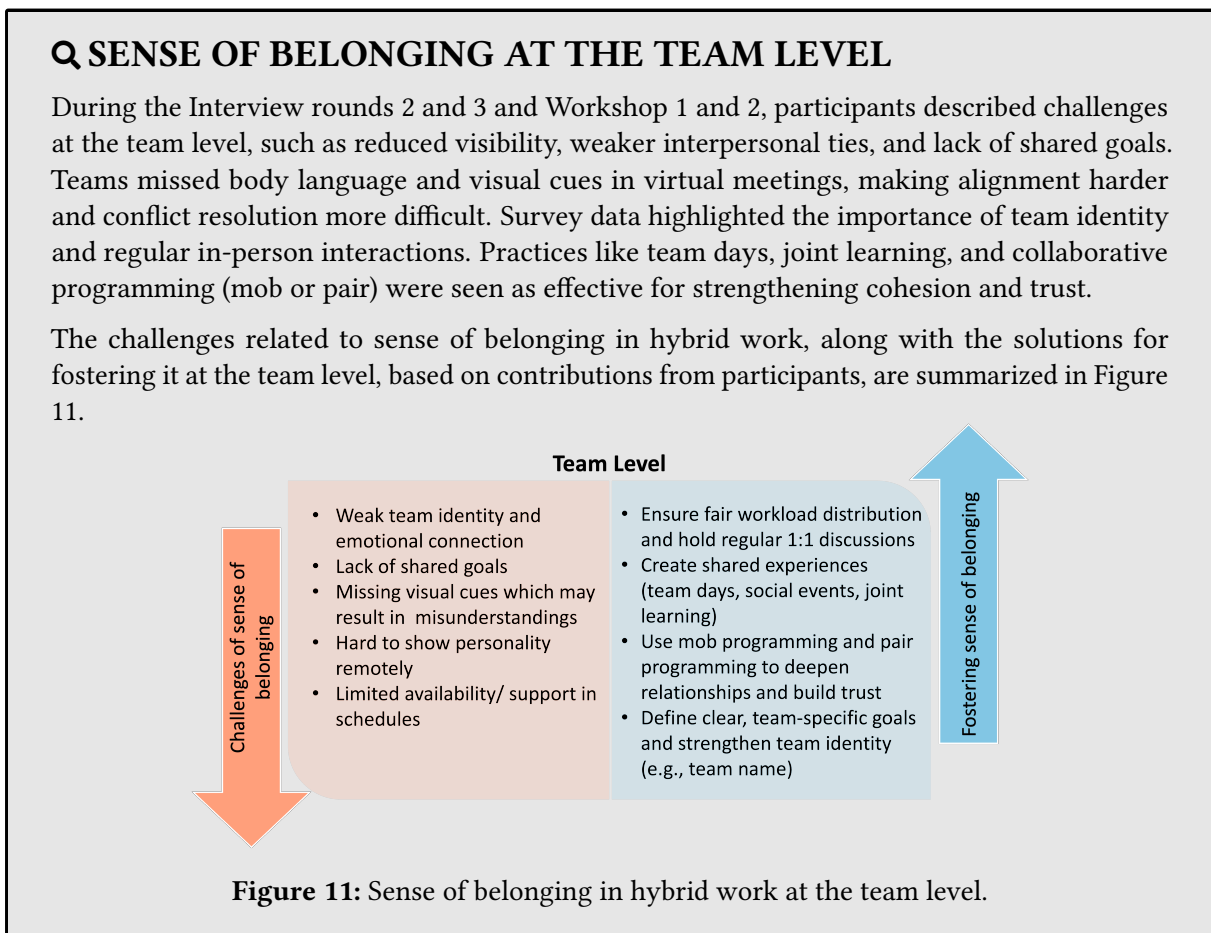
Our findings, according to the Interview rounds 2 and 3 and the Workshop 1 and 2, showed that sense of belonging in hybrid work within agile software engineering operates across three interconnected levels—individual, team, and organization— indicating that fostering it requires coordinated action at all three. At the organizational level, belonging was challenged by siloing and fewer informal interactions. Participants suggested strengthening it through shared spaces, company-wide activities, agreed office days, symbolic company items, and transparent communication. Further details about the challenges and strategies for fostering a sense of belonging at this level are provided in the following text box, *Sense of Belonging at the Organizational Level*.

Q SENSE OF BELONGING AT THE ORGANIZATIONAL LEVEL

Findings from the Interview rounds 2 and 3 and the Workshop 1 and 2 revealed that belonging at the organizational level was linked to shared mission and identity. Hybrid work increased siloing and reduced informal exchanges, making employees feel disconnected from the bigger picture. Our result showed employees valued company-wide events, social spaces, and symbolic elements like branded items to reinforce identity. Transparent communication and feedback loops were also seen as critical for helping employees feel heard and included. The challenges related to sense of belonging in hybrid work, along with the solutions for fostering it at the organizational level, based on contributions from participants are summarized in Figure 10.



At the team level, belonging was challenged by reduced visibility, weaker relationships, unclear communication, and limited shared goals in hybrid work. Participants suggested strengthening it through shared team experiences, pair or mob programming, clear team goals, and stronger communication and psychological safety. Further details about sense of belonging at this level are provided in the following text box, *Sense of Belonging at the Team Level*.



At the individual level, belonging was challenged by fewer informal interactions in hybrid work, which could lead to isolation and disconnection. Participants emphasized that belonging is strengthened through psychological safety, trust, empathy, and everyday social interactions that help employees feel

seen, valued, and connected. Further details about sense of belonging at this level are provided in the following text box, *Sense of Belonging at the Individual Level*.

Q SENSE OF BELONGING AT THE INDIVIDUAL LEVEL

Insights from the Interview round 2 and 3 and Workshop 1 and 2 showed that a sense of belonging at the individual level came from feeling accepted and valued through everyday interactions. Hybrid work reduced these informal encounters, leading to feelings of isolation and invisibility. Employees emphasized psychological safety and empathy as key enablers. Participants confirmed that individuals valued kindness, peer support, and opportunities for casual conversations to feel connected.

The challenges related to the sense of belonging in hybrid work, along with the solutions for fostering it at the individual level, based on contributions from participants, are summarized in Figure 12.

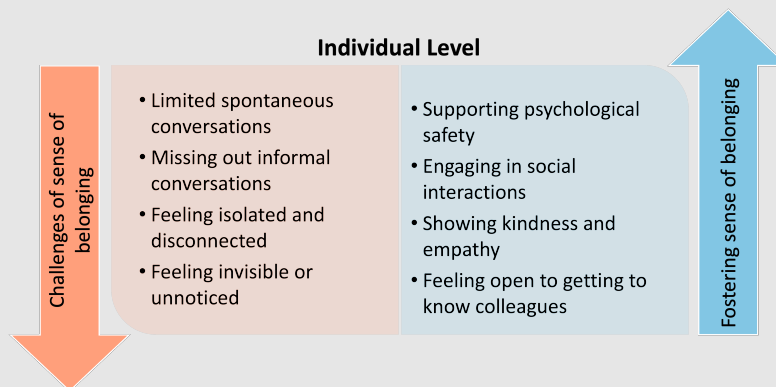


Figure 12: Sense of belonging in hybrid work at the individual level.

According to our research about sense of belonging, organizations can strengthen belonging in hybrid work through actions at all three levels. At the organizational level, shared spaces, company-wide events, and transparent communication help employees feel connected to the broader mission. At the team level, a clear team identity, shared goals, and collaborative activities such as team days or pair programming foster stronger relationships and alignment. At the individual level, psychological safety, empathy, and supportive daily interactions help employees feel seen, valued, and included.



Recommendation 11

- **Create opportunities for connection at the organizational, team, and individual levels through company-wide social spaces and events, a clear team identity and shared goals, and positive everyday interactions, so that employees feel seen, included, and part of something larger in hybrid work.**

During Workshop 2, participants from the companies identified sense of belonging as one of the main challenges of hybrid work that needs more investigation. Therefore, Survey 3 was designed to investigate both the factors influencing sense of belonging and its outcomes in hybrid work within agile software engineering environments. We created a conceptual model for sense of belonging in these environments based on Stimulus–Organism–Response (SOR) theory [45]. Within the SOR theory, our model suggests that employees do not respond directly to workplace conditions. Instead, the conditions in the workplace first influence their sense of belonging, and this internal state then shapes their

attitudes and behaviors. Further details about the influencing factors and outcomes of sense of belonging are provided in the following text box, *Sense of Belonging Model*.

Q SENSE OF BELONGING MODEL

Based on the Survey 3 responses, we developed a conceptual model for sense of belonging in hybrid work within agile software engineering environments using the SOR theory, as shown in Figure 13. The factors influencing sense of belonging are as follows:

- Supportive organizational climate [46]: a work environment where leaders are supportive, communicate clearly, and encourage cooperation and trust.
- Training [47]: organized learning opportunities that are adequately supported, planned, and evaluated to help employees develop their skills.
- Team cohesion [48]: Trust, support, respect, communication, and unity within a team, where members work together, include one another, and handle problems constructively.
- Knowledge sharing [49]: active exchange and storage of information and experience through formal, informal, and written communication.
- Role clarity [50]: clearly understanding responsibilities, authority, expectations, workload, and how performance will be evaluated.
- Work-life balance [51]: the ability to manage work and personal or family responsibilities in a balanced and controlled way.
- Informal communication [52]: personal and casual conversations between employees, ranging from light topics such as hobbies or daily events to more meaningful discussions about personal concerns and experiences.

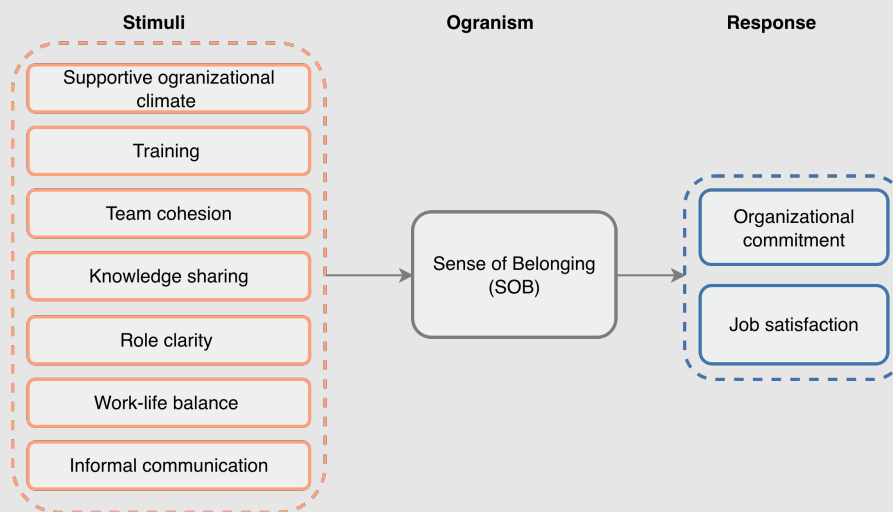


Figure 13: Conceptual model for sense of belonging in hybrid work.

According to the model, all of these factors influence the employee's sense of belonging. Sense of belonging is the feeling that one is accepted, valued, included, and an important part of the organization. Once employees develop a strong sense of belonging, this leads to two responses:

- Organizational commitment [53]: employee's emotional attachment and loyalty to the organization and their willingness to remain part of it.
- Job satisfaction [54]: the degree to which employees feel happy, fulfilled, and satisfied with their job.

However, an interesting finding from Survey 3 was that hybrid work flexibility, the freedom and control employees have over when, where, and how they manage their work and personal responsibilities in a hybrid setting [51], had no influence on sense of belonging.

According to our research, sense of belonging has a positive influence on organizational commitment and job satisfaction, both of which are important for organizations. We also found that sense of belonging is not influenced by hybrid work flexibility, but rather by supportive organizational climate, training, team cohesion, knowledge sharing, role clarity, work–life balance, and informal communication.



Recommendation 12

- **Strengthen employees’ sense of belonging to improve organizational commitment and job satisfaction through a supportive organizational climate, training, team cohesion, knowledge sharing, role clarity, work–life balance, and informal communication, as hybrid work flexibility is not influential.**

4.13. Productivity

Research on productivity in remote and hybrid work shows mixed outcomes. Fully remote work has been associated with no significant change in overall output [55], while other studies report productivity gains due to increased focus and reduced time spent in meetings [56]. At the same time, perceived freedom at home may boost short-term task productivity, yet long-term productivity can suffer when infrastructure, communication, or team interaction are lacking [57]. Overall, productivity effects are not uniform: remote work can raise productivity for some developers and lower it for others [2]. The same conditions, such as fewer office distractions or, conversely, childcare demands at home, can be experienced as either benefits or drawbacks depending on individual circumstances.

Our findings indicated that employees had different perspectives on the meaning of productivity. Some defined productivity simply as task completion, while others described it as working efficiently and with focus. Still others viewed productivity in terms of collaboration, achieving long-term goals, and fostering innovation. Overall, we found that supporting productivity in hybrid work requires balancing collaboration, focused work, and shared understanding. Further details about different perception of productivity in hybrid work within agile software engineering environments are provided in the following text box, *Productivity Definition*.

Q PRODUCTIVITY DEFINITION

During the Interview round 2 with participants from Ericsson and Kempower, and Interview round 3 with participants from Housemarque, when asked what productivity meant to them personally, five themes emerged. Participants described productivity as getting work done on time, working efficiently and staying focused, contributing to long-term goals, collaborating effectively, and improving processes and innovating. As shown in Figure 14, task completion was the most common definition, followed by efficiency and focus, suggesting that people primarily associate productivity with clear, measurable outcomes. Collaboration, long-term thinking, and continuous improvement were mentioned less often but still recognized as important.

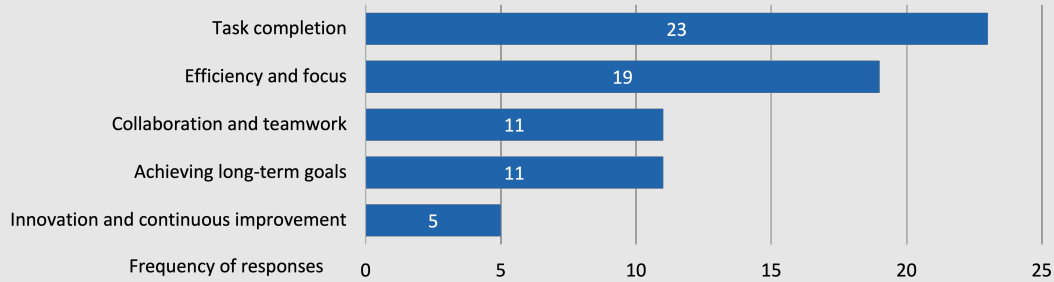


Figure 14: Definition of productivity by participants.

Role differences were clear. Developers emphasized task completion and efficiency, reflecting their need for focus. Managers took a broader view, balancing short-term delivery with long-term impact. Cross-team specialists highlighted collaboration, while product owners stressed efficiency and long-term goals, consistent with their responsibility for product direction.

Overall, the findings show that while productivity was often framed as an individual accomplishment, it also depended on collaboration, shared understanding, and continuous improvement, factors that are especially important in hybrid work but not always captured in how people describe productivity.

During the same interviews (rounds 2 and 3), we also investigated the impact of hybrid work on productivity. Most participants reported either a positive or no effect, mainly because hybrid work enables focused work at home, collaboration in the office, and time savings from not commuting. Further details about the impact of hybrid work on productivity in the agile software engineering context are provided in the following box, *Impact of Hybrid Work on Productivity*.

Q IMPACT OF HYBRID WORK ON PRODUCTIVITY

Regarding the impact of hybrid work on productivity, the majority of interviewees from Ericsson, Kempower, and Housemarque reported a positive effect (15, 6, and 6, respectively) or no significant impact (5, 2, and 2). A smaller portion (8, 2, and 2 interviewees) indicated negative effects. Figure 15 presents the perceived impacts of hybrid work on productivity, based on findings from Interviews rounds 2 and 3 and Workshop 1.

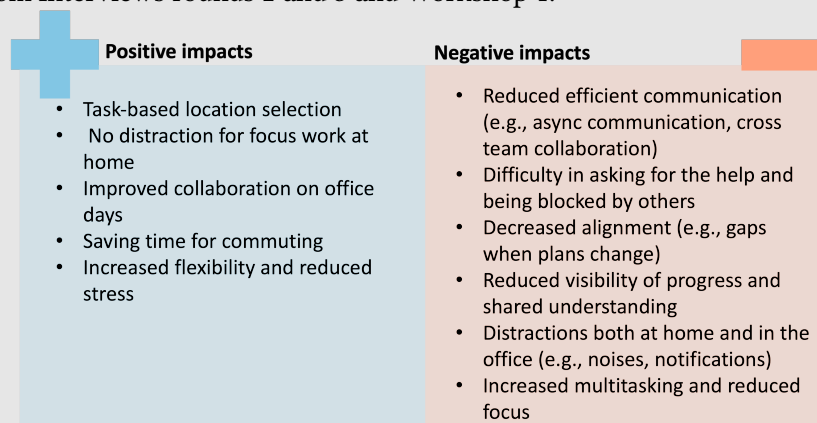


Figure 15: Impact of hybrid work on productivity.

During the Interview rounds 2 and 3 and Workshop 1, we explored solutions for enabling productivity

in hybrid work within agile software engineering environments. Participants proposed solutions in three main groups: communication and collaboration, enabling uninterrupted deep work, and building a shared sense of purpose. Further details about the enablers within each group are provided in the following box, *Enablers of Productivity in Hybrid Work*.

Q ENABLERS OF PRODUCTIVITY IN HYBRID WORK

According to Interview round 2 and 3 and Workshop 1 where productivity was discussed with participants, some solutions were proposed to support productivity of employees in the hybrid work environment. The most frequently recommended solutions were related to communication and collaboration. Participants emphasized encouraging open discussion, fostering transparent communication, promoting mutual support, and establishing communities of practice to enable cross-team knowledge sharing and collaboration.

The second group of solutions focused on enabling uninterrupted, deep work. At home, participants suggested turning off notifications, activating 'do not disturb' mode, and scheduling dedicated focus time in the calendar. In the office, the use of noise-canceling headphones was recommended as a clear signal to others that focused work is in progress.

The third group of suggestions focused on building team spirit and a shared sense of purpose to sustain productivity over time. Participants emphasized granting autonomy and responsibility, cultivating shared goals, celebrating achievements, and setting smaller milestones to maintain motivation and momentum. Participants also highlighted the role of agile events, such as daily stand-ups, backlog refinement, sprint reviews, and sprint planning, as key enablers for sharing goals, celebrating achievements, tracking progress, and fostering communication and collaboration.

According to our research, productivity in hybrid agile software engineering is not only an individual accomplishment but also depends on collaboration, shared understanding, and continuous improvement. We found that hybrid work can sometimes challenge productivity by reducing efficient communication and collaboration and increasing distractions. Productivity can therefore be supported by encouraging open communication through shared forums such as communities of practice, protecting uninterrupted work through agreed focus-time norms (e.g., calendar blocks or do-not-disturb mode), and reinforcing shared goals and team cohesion through regular agile events.



Recommendation 13

- **Establish clear practices for balancing collaboration, focused work, and shared understanding in hybrid work environments to foster productivity.**

4.14. Well-being

Regarding well-being, prior research highlights a strong link between developer well-being and productivity in remote contexts [58]. Recent findings suggest that hybrid work can support well-being by offering greater privacy and comfort, healthier routines, lower stress, improved concentration, better work-life balance, more family time, reduced commuting, and higher perceived productivity [43]. At the same time, hybrid arrangements can undermine well-being when infrastructure is inadequate or interaction with colleagues declines.

Our findings from Interview rounds 2 and 3, in which we explored well-being in hybrid work within agile software engineering, indicated that hybrid work can improve well-being through greater flexibility

and autonomy, but can also reduce well-being by limiting socialization and interaction. Further details about the impact of hybrid work on well-being are provided in the following box, *Impact of Hybrid Work on Well-Being*.

Q IMPACT OF HYBRID WORK ON WELL-BEING

Figure 16 illustrates the impacts of hybrid work environments on well-being, identified by participants in the Interview rounds 2 and 3.

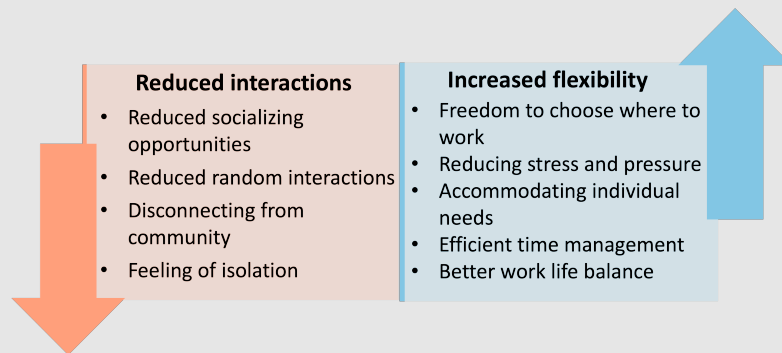


Figure 16: Impact of hybrid work on Well-being.

According to participants, well-being in hybrid work was strongly linked to flexibility and autonomy, particularly the freedom to choose where to work. Many participants described hybrid work as reducing stress by reducing daily commute, improving sleep quality, and making it easier to manage household and personal responsibilities. This flexibility made life feel more manageable and supported better work–life balance. At the same time, some noted that working from home all the time can blur boundaries, and for them, the option to come to the office, was essential.

However, participants also emphasized that hybrid work reduces all forms of social interaction, not just spontaneous ones. Many felt they were missing everyday socializing, shared moments, and the sense of being part of a community. When some team members are at home and others are in the office, a separation can emerge leading to feelings of disconnection and reduced belonging. Additionally, when asked how they perceive the well-being of others or how they contribute to colleagues’ well-being, most participants admitted they were not fully aware of others, mainly because they do not see each other as frequently as before.

During the Interview rounds 2 and 3 and Workshop 1, we also explored ways to support well-being in hybrid work. Our findings indicated that well-being can be supported by maintaining flexibility and autonomy, rebuilding social connections, increasing in-person interaction, and promoting a healthy workload and work–life boundaries. Further details are provided in the following box, *Enablers of Well-Being in Hybrid Work*.

Q ENABLERS OF WELL-BEING IN HYBRID WORK

In Interview rounds 2 and 3 and Workshop 1, several themes emerged regarding how well-being can be better supported in hybrid work.

The most important theme was maintaining flexibility and autonomy to accommodate individual needs, which participants viewed as essential for reducing stress and supporting work–life

balance. The second major theme focused on rebuilding social connections. Participants emphasized the value of organizing cultural groups, sports clubs, and other non-work-related activities to encourage employees to engage in fun, shared experiences beyond their immediate teams. The third major theme emphasized increasing in-person interactions by arranging team-, unit-, or organization-wide gatherings and events, both work-related and social, such as shared lunches, informal meetups, or office days, which help strengthen relationships and foster community in hybrid settings.

The fourth theme highlighted the importance of promoting healthy workload and work–life boundaries by setting clear expectations for working hours and response times, encouraging the use of focus-time blocks, discouraging after-hours communication, and regularly monitoring workload distribution to ensure fairness. Then, participants highlighted the role of managers in regularly checking in with employees through one-to-one discussions to ensure they are doing well, feel supported, and do not become isolated in hybrid settings. Finally, participants highlighted that organizations can further support well-being by providing ergonomic home-office or office desks and offering facilities such as gyms, saunas, or other activity spaces that promote physical health and recovery.

According to our research, enablers of well-being in hybrid work include fostering shared activities (e.g., cultural groups, sports clubs), organizing regular in-person gatherings to strengthen interpersonal relationships, and promoting healthy workload and work–life boundaries through clear expectations and fair workload distribution. Managers should hold regular one-to-one check-ins to ensure employees feel supported and not isolated. Organizations should invest in ergonomic desks and provide facilities such as gyms or activity spaces to promote physical health and recovery.



Recommendation 14

- **Support well-being in hybrid work by maintaining flexibility and autonomy, while actively rebuilding social connection and community.**

4.15. Innovation

Innovation and creative problem-solving are essential in software engineering, which is inherently a creative endeavor [59]. The current trend toward hybrid work is partly motivated by organizations recognizing that innovation may be at stake when collaboration practices are not carefully designed [59]. Jackson et al. [59] highlight that supporting team creativity in hybrid work for software engineering requires intentional approaches to collaboration, facilitation, and tool support, rather than relying on practices developed for fully collocated teams.

During Workshop 2, we investigated innovation and brainstorming in hybrid work within agile software engineering and found that participants experienced difficulties with virtual discussion and brainstorming because of reduced engagement and inadequate tools for collective ideation in hybrid work environments. Further details about the effects of hybrid work on innovation and brainstorming are provided in the following box, *Challenges of Innovation and Brainstorming in Hybrid Work*.

Q CHALLENGES OF INNOVATION AND BRAINSTORMING IN HYBRID WORK

Figure 17 illustrates participants' reported challenges of innovation and brainstorming in

hybrid work environments. According to participants in Workshop 2, where we explored the challenges for innovation in hybrid environments, brainstorming was perceived as significantly more difficult compared with traditional office-based collaboration.

First, participants emphasized challenges in collaboration dynamics. In hybrid sessions, a divide often emerges between office and remote participants due to technical limitations, overlapping conversations, and difficulties hearing or contributing. Without physical presence, discussions become slower, less interactive, and lack the visual cues and body language that enable deep, fluid idea exchange. Second, participants noted challenges related to engagement and clarity. Not all individuals actively participate in hybrid brainstorming; goals are sometimes unclear, and remote attendees may lose track of the discussion because of technical issues or external distractions. Third, a commonly reported barrier was the lack of effective, intuitive digital tools that match the creativity support provided by physical whiteboards and collocated brainstorming spaces. In addition, participants highlighted the absence of spontaneous, informal conversations, small, unplanned exchanges that frequently spark innovation but rarely occur in virtual settings.

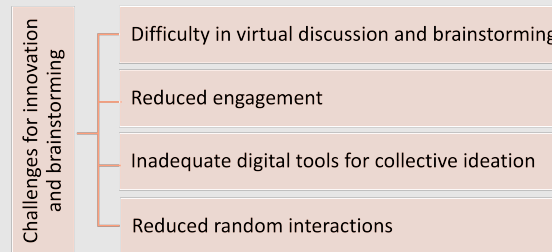


Figure 17: Innovation and brainstorming challenges in hybrid work settings.

Moreover, according to participants in Workshop 2, innovation and brainstorming in hybrid work are most effective when conducted in person whenever possible. When physical collocation is not feasible, organizations should invest in high-quality digital tools and experiment with different formats to ensure engaging and productive remote participation. Further details about supporting innovation and brainstorming are provided in the following box, *Enablers of Innovation and Brainstorming in Hybrid Work*.

Q ENABLERS OF INNOVATION AND BRAINSTORMING IN HYBRID WORK

Figure 18 illustrates participants' reported enablers of innovation and brainstorming in hybrid work environments.

In response to the reported challenges, participants in Workshop 2 emphasized that organizations should intentionally design and facilitate innovation-focused sessions, such as hackathons or structured brainstorming events, whether virtual or in person. Several participants noted that when thoroughly planned, with a clear agenda, defined goals, and appropriate preparation, virtual and in-person sessions can be equally effective. They highlighted the important role of a skilled facilitator, who ensures full participation, creates a psychologically safe environment for sharing ideas, and keeps the discussion focused. Participants also recommended incorporating interactive or playful elements, such as gamified activities, to boost engagement and creativity. Across discussions, the availability of high-quality, easy-to-use collaboration tools was identified

as a critical enabler of innovation in hybrid environments.

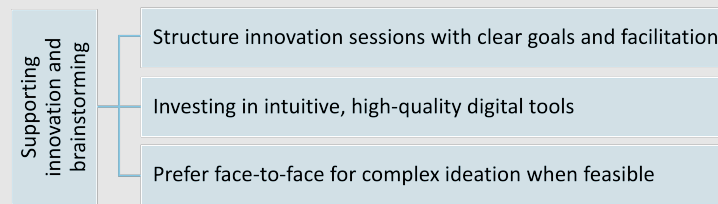


Figure 18: Innovation and brainstorming enablers in hybrid work settings.

Moreover, insights from the Interview round 2 with participants from Ericsson and Kempower, and Interview round 3 with participants from Housemarque, the value of in-person interaction for innovation and brainstorming was strongly emphasized. Participants highlighted that discussion flows more naturally in person: visual cues and immediate feedback make discussion faster and clearer, facilitation is easier, and individuals feel more comfortable expressing and refining ideas. The use of physical whiteboards was repeatedly mentioned as a key advantage of co-presence, enabling teams to sketch concepts collaboratively, iterate quickly, and maintain shared focus throughout the ideation process.

According to our research, organizations should intentionally plan and invest in structured hackathons and brainstorming sessions to foster innovation, ideation, and creativity. Whenever possible, these activities are most effective in person; however, when physical collocation is not feasible, organizations should invest in high-quality digital tools and experiment with different formats to ensure engaging and productive remote participation.



Recommendation 15

- **Intentionally plan and invest in structured hackathons and brainstorming sessions to foster innovation, ideation, and creativity.**

5. A House Model for Hybrid Work

Based on our research findings, we developed a *house model* that illustrates how hybrid work can be organized in agile software engineering to balance productivity, belonging, well-being, and innovation (Figure 19).

The foundation of the model highlights the importance of considering both organizational context, such as organizational size and maturity, product phase, team distribution, roles, and collaboration needs, and individual preferences, including work location, collaboration, focus time, autonomy, and personal constraints. These contextual factors shape what degree of hybrid work are feasible and meaningful. Building on this foundation, organizations define office presence guidelines and establish team days agreements, which translate contextual considerations into concrete expectations about when and why teams come together in the office. Rather than prescribing uniform attendance, these elements emphasize purposeful and intentional use of in-person time.

The four pillars represent key high-level practices that enable effective hybrid work: facilitating office and home workspaces, adapting agile events and practices to hybrid work settings, establishing socialization and knowledge-sharing practices, and refining hybrid work settings continuously through coaching and continuous adaptation. Together, these practices support day-to-day work while allowing

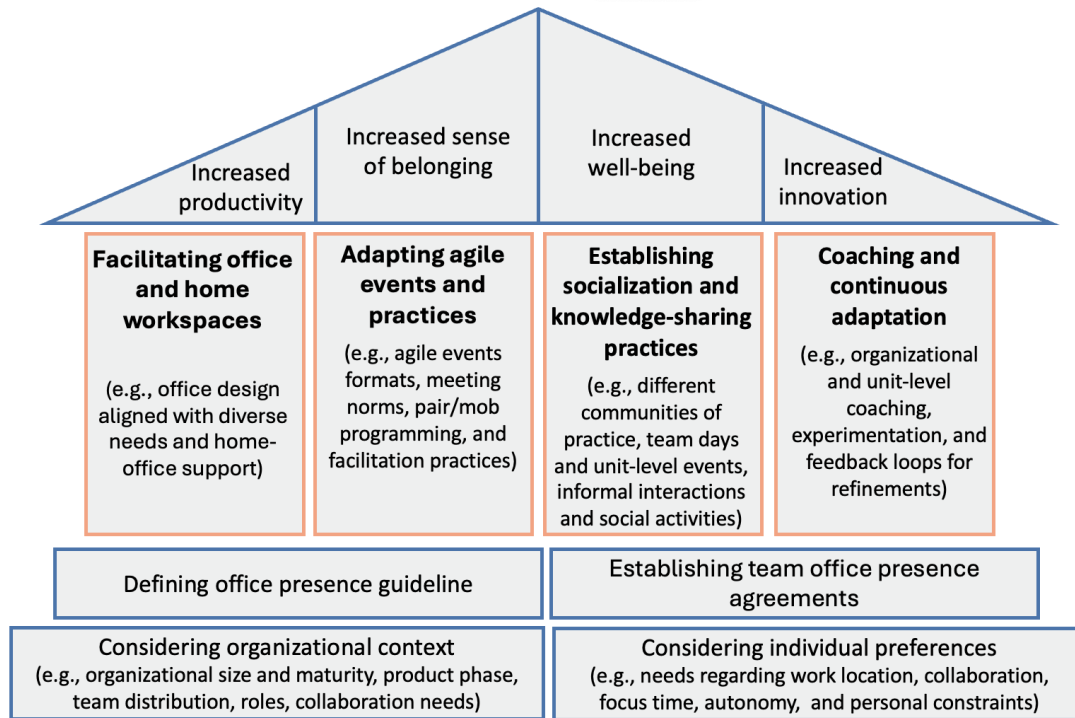


Figure 19: A house model for organizing hybrid work in agile software engineering.

practices in hybrid work to evolve over time. The roof of the model illustrates the intended outcomes of these combined elements: increased productivity, a stronger sense of belonging, improved well-being, and enhanced innovation. Through this model, our research emphasizes that these outcomes emerge not from office presence alone, but from the alignment of context-aware design, team-level coordination, and ongoing support and adaptation of hybrid work practices.

6. Practical Recommendations

Table 4 outlines practical recommendations for practitioners informed by our research. The recommendations are structured by responsibility level (organization, team, individual) to support practical adoption in hybrid work within agile software engineering environments.

Table 4: Practical recommendations

Practical recommendation	Responsibility level
<i>Setting hybrid work policies</i>	
<ul style="list-style-type: none"> Design office presence policies that reflect their unique context, including employee distribution, product maturity, and collaboration needs. Gather employee feedback through surveys and polls to understand what is working and where adjustments are needed. Communicate hybrid work decisions transparently by explaining the rationale behind choices and how employee input shaped them. Organizations should experiment with different hybrid work models to identify the approach that best fits their needs. Appoint hybrid work coaches to support organizational decisions, team practices, and individual needs. 	Organization
<i>Organizing team days together</i>	

Practical recommendation	Responsibility level
<ul style="list-style-type: none"> Encourage teams to experiment with in-person gatherings when they are rarely co-present to strengthen bonding and shared work. 	Organization
<ul style="list-style-type: none"> Discuss openly, avoid assumptions, and agree on joint office days, fixed or ad hoc, based on their collaboration needs. 	Team
<i>Structuring office workspaces</i>	
<ul style="list-style-type: none"> Provide a mix of collaboration spaces, including discussion zones, hybrid-ready rooms, and small focus rooms, to support different collaboration modes. 	Organization
<i>Organizing seating systems</i>	
<ul style="list-style-type: none"> Match desk allocation strategies to actual office presence patterns, using hot-desking for distributed teams and fixed desks for high co-presence. Provide fixed desks for employees who work frequently at the office to support ergonomic comfort and routine. 	Organization
<i>Structuring unit level events</i>	
<ul style="list-style-type: none"> Structure unit-level events in alignment with employees' office presence to reinforce shared understanding in hybrid work environments. 	Organization
<ul style="list-style-type: none"> Participate actively in unit events. 	Individual
<i>Organizing communities of practice (CoP)</i>	
<ul style="list-style-type: none"> Establish inclusive, cross-functional communities of practice open to all employees. Encourage members to participate in CoPs or Guilds so the knowledge flows. Share insights from CoPs during team meetings to reduce information gaps. 	Organization Team
<ul style="list-style-type: none"> Join relevant communities of practice and contribute actively to knowledge sharing. 	Individual
<i>Adapting agile events and meetings</i>	
<ul style="list-style-type: none"> Match the meeting format to the meeting intent: hold collaborative and discussion-heavy sessions (e.g., brainstorming, planning, retrospectives) in person whenever possible, and run routine or information-sharing meetings virtually. 	Team
<ul style="list-style-type: none"> Use their camera and focus fully during interactive or decision-making meetings. Manage multitasking intentionally by avoiding it during collaborative discussions and limiting it to routine meetings. 	Individual
<i>Fostering sense of belonging</i>	
<ul style="list-style-type: none"> Provide social spaces and support company wide events to help employees connect beyond their teams. Reinforce shared identity through branded items and symbols. Use transparent communication and feedback loops, so employees feel heard and valued. 	Organization
<ul style="list-style-type: none"> Create a shared team identity through a team name, shared goals, and regular in person team days. Use collaborative practices such as mob and pair programming to deepen relationships and build trust. Hold regular check-ins to understand individual needs and foster inclusion. 	Team
<ul style="list-style-type: none"> Practice daily empathy and acknowledgment by greeting colleagues, checking in, and showing appreciation. Support psychological safety by being open, respectful, and inclusive in all interactions. 	Individual
<i>Enabling productivity</i>	
<ul style="list-style-type: none"> Support communities of practice to strengthen communication and learning across teams. 	Organization
<ul style="list-style-type: none"> Agree on shared focus time norms and signals to minimize interruptions. Celebrate achievements and set short-term goals to maintain momentum and reinforce purpose. 	Team
<i>Supporting well-being</i>	
<ul style="list-style-type: none"> Maintain flexibility and autonomy in hybrid work to support stress reduction and work-life balance. Rebuild social connections through cultural groups, sports clubs, and company-wide events. Invest in ergonomic workstations and physical well-being facilities such as gyms or activity spaces. 	Organization

Practical recommendation	Responsibility level
<ul style="list-style-type: none"> Organize periodic in person gatherings such as shared lunches or days to strengthen relationships. 	Team
<ul style="list-style-type: none"> Stay socially connected by joining shared activities or informal interactions. 	Individual
<i>Enabling innovation and brainstorming</i>	
<ul style="list-style-type: none"> Provide high-quality digital tools for virtual ideation. 	Organization
<ul style="list-style-type: none"> Prioritize in person innovation sessions when feasible to leverage faster discussion flow and visual cues. 	
<ul style="list-style-type: none"> Invest in structured hackathons and brainstorming events with clear agendas. 	Team
<ul style="list-style-type: none"> Assign a skilled facilitator for every hackathon or brainstorming session to ensure participation and focus. 	
<ul style="list-style-type: none"> Use digital collaboration tools actively during virtual brainstorming to become accustomed to using digital collaboration tools. 	Individual

7. Conclusions

This research set out to explore how to organize hybrid work in agile software engineering and to identify practices that support productivity, sense of belonging, well-being, and innovation. Through empirical data collected from multiple organizations using interviews, surveys, and workshops, the research demonstrates that hybrid work is not a static arrangement but a socio-technical system shaped by organizational context, and individual preferences.

The findings indicate that while employees strongly value flexibility and autonomy in choosing where to work, they also recognize the importance of coordinated in-person interaction for collaboration, alignment, and social connection. Office presence is valued primarily for meaningful interaction rather than proximity alone, particularly in teams where members are geographically distributed. At the team level, many practitioners expressed a desire to move beyond purely individual office attendance toward more coordinated, either fixed or ad hoc, team office days.

The research further shows that organizing effective hybrid work requires intentional design of agile events and collaboration norms, as well as investment in social connection and knowledge-sharing through communities of practice, team days, and unit-level events. Designing workspace infrastructure plays an enabling role, while coaching and continuous experimentation are essential for maintaining and adapting hybrid practices as organizational conditions evolve.

To synthesize these insights, the research proposes a conceptual house model that positions organizational context and individual preferences as the foundation for hybrid work design, with team-level office co-presence guidelines and hybrid work practices enabling desirable outcomes. Overall, the results emphasize that successful hybrid work cannot be achieved through prescriptive policies alone, but rather through context-sensitive, team-driven, and continuously evolving practices.

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