Hybrid Work in Agile Software Engineering: Current Research and Future Directions

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Abstract. Hybrid work has become the new normal in post-pandemic software engineering. It is a timely topic that has attracted increasing attention among software engineering practitioners and researchers alike. In this paper, we summarize the findings from the third *International Workshop on Global and Hybrid Work in Software Engineering* (GoHyb) that was organized in conjunction with the XP 2025 conference. We present future research topics related to hybrid work in agile software engineering, which were brainstormed and collected during the workshop, supplemented with a systematic review of the literature on current and future research topics.

Keywords: Research directions · Hybrid work · Agile software engineering · Agile software development.

1 Introduction

Hybrid work in agile software engineering, which combines work in and outside offices [6], appears to be here to stay. Despite the sudden shift to remote work during the Covid-19 pandemic, productivity in software engineering seemed to remain stable, with many employees reporting good or excellent performance [4,19], and we learned that remote work could provide flexibility and better work-life balance for employees [17,5].

Soon after the pandemic, software companies started their journey from full remote work, towards the 'new normal', by adopting flexible hybrid work policies [18]. While remote work has many benefits, as mentioned, research has shown that hybrid work environments can weaken face-to-face interactions, reducing the sense of belonging and team cohesion [21,10], which are vital factors for motivation, performance, and team resilience [20]. Some studies also claim that turnover rates increased, and job satisfaction decreased [14], with reduced commitment and work quality as a result [7].

Later, companies started implementing explicit hybrid work policies, e.g., requiring employees to visit the office two to three days per week [9,8,11,16]. Recently, several large software-intensive companies have been pushing more rigid in-office mandates, requiring employees to work four, or even five days per week at the office, which raises the question: Does this development indicate that hybrid work in software engineering is going to disappear in the future?

We believe the opposite. We expect hybrid work to remain and stabilize as the new norm for organizations in the software engineering industry. Companies will need to find a balanced setup that meets their needs, is profitable for the company, and attracts talented employees. However, achieving this requires both effort and research-based insights to help companies determine: 1) effective hybrid work practices, and 2) appropriate hybrid work policies tailored to their specific circumstances. To support companies in this process, the software engineering research community must further investigate these topics and deliver practical, evidence-based advice. This will enable companies to make informed decisions based on solid research rather than relying solely on gut feeling.

To support research efforts in hybrid work in agile software engineering and to build a community around the topic, we have organized three yearly workshops: *The International Workshop on Global and Hybrid Work in Software Engineering* (GoHyb). In this paper, we summarize the findings from the third edition of the GoHyb workshop (GoHyb 2025)[3], which was organized in conjunction with *The 26th International Conference on Agile Software Development* (XP 2025)[4]. We present topics for future research that were brainstormed and collected during the workshop, supplemented with a systematic review of the literature on current and future research topics.

2 Methodology

We integrate qualitative data from the GoHyb 2025 workshop with insights drawn from primary studies identified in a forthcoming systematic literature review (SLR) on hybrid work in agile software engineering [12]. The workshop captures researchers' and practitioners' views, while the identified academic studies are analyzed. Together, the insights captured highlight key themes and research gaps.

2.1 Workshop

We organized GoHyb 2025, which took place on the first day of XP 2025, on June 2nd, in Brugg, Switzerland. GoHyb 2025 was a half-day face-to-face workshop consisting of two parts. The first part featured six presentations by the 17 participants, who shared their practical experiences and research findings on hybrid work in software engineering. The main topics covered in these presentations included:

- Differences in software engineers' perceived productivity based on work style [2],
- Experiences of novice programmers with hybrid versus in-person pair programming,
- The importance of shared team purposes in hybrid work environments,
- Factors influencing trust within hybrid software development teams [22],
- Burnout and resilience in software engineering.

The second part of the workshop began with a keynote by Hendrik Esser titled *The Evolution of Hybrid Work at Ericsson: Experiences, Learnings, and Challenges,* followed by an interactive session titled *Hybrid Work in Agile Software Development:*

[3] GoHyb 2025: https://conf.researchr.org/home/xp-2025/gohyb-2025
[4] XP 2025: https://conf.researchr.org/home/xp-2025

What Should We Research Next? Creating a Research Agenda. This interactive session aimed to brainstorm future research topics and was attended by 12 researchers and agile practitioners from around the world.

In the interactive session, we applied a modified version of the 1–2–4–All technique from the Liberating Structures framework [13], where step '4' was omitted, resulting in a streamlined '1–2–All' format. First, participants were asked to individually write down topics related to hybrid work in agile software engineering on sticky notes, specifically addressing the question *'What should we research next?'*. After a few minutes of individual reflection, the participants formed pairs to discuss, elaborate on, and expand their ideas. Finally, each pair presented their ideas to the whole group, one after another, until all contributions had been shared. We recorded the presentations of the pairs with their consent and used the transcriptions and the sticky notes as data sources for this research.

2.2 Systematic Literature Review

To complement the workshop findings, we analyzed the studies identified in our forthcoming SLR on hybrid work in agile software engineering [12]. The SLR focuses on peer-reviewed studies published in English between 2020 and 2025, which were conducted in professional agile software engineering settings with hybrid work. Primary studies were identified by combining searches carried out in five digital databases (IEEE Xplore, Scopus, ACM, SpringerLink, and ScienceDirect) in June and July 2025 with snowballing [15]. The query used in the databases combined three groups of keywords related to 'hybrid work', 'agile', and 'software engineering', respectively. After identification of 1185 records via the databases, subsequent screening for duplicates and relevance, and carrying out snowballing, 32 primary studies have been included to date (listed in Table 1).

As this paper focuses on research agendas, we chose the following three areas to explore in the primary studies: 1) investigated research topics, 2) research methodologies used, and 3) suggested research topics. Each primary study was coded using inductive thematic analysis to extract information about these three areas. This analysis provides a structured overview of existing literature and helps to contextualize the workshop results.

3 Workshop Outcomes: Suggested Topics for Future Research

Fig. 1 presents each of the 49 topics suggested by academic and industry participants during the workshop. While some topics overlap, they collectively reflect a diverse range of concerns about the future of hybrid work in agile software engineering. Each topic is assigned an ID (T01, T02, etc.) for reference. We categorized suggested topics using socio-technical systems (STS) theory, which examines the interaction between social (human-centered) and technical (tools and processes) elements [1], a fitting framework since hybrid work and agile software engineering both rely on this interplay [3]. We classified the topics into four categories: 1) social, 2) technical, 3) interaction, and 4) education, which we explain in the following subsections. The topics were also analyzed and the themes and sub-themes identified are discussed further in Section 6.

Table 1. List of primary studies

ID	Year	Authors	Title
P01	2021	Masood et al.	How New Zealand Software Companies Are Adapting Work Settings With Changing Times
P02	2022	Jackson et al.	Team Creativity in a Hybrid Software Development World
P03	2022	Neumann et al.	What Remains from Covid-19? Agile Software Development in Hybrid Work Organization
P04	2022	Sporesem and Moe	Coordination Strategies When Working from Anywhere
P05	2022	Sporesem et al.	Unscheduled Meetings in Hybrid Work
P06	2022	Tkalich et al.	What Happens to Psychological Safety When Going Remote?
P07	2022	Wang et al.	Co-Designing for a Hybrid Workplace Experience in Software Development
P08	2022	Šmite and Moe	Defining a Remote Work Policy: Aligning Actions and Intentions
P09	2022	Ågren et al.	Agile Software Development One Year into the COVID-19 Pandemic
P10	2022	Šmite et al.	Half-Empty Offices in Flexible Work Arrangements: Why are Employees Not Returning?
P11	2023	Bablo et al.	Overcoming Challenges of Virtual Scrum Teams: Lessons Learned Through an Action Research Study
P12	2023	Büyükgüzel and Balaman	The Spatial Organization of Hybrid Scrum Meetings: A Multimodal Conversation Analysis Study
P13	2023	Büyükgüzel and Mitchell	Progressivity in Hybrid Meetings: Daily Scrum as an Enabling Constraint for a Multi-Locational Software Development Team
P14	2023	Kemell and Saarikallio	Hybrid Work Practices and Strategies in Software Engineering - Emerging Software Developer Experiences
P15	2023	Tkalich et al.	Pair Programming Practiced in Hybrid Work
P16	2023	de Souza Santos et al.	Post-pandemic Resilience of Hybrid Software Teams
P17	2023	Moe et al.	Attractive Workplaces: What Are Engineers Looking for?
P18	2023	Jaspan and Green	Developer Productivity for Humans, Part 2: Hybrid Productivity
P19	2023	Smith et al.	Pandemic Asteroid Defense: DART Integration and Test in the time of COVID-19
P20	2023	Canedo et al.	Navigating Remote Work: Challenges and Adaptations of Agile Teams Amidst Covid-19
P21	2023	Liu et al.	Organizational Debt in Large-Scale Hybrid Agile Software Development: A Case Study on Coordination Mechanisms
P22	2023	Adil et al.	"Let's Discuss it in a Team Meeting!" Collaboration Challenges of Distributed Software Design
P23	2024	Moe et al.	Understanding the Difference between Office Presence and Co-presence in Team Member Interactions
P24	2024	Molléri et al.	Transformation to a Hybrid Workplace: A Case from the Norwegian Public Sector
P25	2024	Stray and Barbala	Slack Use in Large-Scale Agile Organizations: ESN Tools as Catalysts for Alignment?
P26	2024	Lisboa de Andrade et al.	Developing a Collaborative Recommendations Guide for Hybrid Software Development: A Focus Group Study
P27	2025	Šmite et al.	Dual Effects of Hybrid Working on Performance: More Work Hours or More Work Time
P28	2025	Stray et al.	Hybrid Meetings in Agile Software Development
P29	2025	Christensen et al.	Hybrid Work in Agile Software Development: Recurring Meetings
P30	2025	Christensen et al.	On the Evolution of Agile Software Team Work Arrangements
P31	2025	Hyrynsalmi et al.	Fostering a Sense of Belonging in Hybrid Work Within Agile Software Development
P32	2025	Zaidman et al.	Where is the Best Location to Conduct Scrum Meetings? A Quantitative and Qualitative Analysis of Developers' Perspectives

Social topics focus on human aspects such as motivation, autonomy, well-being, retention, and team culture, highlighting the social dimension of hybrid work in agile software engineering.

Several social topics explore motivation to return to the office (T01, T02, T03), the balance between individual autonomy and organizational structure (T14, T15), and issues related to burnout and stress (T07, T08). Others emphasize maintaining healthy team dynamics and a strong organizational culture (T05, T06, T10), while some address demographic and sector-specific factors that shape hybrid work experiences (T09, T12, T13). Additional topics focus on enhancing employee well-being and engagement (T03, T11, T16, T17). In total, 17 topics fall under the social category, representing approximately 35% of all suggestions, reflecting the strong emphasis participants placed on the human aspects of hybrid work in agile software engineering.

Social topics: **T01** - Investigating motivations to return to the office **T02** - Encouraging empathy and motivation for office return **T03** - Do employees really quit when forced back to office? **T04** - Multitasking in hybrid meetings: distraction or efficiency booster? **T05** - How to foster a shared purpose in hybrid contexts? **T06** - How to maintain the healthy tension for optimal performance in hybrid teams? **T07** - Understanding burnout among women in ICT hybrid work environments **T08** - Does hybrid work increase stress for developers? **T09** - How do different sectors deal with hybrid work? **T10** - Organizational culture change in shift to hybrid work **T11** - Why do so many developers prefer remote work? **T12** - Demographic factors influencing work mode preferences **T13** - Hybrid work experiences: comparing junior and senior employees **T14** - Impact of forced office presence on employee autonomy **T15** - Autonomy in hybrid work: individual, team, and organizational perspectives **T16** - How to motivate people to work in the office? **T17** - Decision making in hybrid work environments	**Social and technology interaction topics:** **T25** - Balancing individual and team habits in hybrid work **T26** - Strategies for managing in-office days in hybrid work **T27** - Challenges of in-office presence in distributed teams **T28** - Team collaboration across time zones in hybrid setups **T29** - How to decrease digital fatigue at hybrid work? **T30** - How to adapt agile methodology to hybrid work? **T31** - Role of managers in hybrid work **T32** - Hybrid interactions: how to define them? how to encourage strong and light hybrid interactions? **T33** - Sustaining hybrid work in agile software development: practices for long term **T34** - Role of the scrum master in hybrid agile teams **T35** - Coordinating remote and on-site workers in hybrid environments **T36** - Integrating collaboration tools for better information visibility in hybrid work **T37** - Does hybrid work complicate agile methodologies? **T38** - Agile coaching in hybrid teams: challenges and adaptations **T39** - Tradeoffs in hybrid work: benefits, drawbacks, and mitigation strategies **T40** - What to do during office days? **T41** - Long term effects of hybrid work **T42** - Investigating the impact of hybrid work on team performance **T43** - Optimizing retrospectives in hybrid agile teams **T44** - Agile practices: what should be in-person or remote? **T45** - Designing the optimal flow between home and office days in hybrid teams
Technical topics: **T18** - Are virtual offices viable substitutes for physical workspaces? **T19** - Algorithmic management in hybrid work: impacts and implications **T20** - Leveraging AI to optimize hybrid work environments **T21** - Developing a burnout detection tool for hybrid workers **T22** - Evaluating the effectiveness of digital collaboration tools in hybrid work **T23** - Digital infrastructure for sustainable hybrid work **T24** - Role of collaboration tools in hybrid work	**Education topics:** **T46** - How can we prepare students for the office first mode as they are pandemic sons? **T47** - How to teach students to survive in hybrid work environments? **T48** - How does education prepare for hybrid work? **T49** - Hybrid teaching in higher education: challenges and strategies

Fig. 1. Suggested topics by workshop participants.

Technical topics center on tools, systems, infrastructure, and the role of technology in enabling or constraining hybrid work in agile software engineering. They highlight both the potential and limitations of technology in supporting hybrid work in agile software engineering environments. Some suggested topics in this category are the use of virtual offices as substitutes for physical spaces (T18), the influence of algorithmic management and AI-driven optimization (T19, T20), and the development of supportive tools such as burnout detection systems (T21). Other technical topics address the evaluation and improvement of digital collaboration tools and infrastructure (T22, T23, T24). In total, seven topics fall under the technical category, representing approximately 14% of all 49 topics. This shows that while technology is a critical enabler of hybrid work in agile

software engineering, its role is specific and focused, complementing the social and interaction aspects rather than dominating them.

Social and technical interaction topics explore the relationship between people and technology, including collaboration practices, agile practices, and organizational adaptations. The interaction category reflects the coordination challenges at the core of hybrid work in agile software engineering, where individuals, processes, and tools must align across time and space. The topics address how individual and team habits evolve in hybrid environments (T25), strategies for managing office days and transitions between work modes (T26, T40, T45), and navigating distributed team presence (T27, T28). Several topics focus on agile practices, such as adapting methodologies (T30, T37), agile coaching (T38), and optimizing retrospectives (T43), as well as redefining roles like Scrum Master and managers (T31, T34). Other topics include collaboration between remote and on-site employees (T35), balancing interaction intensity (T32), and improving tool-supported visibility (T36). Broader concerns, such as sustaining hybrid work in agile software engineering (T33), evaluating long-term impacts (T41), and understanding trade-offs in performance and coordination (T39, T42, T44), underscore the evolving nature of hybrid work. With 21 topics in total, the interaction category represents approximately 43% of all suggestions, making it the most prominent area of interest among participants.

Education topics focus on preparing students and future professionals for hybrid work through education and training. We grouped these topics in their own category, to emphasize the role of academia in fostering hybrid work readiness. The four included topics (T46, T47, T48, T49) reflect growing recognition of the need to align educational practices with evolving work realities. Suggestions were provided about preparing students for hybrid work, teaching effective practices to survive in these environments, and supporting smoother transition from academia to industry. The education topic category represents approximately 8% of all 49 suggestions, highlighting a focused but important interest in equipping the next generation for hybrid work in agile software engineering.

4 Investigated Research Topics in Primary Studies

In the 32 primary studies (see Table 1) on hybrid work in agile software engineering identified through our SLR, thematic analysis revealed five major, interconnected themes, and multiple sub-themes, regarding the investigated topics. An overview of the themes and sub-themes is shown in Table 2. The recurrence of several themes within the same studies reflects the intertwined nature of organizational, technical, and human considerations in hybrid work within agile software engineering contexts.

Work setting and organizational adaptation, the most prominent theme (n=18) reflects how organizations adjust structurally to hybrid work in agile software engineering environments. It includes work mode preferences and office presence (e.g., employee office presence and motivations for remote vs. office work), adaptations in daily work practices (e.g., modifying workflows, tools, and collaboration methods), and changes in work arrangements and policies (e.g., evolving company rules and flexible work guidelines).

Table 2. Overview of thematic analysis of topics investigated in the primary studies

Theme (n)	Sub-theme (n)	Evidence
Work setting and organizational adaptation (18)	Work mode preferences and presence (7)	P03, P08, P10, P14, P23, P27, P32
	Work practices adaptation in hybrid work (6)	P01, P09, P11, P24, P26, P30
	Work arrangements and policies (5)	P07, P08, P17, P26, P30
Coordination, communication and collaboration (16)	Collaboration and communication challenges and recommendations (8)	P04, P09, P11, P20, P21, P22, P23, P25
	Meeting practices and challenges (8)	P04, P05, P09, P12, P13, P28, P29, P32
People considerations (15)	Productivity and well-being (5)	P09, P11, P18, P20, P27,
	Employee motivation and retention (4)	P09, P10, P14, P17
	Social connectedness (3)	P09, P16, P31
	Psychological safety and empowerment (2)	P06, P09
	Creativity and innovation (1)	P02
Agile practice adaptation (8)	Agile practices in hybrid work (8)	P03, P09, P11, P15, P19, P20, P29, P32
Technology and tools (4)	Tool usage and adoption (4)	P09, P19, P20, P25

Coordination, communication, and collaboration (n=16) is the second most prominent theme, highlighting key challenges in hybrid work within agile software engineering and providing recommendations to address them. It focuses on collaboration and communication challenges, such as breakdowns, misalignment, and limited real-time interaction. Additionally, it covers meeting practices and challenges, where virtual meetings and asynchronous communication can reduce transparency and delay feedback.

The *people considerations* theme (n=15) highlights how hybrid work impacts individuals, teams, and organizations on human and social levels. It covers how hybrid arrangements influence productivity and well-being, including focus and stress; employee motivation and retention, addressing engagement and job satisfaction; social connectedness, reflecting the need for informal bonding and cohesion; psychological safety and empowerment, focusing on employees' ability to speak up and feel autonomous; and creativity and innovation.

The *agile practice adaptation* theme (n=8), explores how agile events, workflows, and team structures are modified for hybrid work. Adjustments to stand-ups, retrospectives, and sprint planning are common, along with increased reliance on digital tools. One key insight is that agile frameworks must evolve intentionally to balance structure and flexibility in hybrid settings.

Finally, the theme *technology and tools* (n=4), while supported by a smaller set of studies, underpins many of the challenges and solutions discussed across the other themes. Tool adoption is critical for enabling teams in hybrid work arrangements to collaborate effectively, manage tasks transparently, and remain aligned. However, this topic is limited in the studies, compared to other topics, suggesting that technology alone is not enough to ensure agility.

5 Research Methodologies in Primary Studies

This section examines the research methodologies employed in the 32 primary studies (see Table 1) identified through our SLR. An overview of the research designs used in the studies is shown in Fig. 2, while the employed data collection methods are shown in

Fig. 3. More detailed information about the research designs and data collection methods is made available in the supplementary materials[5].

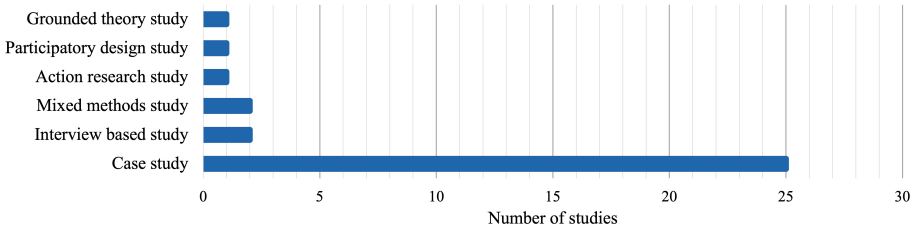

Fig. 2. Research designs used in the primary studies.

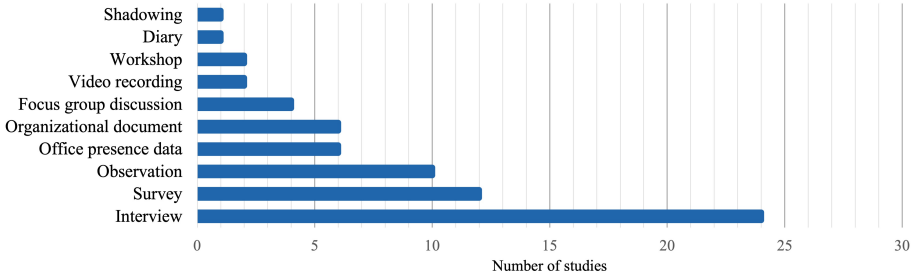

Fig. 3. Data collection methods used in the primary studies.

As shown in Fig. 2, the majority of primary studies (25 studies) adopted a case study research design, which are useful for providing in-depth insights into the evolving nature of hybrid work in agile software engineering. The dominance of case studies suggests a need for deep, contextualized insights into how hybrid work is implemented and experienced in agile software engineering environments. Interestingly, longitudinal case studies (P06, P08, P17, P18, P26, P30) provided valuable perspectives on temporal changes, such as shifts in team dynamics and employee motivations over time, highlighting the dynamic nature of hybrid work, rather than treating it as a static configuration.

Two studies were interview-based and two utilized mixed methods, where participants were not drawn from a specific case context. This highlights opportunities to diversify research designs and complement qualitative insights with quantitative or experimental approaches. Research designs such as action research, participatory design, and grounded theory were rarely used, but offer valuable and underexplored perspectives. For example, the lone study utilizing participatory co-design (P07) points to a gap in this approach.

[5] Supplementary materials: https://doi.org/10.6084/m9.figshare.29433200.v1

Similarly, grounded theory (P16), used in just one study, holds strong potential for developing theory as hybrid practices evolve.

As shown in Fig. 3, while the studies employed a diverse range of data collection methods, there was a strong reliance on interviews (24 studies) and surveys (12 studies). These methods effectively capture subjective experiences, but can potentially introduce self-reporting bias and limit insight into actual behaviors. Some studies incorporated contextual data through observation and shadowing, which is crucial to gain an understanding of how hybrid work is truly carried out. Notably, few studies collected data through video recordings (P12, P13) or diary entries (P18). These methods could offer deeper insights into day-to-day decision-making, stress patterns, or collaboration rhythms, which are particularly important for examining factors like digital fatigue or autonomy.

6 Future Research Directions

An overview of themes and sub-themes identified in the suggested research topics of the 32 studies, and in the topics suggested by the workshop (WS) participants is shown in Table 3. The themes and sub-themes identified in the suggested topics, in both the studies and the workshop (shown in Table 3) are largely consistent with those identified in the investigated study topics (see Table 2).

Table 3. Overview of thematic analysis of suggested topics in primary studies and workshop

Theme (Total, Studies, WS)	Sub-theme (Total, Studies, WS)	Evidence from studies and the workshop topics
Work setting and organizational adaptation (41, 26, 15)	Work arrangements and policies (13, 10, 3)	Studies: P01, P07, P08, P10, P17, P18, P24, P26, P29, P30 WS: T09, T10, T31
	Work practices adaptation in hybrid work (17, 10, 7)	Studies: P01, P03, P04, P07, P10, P16, P18, P22, P26, P30 WS: T04, T17, T26, T33, T40, T41, T45
	Work mode preferences and presence (11, 6, 5)	Studies: P03, P09, P10, P23, P29, P32 WS: T11, T12, T13, T27, T45
People considerations (36, 19, 17)	Productivity and well-being (13, 5, 8)	Studies: P07, P16, P18, P24, P27 WS: T06, T07, T08, T15, T21, T29, T42, T45
	Employee motivation and retention (9, 4, 5)	Studies: P03, P17, P20, P23 WS: T01, T02, T03, T14, T16
	Social connectedness (6, 4, 2)	Studies: P04, P09, P17, P31 WS: T05, T06
	Psychological safety and empowerment (5, 3, 2)	Studies: P06, P08, P09 WS: T14, T15
	Creativity and innovation (3, 3, 0)	Studies: P02, P07, P18
Coordination, communication and collaboration (22, 14, 8)	Collaboration and communication challenges and recommendations (13, 7, 6)	Studies: P04, P18, P21, P22, P23, P25, P30 WS: T25, T28, T32, T35, T36, T39
	Meeting practices and challenges (9, 7, 2)	Studies: P05, P12, P13, P18, P28, P29, P32 WS: T04, T43
Agile practice adaptation (12, 6, 6)	Agile practices in hybrid work (12, 6, 6)	Studies: P03, P14, P15, P20, P25, P32 WS: T30, T34, T37, T38, T43, T44
Technology and tools (12, 5, 7)	Tool usage and adoption (13, 6, 7)	Studies: P04, P05, P10, P12, P25 WS: T18, T19, T20, T22, T23, T24, T29
Educating students to hybrid work (4, 0, 4)	Education (4, 0, 4)	WS: T46, T47, T48, T49

The relative frequency distribution of each theme in all three sources, i.e., topics investigated in the studies, topics suggested in the studies, and topics suggested in the workshop, are shown in Fig. 4. The strongest theme across all sources, *work setting and organizational adaptation*, emerges as the most prominent in the investigated study topics (29.5%), suggested study topics (37.1%), and workshop data (26.3%). Notably, the topics proposed in both the primary studies and the workshop closely mirror those already investigated, indicating a shared understanding of the critical role structural and cultural adjustments play in hybrid work. A consistent trend across all sources is the growing emphasis on formalizing hybrid work policies and refining day-to-day practices, highlighting this area as an increasingly central research priority.

People considerations are prominent as suggested topics in both the studies and the workshop. While the investigated topics in the studies show moderate attention to this area (24.6%), suggested study (27.1%) and workshop topics (29.9%) emphasize it even more. Sub-themes, such as productivity and well-being, motivation, and retention, were particularly discussed in the workshop, highlighting a strong focus on human factors in hybrid teams. This reflects a clear trend: a shift from focusing solely on structural changes like policies toward prioritizing employee experience, with a growing interest in sustaining engagement and well-being in hybrid work within agile software engineering environments.

The theme of *coordination, communication, and collaboration* receives notably less emphasis in suggested study topics compared to investigated ones, appearing in 26.2% of the investigated study topics, 20% of the suggested study topics, and only 14% of the topics suggested in the workshop. While communication issues are generally well understood, the decreasing trend might indicate that communication is increasingly seen as a familiar challenge in hybrid work within agile software engineering, while more attention is leaning toward adaptability and employee well-being as the more urgent priorities.

The *agile practice adaptation* theme is consistently represented across all sources, with a slight decrease from investigated to suggested topics. The slightly lower representation of this theme, compared to the previously mentioned themes, indicates that while

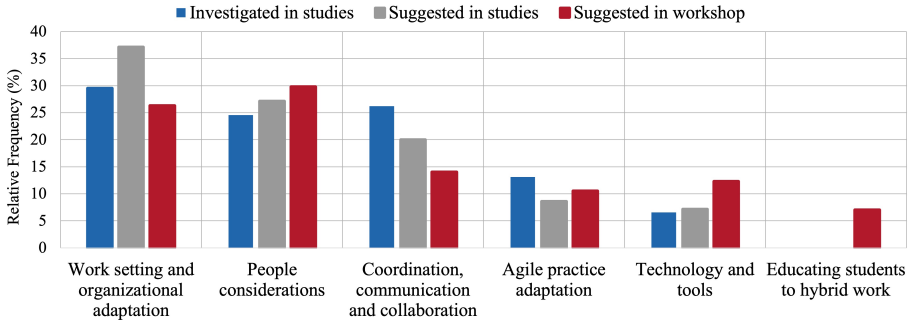

Fig. 4. Topic distribution across themes.

agile adaptation is ongoing, work setting and organizational adaptation, and people considerations, take the highest priority.

The *technology and tools* theme is mentioned across all sources but remains peripheral, with low representation overall. The focus is mainly on tool usage, reflecting their role as enablers of hybrid work rather than central research topics. However, with the rise of AI, topics suggested, particularly in the workshop, highlight the potential of AI-based tools for optimizing and managing hybrid work, creating virtual offices, and detecting burnout, which suggests new and emerging areas of interest.

Finally, the theme *educating students to hybrid work* emerged only in the suggested topics from the workshop and is absent from the study topics. This highlights a forward-looking concern among workshop participants regarding training and education. The lack of instances of this theme could indicate a gap in academic discourse, presenting a potential opportunity for future research in hybrid work within agile software engineering. However, our SLR concentrates on hybrid work in professional environments; thus, this topic may be explored more in educational publications.

7 Final Remarks

The methodological landscape of the primary studies reveals a strong preference for empirical, context-specific investigations, particularly case studies, reflecting the complexity of hybrid work in agile software engineering environments and the importance of understanding these dynamics in in the actual context. Grounded theory and longitudinal case studies are promising methodological approaches that would benefit from more attention. Longitudinal studies are particularly valuable, as many workshop participants expressed concern about the long-term impacts of hybrid work in agile software engineering. Grounded theory, on the other hand, is well-suited for exploring areas where existing theories fall short or are still emerging. Given that hybrid work in agile software engineering is a relatively new and evolving phenomenon, grounded theory allows researchers to build new conceptual frameworks directly from the lived experiences of practitioners. Moreover, there is a heavy reliance on interviews and surveys, which effectively capture subjective experiences. Future research could however benefit from adopting more objective data collection methods, as well as combining different methods, to provide a richer, more balanced, and broader understanding of hybrid work in the context of agile software engineering.

From a topic viewpoint, we can see that while, for example, communication has been extensively studied and is now considered a well-understood challenge, work setting and organizational adaptation issues continue to dominate research agendas. Despite this theme being investigated heavily in the studies, companies still struggle to define effective strategies and policies for hybrid work, suggesting that ‘one size fits all’ solutions are inadequate and that sector- or industry-specific studies are urgently needed, as also suggested in the workshop and the reviewed literature. Workshop topics also emphasize defining office presence, structuring office days to maximize value, clarifying the managerial role, and decision-making in hybrid work within the context of agile software engineering. Sub-themes under people considerations, such as motivation, retention, well-being, and productivity represent a growing trend in hybrid work research

within agile software engineering. Meanwhile, academic preparation of students emerges as an important, yet under-researched area, highlighting critical gaps and opportunities for future exploration. In addition, the use of AI-based tools as enablers of hybrid work has great interest, as identified in the suggested workshop topics and in the literature.

However, the frequency of which a topic is mentioned, in the workshop or in literature, does not necessarily reflect its' importance or urgency. Some critical issues may be overlooked entirely, highlighting the need for researchers to prioritize practical significance, long-term impact, and contextual relevance.

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