Journal of Software: Evolution and Process

WILEY

Software: Evolution and Process

RESEARCH ARTICLE - METHODOLOGY OPEN ACCESS

Mitigating Communication-Related Process Loss in Agile Teams: A Case Study on Common Ground and Role-Based Interaction

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Received: 30 April 2025 | **Revised:** 18 November 2025 | **Accepted:** 26 February 2026

Keywords: agile software development | common ground | communication in software teams | process loss | Scrum ceremonies | socio-technical systems | software process improvement

ABSTRACT

Agile software development frameworks such as Scrum were designed around structured communication ceremonies intended to keep teams aligned. Yet the alignment fostered by ceremonies does not automatically translate into a shared understanding, leaving a gap that remains a major source of communication-related process inefficiency. This case study investigates how a lack of common ground undermines effective collaboration—a key driver of project success in Agile settings. Based on semi-structured interviews with experienced Agile team leaders, the study reveals that Agile ceremonies alone are indeed insufficient to ensure the knowledge sharing and common ground necessary for efficient collaboration. The findings highlight the need to distinguish communication purposes across stakeholder roles, introducing the concept of role-based communication interfaces as a means of strengthening shared understanding of objectives, requirements, and priorities. By viewing Agile teams as social systems, this study identifies targeted strategies to mitigate process loss through structured, purpose-driven communication frameworks. The study contributes to the understanding of how Agile practices can evolve to better address communication challenges, offering practical guidance for improving software development processes in real-world team environments.

1 | Introduction

Agile software development (ASD), as articulated in the Agile Manifesto with its four core values and 12 guiding principles [1], was designed to address the challenges of a volatile, uncertain, complex and ambiguous environment (VUCA) [2, 3]. The principles translate into practices that help teams cope with such conditions: Iterative delivery cycles help manage volatility, adaptability mitigates uncertainty in evolving requirements [4], cross-functional collaboration addresses complexity, and stakeholder feedback reduces ambiguity [5, 6]. Within the values defined in the Manifesto, collaboration and communication are positioned as central mechanisms for coordinating work and responding effectively to change.

Agile project management (APM) emphasizes direct customer involvement and the ability to adjust or even redirect projects in response to change [7], offering a sharp contrast to predictive, plan-driven methods that aim to lock scope, time, and cost through extensive up-front planning [8]. However, because Agile relies on continuous interaction and alignment to manage change, insufficient communication between team members can result in misinterpreted requirements, costly rework, and frustration. The persistence and impact of such issues have

TABLE 1 | Scrum elements and their communicative functions.

Scrum element	Communicative function
Roles (Product Owner, Scrum Master, Development Team)	Continuously negotiate priorities, facilitate collaboration and other team processes
Events (Sprint Planning, Daily Stand-up, Sprint Review, Retrospective)	Provide structured opportunities for alignment, knowledge-sharing, feedback exchange, and collective learning
Artifacts (Product Backlog, Sprint Backlog, Increment)	Serve as shared "representations" of work that enable transparency, coordination, and communication across roles

made them critical concerns in Agile contexts, drawing sustained attention from both researchers and practitioners seeking to understand and address them.

To better situate these challenges, researchers have connected Agile practices to broader theoretical foundations. These include people-centered theories (e.g., customer-centricity, self-managed groups, psychological safety), process-oriented models (e.g., lean and agile manufacturing, iterative development), and systems-based approaches (e.g., systems theory, socio-technical systems, theory of constraints) [9, 10]. From a systems perspective, Agile teams are viewed as complex social systems whose performance depends on how well interdependent parts coordinate and share information [11–13]. From a people-centered perspective, concepts such as customer-centricity, self-managed groups, and psychological safety emphasize that effective communication and interaction are prerequisites for trust, collaboration, and performance in Agile teams [14–17]. From a process-oriented perspective, lean and agile manufacturing are often cited as predecessors: Lean manufacturing, rooted in the Toyota Production System, emphasized efficiency through waste reduction, flow, and continuous improvement [18], while agile manufacturing, which emerged in the 1990s, extended this orientation to turbulent and uncertain business environments by stressing flexibility, customer focus, and responsiveness [19]. Crucially, agile manufacturing also highlighted the role of rich information flows across organizational boundaries, recognizing communication was essential for adapting to change [20]. Taken together, these theoretical strands illustrate how ASD emerged at the intersection of systems, people, and process perspectives, with communication and interaction consistently recognized as central mechanisms.

Although APM and ASD draw on a variety of well-established theoretical traditions [9], they remain difficult to situate within a single scholarly framework. Attempts to unify these methods under one theoretical banner have proven challenging, prompting some researchers to suggest that it may be more productive to focus on the everyday connotations of the term "agile," such as flexibility and leanness [9], or nimbleness and responsiveness [10], rather than seeking a formalized theory. Others argue that the 12 principles of the Agile Manifesto may either be too vague to constitute a coherent theoretical foundation [21], applicable only retrospectively rather than prospectively, or even essentially a-theoretical, serving more as guiding heuristics than as a formal framework [22]. This lack of theoretical clarity also extends to the role of communication where the principles imply its importance but offer little guidance on how understanding should be established across interfaces such as roles, teams or stakeholders.

It is not only researchers who have pondered over the success rates of ASD in practice. Industry experts and analysts have also engaged in critical reflection on whether mainstream Agile has delivered on its initial promise. Conclusions vary: Some identify leadership and organizational culture [23, 24] as the main causes of failure, while others make more radical claims, for example, declaring Agile "dead" [25] or dismissing it as a "stupid idea to begin with" [26]. What practitioners and researchers alike seem to agree on, however, is that Agile may have begun with good intentions but has too often failed to deliver the expected results, leaving many to reconsider whether its foundational principles are being misunderstood, misapplied, or have been flawed from the outset [27, 28].

Among these many debated causes, *communication* stands out as a central concern [29–32]. Scrum, as one of the most widely adopted agile methodologies, highlights the issue most clearly because it builds its entire rhythm around communication events—daily stand-ups, sprint planning, reviews, and retrospectives. These "ceremonies" are meant to enable seamless knowledge-sharing and quick alignment, yet in practice, they frequently expose communication breakdowns: misunderstandings between developers and product owners (POs), conflicting priorities between business stakeholders and technical teams, loss of information when requirements are translated into backlog items, or coordination failures across distributed teams.

Such problems are not limited to Scrum. They can also be observed in Extreme Programming (XP), Kanban, or Feature-Driven Development (FDD), all of which are software engineering methods driven by the Agile Manifesto and similarly dependent on close, ongoing interaction. What makes Scrum particularly instructive, however, is its widespread adoption and its explicit reliance on communication rituals, which render these challenges especially visible and provide a useful lens for understanding communication issues across the agile umbrella, even though Scrum and comparable Agile methods operate primarily at the single-project level.

While daily stand-ups and retrospectives are among the most prominent communication rituals in Scrum, it should be noted that all Scrum roles, events, and artifacts are inherently interaction-intensive. Table 1 provides an overview of Scrum practices and their communicative function, reflecting the central Agile Manifesto value of "individuals and interactions over processes and tools." This study therefore uses Scrum as a

particularly suitable setting for examining communication challenges in ASD.

Yet the increased opportunities for communication institutionalized by these ceremonies are not in themselves a guarantee of project success. Even with daily standups, reviews, and retrospectives, communication can still break down, lead to misunderstandings, misaligned expectations, or coordination failure. To account for why these breakdowns occur despite Agile's emphasis on interaction and communication, researchers have drawn on theories of communication that offer explanatory frameworks for how and why communication succeeds—or fails—in Agile teams.

Existing research has examined Agile communication from several angles. Some studies have investigated whether knowledge-sharing—the transfer of information within teams—is efficiently achieved through Agile practices [33–35]. Others have analyzed the challenges of scaling Agile to larger and more complex projects, where communication quality often suffers and teams increasingly rely on tools to substitute for informal, face-to-face exchanges [36–38]. Further areas of inquiry have highlighted the role of communication in enabling trust [15] and in shaping decision-making [39, 40]. Across these strands of research, the effectiveness of knowledge-sharing, trust, and decision-making is shaped by how well information is exchanged and understood.

To explain these communication challenges, scholars have drawn on a range of theoretical frameworks, including media richness theory [41, 42], models of computer-mediated communication [32], and distinctions between synchronous and asynchronous [43] or formal and informal exchange modes of communication [29, 30, 44]. These perspectives have been valuable in identifying differences between communication settings and media, but they often rest on an undifferentiated conceptual understanding of communication itself. Implicit assumptions include, for example, that more communication is inherently better, that frequent face-to-face meetings automatically build trust, that selecting the "right" medium or using multiple channels can bridge breakdowns, or that simple co-location is sufficient for effective communication. However, research has yet to establish that increased opportunities or higher frequency of communication necessarily improve outcomes in Agile projects [30]. Misinterpretations of requirements, flawed decisions, and distorted information that undermine collaboration remain frequent consequences when communication fails. This raises the question: If intensified communication is not sufficient, then what mechanisms do explain successful communication in ASD?

We think this could be common ground—or lack thereof. To our knowledge, one communication model that has not been applied to Agile methodologies is Herb Clark's *theory of common ground* [45]. Prior approaches explain modes and media of communication but they give less attention to the actual achievement of mutual understanding *during collaboration*. Common ground fills this gap by conceptualizing communication as the knowledge, beliefs, and assumptions people not only share but also acquire while engaging in "joint actions." Establishing common ground, or "grounding" [46], is the dynamic process by which team members ensure that they have understood each other sufficiently to achieve their current goal or communicative purpose. This implies proactively confirming shared understanding, for example, by asking "grounding questions" [46], whether ad hoc (e.g., "Can you explain how that might impact the team's progress this week?") or more formalized as in Scrum's three daily questions [47]. In Agile contexts, this perspective is particularly relevant because ceremonies institutionalize interaction but do not themselves guarantee that mutual understanding is achieved. In this regard, Clark's theory of common ground offers a promising alternative, as it focuses directly on how mutual understanding is achieved in collaboration.

The purpose of this study is to explore how this theory can be applied to Agile teams in order to analyze communication challenges, understand their consequences, and suggest ways to improve team interaction.

To illustrate why common ground is critical in this context, it is useful to consider what happens when communication succeeds—and what happens when it does not. When communication succeeds, members of an ASD team can gradually build a strong common understanding of the objectives, requirements, constraints, and project complexity through ongoing collaboration [48]. Empirical studies show that such understanding improves coordination, trust, and the integration of diverse expertise—qualities linked to higher innovation, more effective decision-making, and progress in Agile teams [49]. Without such common ground, however, collaboration becomes highly prone to costly misunderstandings, particularly of business or customer requirements [50, 51]. The absence of a shared understanding can waste considerable time, undermine efficiency, or render project efforts unproductive, for example, when requirements and objectives are misinterpreted. Moreover, it can impede effective decision-making [52], knowledge-sharing, or foster distrust [53, 54], which can diminish overall team productivity.

Because common ground theory focuses on collaborative activities, one of its main areas of application has been computer-supported cooperative work (CSCW) where it has served as a framework for understanding collaboration and informed the design of effective communication tools such as text-based chat and video conferencing [55, 56]. Yet it is important to differentiate conceptually between the tools that facilitate communication and the sociotechnical systems in which they are embedded. Even the most advanced tools are ineffective if the individuals within the system are unable to communicate skillfully and effectively [57]. Furthermore, Agile methodologies extend beyond technical frameworks to encompass social systems, or—in the case of distributed teams—sociotechnical systems that combine tools and practices to support collaboration. The focus of this investigation, therefore, is not on the tools themselves but on communication as the means by which common ground is established, irrespective of the medium. This perspective allows us to view Agile teams as *social systems* whose success depends on whether common ground is achieved.

It makes sense to view Agile development teams as social systems (Figure 1) because they rely on continuous feedback cycles and adaptive processes to respond to change [32]. In systems theory, a social system is defined by the interactions and

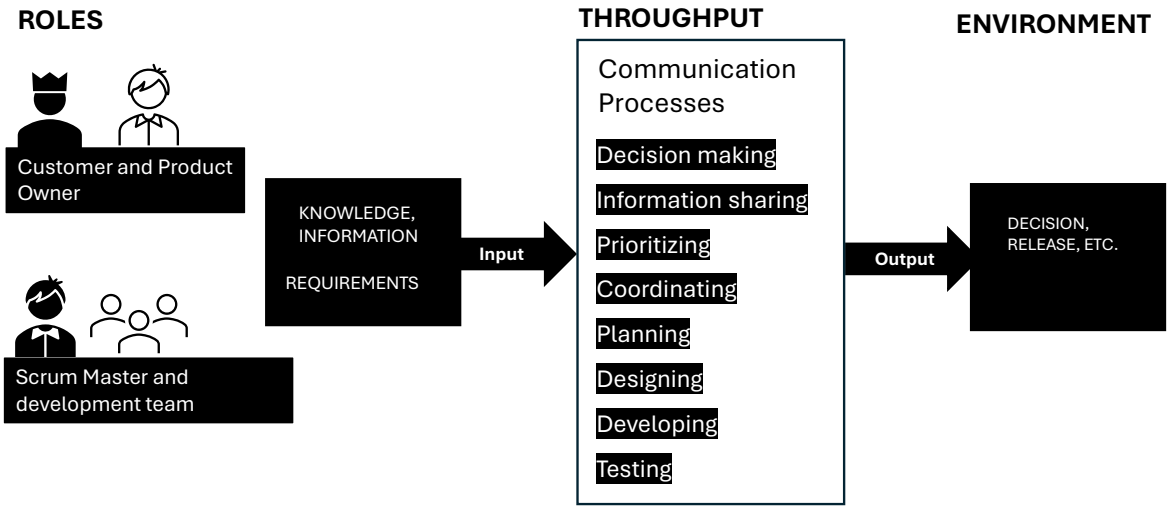

FIGURE 1 | Viewing Agile teams as social systems: Roles provide inputs (knowledge, information, requirements) that are transformed through communication processes (throughput) into outputs such as decisions or releases delivered to the environment. Communication is therefore the central mechanism that enables coordination and adaptation. When common ground is not established, breakdowns in this throughput can result in process losses, reducing overall team performance.

communications through which information flows, decisions are made, and adaptation occurs. Agile teams exhibit all of these characteristics, functioning through interconnected feedback loops and collaborative efforts. From this perspective, communication serves as the system's throughput: Inputs such as team members' knowledge and information are transformed into outputs ranging from specific decisions to deliverables produced in an iteration. When this is disrupted, ensuing communication breakdowns can be understood as process losses that reduce the overall performance of the Agile team.

This paper addresses this gap by exploring how Clark's theory of common ground can be applied to ASD. While prior studies have examined communication frequency, media choice, and co-location, they have not explained how mutual understanding is achieved or why its absence leads to process loss. By framing Agile teams as social systems and conceptualizing communication as throughput, this case study introduces common ground as a novel lens for examining communication challenges in Agile contexts and for generating insights into how these challenges affect team performance.

2 | Research Methodology

2.1 | Research Design

This study adopts a qualitative case study approach to investigate the role of communication in ASD teams, with particular attention given to the concept of common ground. The case study design was selected because it allows for an in-depth exploration of complex social phenomena in real-world contexts, which is especially suitable for studying communication practices in socio-technical environments such as Agile projects [58].

The unit of analysis in this study is *the communication practices of Agile teams within financial services projects*. A single–case study design was chosen, with three projects serving as contextual instances of Agile transformation. This choice enables a richer, more detailed understanding of communication dynamics and grounding processes, which may be obscured in a broader comparative study. The design aligns with the exploratory nature of the research and the aim of developing conceptual insights rather than generalizable laws.

2.2 | Research Questions

To guide the study, we posed three research questions:

RQ1: How does grounding occur in Agile projects, and what factors are essential to ensure common ground?

Purpose: To examine the mechanisms and conditions through which mutual understanding is established and maintained.

RQ2: What are the primary purposes of communication in Agile projects, and to what extent can they be understood as establishing common ground?

Purpose: To test the assumption that establishing common ground or grounding is the overarching purpose of communication in Agile settings.

RQ3: How does the purpose of communication vary across different communication interfaces in Scrum (e.g., Customer/PO, Scrum Master/Development Team, between members of the development team)?

Purpose: To explore whether communication objectives differ according to the role-based interfaces prescribed by Scrum, which may highlight distinct purposes. For example, a PO engages with a customer with the distinct purpose of understanding and prioritizing requirements, whereas interactions among development team members often focus on the technical and operational aspects or efficient task coordination. Similarly, informal, face-to-face communication among

co-located team members can serve different purposes than communication with the customer or management, which tends to be more formal and elicited. Co-location also enables "osmotic" communication [59], that is the incidental absorption of potentially relevant information from the surrounding environment, which may further contribute to creating common ground.

These questions were derived from Clark's theory of common ground and prior literature on Agile communication, and they informed both the design of the interview protocol and the subsequent data analysis.

2.3 | Case Selection

The unit of analysis in this study is the communication practices of Agile teams within financial services projects. To provide contextual grounding for these practices, three Agile projects were selected as empirical settings.

Projects were chosen using purposive sampling, guided by three criteria: (1) They involved Agile methods in complex, sociotechnical environments; (2) communication across multiple organizational and role-based interfaces was central to project success; and (3) access could be secured to project contexts where senior practitioners were willing to participate.

The three projects are briefly outlined below:

Case 1. A bank was shifting to agile ways of working by hiring an offshore IT team to develop new products, with the long-term goal of integrating the team fully into the company.

Case 2. A bank adopting third-party software to improve portfolio management services requiring integration with the core banking system.

Case 3. A global IT initiative to align centralized IT policies with local business needs, balancing standardization and flexibility.

These projects were not treated as cases in themselves but as settings in which communication practices could be examined. They represent different facets of Agile transformation and communication challenges, making them suitable contexts for investigating the establishment and maintenance of common ground.

2.4 | Participants

Semi-structured interviews were conducted with three team leaders, each with over 10 years of experience initiating and overseeing Agile projects. Team leaders were deliberately targeted because they combined business and IT domain expertise and held a "big picture" view across multiple communication interfaces. This position was suitable for capturing cross-functional insights, offering a broader perspective than interviews limited to specific roles such as POs or developers. Other roles were not interviewed due to the exploratory aim of the study that sought first to capture leadership perspectives.

2.5 | Data Collection

The interviews took place face-to-face (one) or via videoconferencing (two), and each lasted approximately 1 h. All interviews were recorded. Instead of full transcription, detailed notes were taken and recordings revisited repeatedly during the analysis phase to ensure accuracy and consistency of interpretation.

To ensure shared understanding, key terms used in the interview protocol (e.g., "information sharing," "common ground," "interpersonal purposes of communication," and "communication breakdown") were defined and explained at the outset of each interview. This helped establish common ground with interviewees and increased the reliability of responses.

The interview questions were designed based on the research questions and existing literature on Agile communication and common ground. They aimed to elicit participants' experiences with communication challenges, strategies, and purposes across different Agile interfaces. Representative interview questions included:

- "Can you describe who typically communicates with whom in your Agile projects, and how these communication interfaces may evolve over the course of a project?"
- "Are there particular communication interfaces where breakdowns occur more frequently, and what factors contribute to them?"
- "In your experience, what are the main purposes of communication in Agile teams, for example, establishing common ground or maintaining trust?"
- "During Agile ceremonies such as stand-ups or sprint reviews, how do you assess whether information has not only been pooled, but has been effectively processed into shared understanding?"
- "How does physical co-location influence the establishment of common ground, and what additional factors are necessary to ensure successful communication?"

2.6 | Data Analysis

The interview material was analyzed using thematic analysis [60], with a focus on identifying recurring patterns in communication practices across the three project contexts. A hybrid coding strategy was applied: Initial deductive codes were informed by the three research questions and Clark's theory of common ground, while inductive codes were added to capture unanticipated themes emerging from the data. Although inductive codes were generated from the data, the study was not designed as grounded theory. Rather, the analysis followed a case study logic [58], using thematic analysis as a means of linking empirical observations with theoretical constructs on grounding and communication.

To align with Yin's [58] explanation-building approach, the analysis proceeded iteratively. First, detailed notes and recordings were reviewed to extract meaningful segments of text related to communication purposes, interfaces, and

grounding mechanisms. Second, these segments were coded and organized into preliminary categories, which were refined through repeated engagement with the material and discussion with the interviewer. Third, categories were clustered into broader patterns of communication and grounding that addressed the research questions such as (1) mechanisms of grounding, (2) primary purposes of communication, and (3) variations across role-based interfaces. This iterative comparison between emerging patterns and theoretical propositions enabled analytic generalization consistent with case study methodology.

The initial coding was conducted by the lead researcher and subsequently reviewed with the interviewer, who had first-hand knowledge of the conversations. This cross-checking process served to validate coding choices, challenge interpretations, and reduce the risk of single-analyst bias. In addition, observational insights from meetings and informal conversations and the examination of project artifacts were employed for triangulation, strengthening the credibility and consistency of the thematic patterns.

2.7 | Validity, Reliability, and Limitations

Several steps were taken to enhance the credibility, validity, and trustworthiness of the study. Construct validity was supported through data triangulation across interviews, observational insights, and project artifacts, as well as through investigator triangulation, whereby the lead researcher's coding and interpretations were reviewed with the interviewer. This cross-checking helped validate coding choices, surface alternative interpretations, and reduce interpretative bias. Reliability was strengthened by employing a transparent and documented analytic procedure and by maintaining a clear chain of evidence from raw data to derived patterns.

As a qualitative case study, the findings aim for *analytic generalization* rather than statistical generalization, in line with Yin [58]. The small sample size and the focus on team leaders necessarily limit breadth but provide depth of insight into communication mechanisms in Agile IT projects. While the reliance on three interviewees constrains the diversity of perspectives, this is consistent with the practice of expert interview practice, which emphasizes depth, contextual understanding, and domain-specific insight. The study's scope also means that certain validity threats—such as incomplete recall or self-representation effects—cannot be entirely excluded. These limitations were mitigated through triangulation, iterative analysis, and transparent documentation, enhancing the overall trustworthiness of the findings.

2.8 | Use of AI Tools

A large language model (ChatGPT, OpenAI) was used in limited ways during manuscript preparation. The tool supported the authors in improving the clarity and readability of the case descriptions, refining the wording in the "Discussion" section and polishing language during revision. ChatGPT was not used for any part of the empirical work, including data coding, development of themes, interpretation of interview material, or construction of the case analysis. All analytical decisions and interpretations were made by the authors, and all AI-assisted text was critically reviewed, edited, and verified before inclusion.

3 | Findings

3.1 | Cross-Role Communication

Across all three projects, the *main interfaces of communication* were identified as follows:

a. Between the PO and Customer (C):

b. Between the Scrum Master (SM) and the Development Team (DT);

c. Among members of the DT

These interfaces functioned as primary points of interaction between roles. Communication at these points was predominantly bidirectional; information commonly moved from the customer (top) to the development team (bottom) via the PO and back again in the observed projects (Figure 2).

Disruption occurred when individuals outside the agreed communication lines became involved. For example, in one project, management introduced new priorities directly to developers, bypassing the established interface. These interventions created confusion and setbacks for the team.

At the intra-team interface, co-location was reported as particularly valuable. Interviewees explained that having DT members in the same room enabled immediate problem-solving and spontaneous exchange. One interviewee noted: "They don't wait for the next daily standup to solve issues but address problems immediately." However, these benefits became more pronounced once a baseline of shared understanding was established, for example, through daily Agile ceremonies.

3.2 | Structured Interaction Models

In two of the projects, teams *formalized communication practices* that extended beyond Agile ceremonies. In one project, this was achieved by defining "communication governance" in a formal document. This "team charter" specified default communication partners, rules for interaction, and decision-making and reflected other prior agreements among the team. It also outlined escalation lines and clarified which individuals held authority to "make the rules" and final decisions for the team. As an interviewee explained, it needed to be clear "who has the last word, and who can judge whether the result is good enough".

In another project, a large team introduced an overarching "communication superstructure." This framework included three elements—each serving a distinct purpose. First, regular meetings between the customer, PO, and DT revisited the overall product vision and goals, ensuring that day-to-day tasks remained aligned with broader delivery objectives. Second, bi-monthly physical gatherings of the entire team counterbalanced

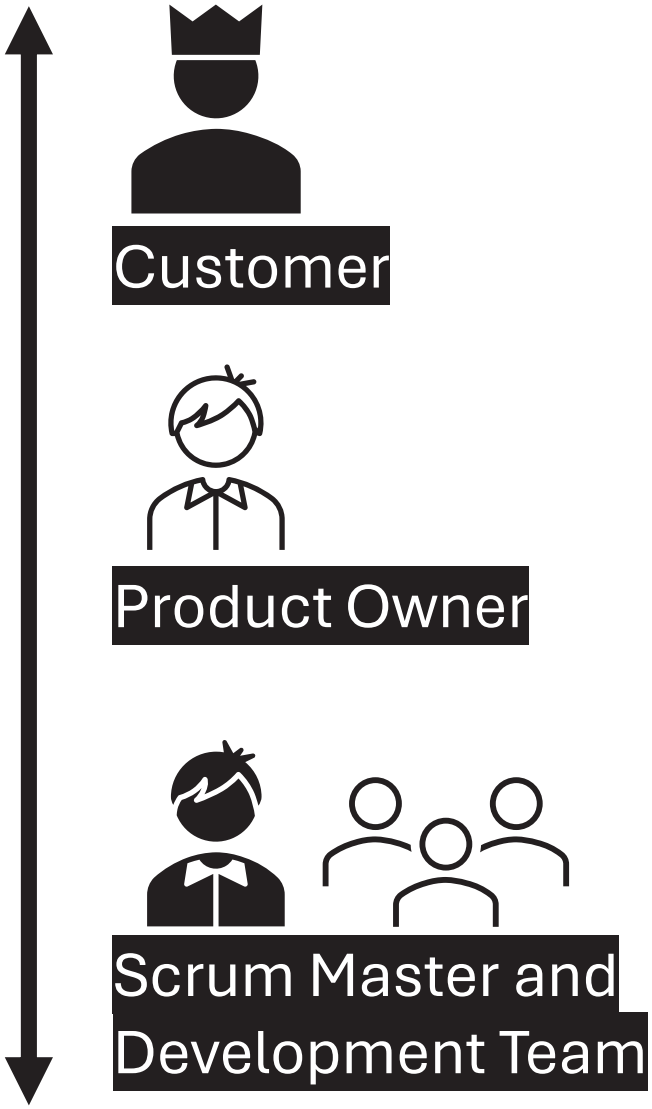

FIGURE 2 | Interfaces and lines of communication. Team members exchanged information through both top-down and bottom-up flows.

the reduced direct engagement in a distributed setting and reinforced accountability, as interviewees noted that team members sometimes avoided responsibility when working remotely. Third, a dedicated forum was created to facilitate direct information flow between the customer and the DT. This was meant to reduce the risk of misaligned priorities, which interviewees associated with limitations at the PO interface such as insufficient authority, lack of domain expertise, or poor communication skills.

3.3 | Role-Specific Skills, Knowledge and Experience

Interviewees emphasized that roles require a combination of *role-specific competencies and communication skills*, reflecting their varying responsibilities. The PO was highlighted as an especially demanding role. As one interviewee noted, assigning this role based solely on availability risked project failure. Effective POs were described as possessing substantial experience, a solid understanding of both business and IT domains, and an ability to anticipate issues, differentiate between common and atypical problems, and accurately estimate resolution timeframes.

Alongside these domain-specific competencies, *advanced interpersonal communication skills* were also considered important. One interviewee described this as the ability to "read between the lines," that is, to recognize what someone may be conveying implicitly. In addition, the interviewee emphasized the importance of fostering a feeling of "being heard," noting that "people need to feel that their input really counts." An example was explaining to team members why their ideas could not be considered. The interviewee even estimated that such interpersonal communication accounted for "51% of the overall communication effort."

In addition, interviewees pointed to a range of advanced communication skills needed to manage *task-related interactions* effectively. These included the ability to explain problems or decisions effectively, the ability to challenge a business requirement, to manage problematic communication behaviors that are unproductive, and to assert the team's autonomy of decision-making against "opposition from stakeholders that are less engaged in everyday practices."

Team maturity was seen as a factor that *reduces reliance on advanced communication skills*. One interviewee explained that the trust and shared experience developed through previous collaborations enabled teams to reach common understandings more quickly. For example, one PO and SM were described as functioning like "Siamese twins," drawing on a long history working together. The interviewee mentioned that substantial shared experience allowed them to streamline their interactions more easily and resolve issues more quickly without having to enter lengthy, time-consuming discussions.

The importance of role expertise extended beyond the PO. All three interviewees noted that a SM without sufficient *domain knowledge* could negatively affect alignment, particularly when discussions required understanding the implications of technical or architectural decisions. One interviewee emphasized that in such situations, communication often became task-based, with exchanges focusing on the next activity rather than the product's purpose or overall delivery goals. This "content-freed" communication led to process loss despite teams formally adhering to the Agile process. To counter this, some projects relied on informal leadership mechanisms, such as "primus inter pares" roles within the development team, where experienced individuals temporarily assumed a bridging function between the customer and development team. Another suggested solution was "IT/Business tandems," a collaboration model that pairs specialists from different domains—on the IT and business side respectively—to ensure alignment without excessive recourse to the customer.

Finally, interviewees reported difficulties in finding professionals with the broad knowledge and specific skills required for key Agile roles. One described this as a shortage of *T-shaped professionals* who combine deep expertise in one area with broad knowledge across others. Such profiles were seen as

essential for maintaining product-focused communication, as they could integrate perspectives across domains, bridge gaps in understanding, and reorient communication toward overarching product objectives. Where teams lacked these integrative capabilities, communication tended to revert to task-level exchanges, fragmenting work and weakening the shared mental model of the product.

3.4 | Analysis of Underlying Causes for Lack of Common Ground

Interviewees described several factors that made it difficult to establish or maintain common ground in the projects. As noted earlier (see Section 3.1), managers sometimes bypassed agreed communication lines. Interviewees reiterated that such interventions created unnecessary setbacks. Unclear role definitions were mentioned as a recurring cause. If roles are not clearly defined, communication at an interface is weakened or becomes "fuzzy." Formal agreements, such as communication charters, seemed to prevent misunderstandings about responsibilities and authority.

Timing was also highlighted; that is, if common ground is not established early on in the project—for example, between the customer and PO—subsequent decision-making can be flawed. This was illustrated with the description of a negative "decision cascade," where one flawed decision led to a chain of subsequent poor choices.

Interviewees pointed to several types of *information problems* that could hinder effective decision-making. First, information was sometimes unevenly distributed across the team. One example was a PO who assumed everyone knew about a recent change in customer requirements, even though not all team members had attended the meeting where it was mentioned. Second, even when information is broadly available, teams could struggle with recognizing what is relevant for decision-making. As one participant remarked: "Just because information is on the table doesn't mean it's the one the team needs," referring to situations where large amounts of available information were discussed but a crucial detail was overlooked. Third, there seems to be a general problem that team members are simply not always aware of missing information, which one interview described as "inevitable blind spots." These gaps meant that important information sometimes remained hidden until it caused delays or problems.

Finally, ineffective communication behaviors were identified as barriers to grounding. Examples included dominating in meetings, creating excessive "noise," directionless discussions, and irrelevant or meaningless contributions. One interviewee reported that a Scrum Master addressed this by introducing stricter rules for daily standups, occasionally interrupting team members with "Stop, you had your 30 seconds." Another interviewee remarked that this problem can be reduced "when you get the relevant people on board," explaining that team members with the right experience and expertise are more likely to contribute constructively, stay focused on the task at hand, and avoid the kinds of digressions that lead to unproductive discussion.

4 | Discussion

4.1 | Cross-Role Communication Interfaces

The findings suggest that role-based communication interfaces are pivotal for maintaining alignment in Agile projects. Therefore, guaranteeing effective communication across these interfaces appears to be critical for project success. The observed linear yet bidirectional flow of information, moving between customer, PO, and DT, highlights the importance of clear structures to ensure that requirements, feedback, and priorities are consistently shared.

The results also show how easily this balance can be disrupted when actors from the environment of the Agile team as a (social or socio-technical) system bypass established communication lines, for example, by issuing directives directly to individual team members. Such interventions undermined the common ground built within the team, with consequences comparable to "throwing a wrench into well-oiled machinery."

The findings on co-location further emphasize the role of spatial proximity in building and sustaining common ground. While face-to-face interactions enhanced problem solving and cohesion, the interviewees also indicated that these benefits are contingent upon a baseline of shared understanding established through Agile ceremonies. In other words, informal ad hoc communication only becomes productive once common ground has been established.

4.2 | Structured Interaction Models

The introduction of team charters and "communication superstructures" demonstrates how Agile teams may supplement standard ceremonies to mitigate communication challenges. While Agile prescribes lightweight structures, the observed projects show that additional governance can become necessary, particularly in larger or distributed teams.

The explicit documentation of communication rules and decision-making authority in charters is a proactive measure to prevent role ambiguity and protect common ground. This reflects a recognition that *Agile ceremonies alone may not sufficiently address recurring challenges*. In one project, a dedicated communication superstructure was introduced to tackle distinct problem patterns: Vision meetings safeguarded alignment with overarching goals in the face of task fragmentation, bimonthly gatherings reinforced accountability across distributed teams, and a forum sustained customer-team information flow despite PO weaknesses. Table 2 summarizes these targeted practices in relation to the challenges they address.

4.3 | Role-Specific Skills, Knowledge and Experience

The findings suggest that effective role fulfillment in Agile projects depends on a combination of domain expertise and communication competence. The PO role, in particular, emerged as pivotal, confirming research that positions the PO as a role requiring both business and technical understanding [61]. Interviewees emphasized that substantial experience and

TABLE 2 | Targeted communication practices introduced to address recurrent collaboration challenges and targeted remedies in project governance.

Root cause	Consequence	Communication practice (remedy)
Task fragmentation	Loss of alignment with overarching objectives	Vision meeting to maintain shared strategic focus
Distributed teams	Accountability gaps	Bimonthy gatherings to make commitments and progress visible in a face-to-face setting
PO weaknesses	Breakdown in information flow	Dedicated forum to ensure continuity of knowledge and authority

anticipatory skills were crucial not only for recognizing blind spots or potential issues but also for communicating these insights clearly to the team and stakeholders. In this sense, the PO role cannot be treated as a purely procedural appointment: It demands domain knowledge that extends beyond the prescriptions of the Scrum framework and the ability to translate knowledge into meaningful, timely communication that keeps the team aligned.

While Agile frameworks emphasize processes and ceremonies, the interviews point to interpersonal skills as vital. The remark that interpersonal communication constitutes "51% of the effort" illustrates just how much project success depends not only on exchanging information but on creating an environment of trust and psychological safety, that is, the belief that team members can express their ideas, ask questions or admit mistakes without fear of negative consequences [62]. This aligns with research highlighting the role of psychological safety as a prerequisite for open communication and effective teamwork [63].

Beyond interpersonal aspects, the interviews point to the need for advanced task-related communication skills. Explaining why decisions were made, challenging requirements, and containing unproductive behaviors are practices that help prevent process losses and sustain team autonomy. This supports the argument that communication in Agile projects also serves to regulate group processes and protect the team's decision-making capacity.

This reflects what Bales described in his equilibrium model of group development [64], namely, that effective teams must continually balance task-oriented and socio-emotional communication. In Agile projects, this balance appears particularly critical for preserving alignment while maintaining a collaborative climate.

The emphasis on seasoned professionals occupying pivotal roles also suggests that Agile teams cannot rely solely on prescribed roles and ceremonies. The findings indicate that insufficient domain knowledge in key roles can shift communication toward task-level exchanges, thereby undermining grounding and product coherence even when teams follow the formal process. The observed use of primus inter pares roles and "IT/Business tandems" reflects attempts to compensate for this gap by combining complementary expertise and informally introducing more integrative capacity.

The interplay between team maturity and communication demands also deserves attention. A "mature" team is a group of individuals who have developed a high level of collaboration, trust, and efficiency over time, for example, based on intensive previous collaboration on similar projects [65], [66]. Interviewees noted that mature teams require less active effort to establish trust and common ground.

The findings also highlight a structural challenge: the scarcity of professionals with T-shaped profiles [67]. A T-shaped profile refers to individuals who combine deep expertise in one discipline (the vertical bar of the "T") with a broad ability to collaborate across other disciplines (the horizontal bar). Such profiles are particularly valuable in Agile contexts because they enable individuals to bridge domain boundaries and communicate effectively with diverse stakeholders. However, interviewees emphasized that these professionals are difficult to find, which complicates the staffing of key Agile roles and may limit organizations' ability to maintain the level of communication competence required for effective cross-role collaboration.

4.4 | Analysis of Underlying Causes for Lack of Common Ground

A central conclusion from the findings is that *unclear roles and communication interfaces* directly undermine the establishment of common ground. When responsibilities and decision-making authority are not well defined, communication at key interfaces becomes inconsistent, leading to misunderstandings and misalignment. This observation resonates with research on role ambiguity, which shows that unclear expectations and authority structures create confusion and reduce team effectiveness [68].

Early alignment problems also emerged as a critical factor. The description of "decision cascades" illustrates how initial gaps in shared understanding or uninformed decisions can propagate through a series of flawed choices. Interviewees emphasized that such decisions often arose when common ground had not yet been established, meaning, for example, that key assumptions or requirements were not mutually understood. Once taken, these early decisions anchored subsequent judgments, creating a path dependency that made it difficult for teams to reverse course. This finding resonates with research on group decision-making biases, particularly the risks of path dependency and escalation of commitment, where decisions made without a shared basis of understanding can lock teams into suboptimal trajectories [69].

The typology of *information problems* identified in the findings further underscores the complexity of achieving shared understanding. Uneven distribution of information—or information asymmetry [70]—reflects the practical challenges of keeping all team members equally informed, while the difficulty of recognizing what is relevant points to the cognitive limitations teams face when processing large volumes of information. The concern that some team members face what interviewees described as "inevitable blind spots" illustrates an even deeper challenge: Individuals may be unaware of gaps in their knowledge, which prevents them from initiating grounding, for example, actively seeking clarification. These observations can be interpreted through Clark's distinction between common ground and *private ground* [46]: Unless individuals recognize that certain knowledge is not shared, private ground remains hidden, and subsequent decisions risk being based on incomplete or faulty information.

Finally, the findings suggest that ineffective communication behaviors, such as dominating discussions or creating excessive "noise," can be understood as forms of process loss in group communication. These behaviors consume time and attention without contributing to collective progress, thereby hindering the establishment of common ground. Interventions such as stricter time limits in standups can be seen as attempts to contain process loss and preserve effective communication.

Taken together, the findings can be different manifestations of process loss within Agile teams understood as social systems. Role ambiguity and early alignment problems represent coordination losses, information distribution and "blind spots" reflect communication losses, and disruptive meeting behaviors illustrate motivational or interactional losses. Framing the absence of common ground in terms of process loss provides a unifying perspective that explains why seemingly diverse challenges all undermine the system's ability to maintain alignment.

To synthesize these insights and connect them to existing theory, we propose a conceptual framework that integrates Clark's notion of common ground and Steiner's process loss with Scrum roles, practices, and communication structures.

5 | Conceptual Framework

Building on Clark's concept of common ground [45] and Steiner's notion of process loss [71], we developed a conceptual framework that integrates our empirical findings with Scrum roles, ceremonies, and practices. The framework illustrates where communication is most vulnerable and how structured mechanisms can sustain common ground and reduce inefficiencies in Agile teams.

The process of creating this framework is described in the section Research Methodology. In short, barriers to communication and accountability identified in the interviews were mapped to Agile practices where common ground is at risk and then aligned with theoretical insights to ensure conceptual rigor. This yielded three key constructs:

Roles: the communication interfaces (Customer–PO, UX/Architect, Scrum Master–Development Team) where accountability and alignment are often challenged.

Communication Layers (Flight Levels): the domains of communication (product, design/architecture, task) where common ground must be actively maintained. Misalignment at one layer can cascade into others, resulting in process loss. The structure resembles the "Flight Levels" concept used in Agile practice [72], but here, it is adapted to emphasize communication layers identified in our study.

Communication Types and Flows: the mechanisms that sustain common ground across roles and layers. Agile ceremonies remain essential, but our findings indicate the need for additional

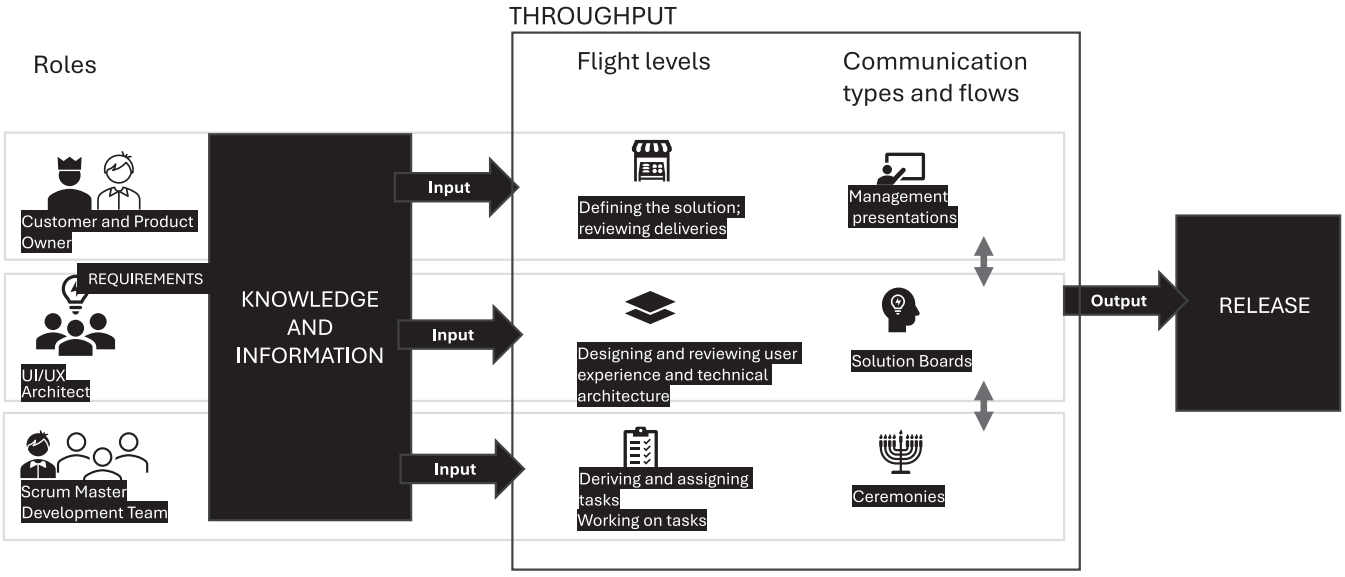

FIGURE 3 | Suggested communication framework. By organizing communication into three layers, the framework ensures that each domain operates in a coordinated manner, minimizing misunderstandings and maximizing productivity.

structures. Management Presentations, identified by interviewees, enhance accountability by requiring teams to present progress and plans face-to-face to management at the product level. Solution Boards, also emerging from the data, are small sub-groups within the development team that reinforce the PO interface by ensuring customer requirements and feedback are integrated despite potential gaps in authority or content knowledge. Together, these mechanisms form a superstructure layered on top of existing ceremonies.

As shown in Figure 3, the framework depicts how shared knowledge enters through role interfaces, moves across layers of communication via structured flows, and results in the release of product increments. By connecting theory, empirical evidence and Agile practices, the framework provides a structured lens for understanding communication in Agile teams and for conceptualizing how common ground can be sustained in practice.

6 | Implications

This study contributes to both research and practice. For theory, it demonstrates how Clark's concept of common ground and Steiner's process loss can be applied to Agile project settings, offering a structured way to explain communication challenges in sociotechnical teams. The framework proposed here extends these theories by integrating them with Scrum roles and ceremonies, thereby identifying role interfaces, communication layers, and flows as critical constructs for sustaining common ground. For practice, the findings highlight the importance of reinforcing communication at key interfaces and supplementing standard ceremonies with additional mechanisms such as Management Presentations and Solution Boards. These structures provide teams with practical means to strengthen accountability, improve alignment, and reduce the risk of process loss in dynamic Agile environments.

7 | Conclusions

This study has shown that challenges of communication in Agile teams can be understood through the lens of common ground. When shared understanding breaks down, coordination and decision-making are hindered, leading to inefficiencies that align with what Steiner [71] described as process loss in groups. By framing communication problems in Agile projects this way, the paper highlights a theoretical mechanism that connects micro-level interactions among roles with broader team performance.

For practitioners, the results underline the need for role-based structures of interaction that safeguard accountability and help teams maintain common ground, even in fast-changing environments. For researchers, the study opens avenues to investigate how communication frameworks and Agile ceremonies can be extended or adapted to reduce process loss. Future work may explore interventions that strengthen communication at the role interfaces of Agile teams and assess their impact on both team outcomes and organizational agility.

7.1 | Limitations and Future Research

While this study provides in-depth insights into communication challenges and the role of common ground in Agile teams, it is based on a limited number of expert interviews within specific organizational contexts (primarily banking and insurance sectors). As is typical for qualitative case studies, the findings are context-dependent and not intended for broad statistical generalization. Future research could build on these results by incorporating perspectives from a wider range of stakeholders across diverse industries. Additionally, longitudinal studies or comparative case analyses could further validate and refine the proposed communication framework, offering a more comprehensive understanding of how socio-technical factors influence Agile collaboration.

Acknowledgements

Open access publishing facilitated by Fachhochschule Nordwestschweiz FHNW, as part of the Wiley - Fachhochschule Nordwestschweiz FHNW agreement via the Consortium Of Swiss Academic Libraries.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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