

# ISSUES AND CHALLENGES IN IMPLEMENTING AGILE SCRUM METHODOLOGY IN DIFFERENT ORGANIZATIONS: FINDING TRENDS AND DIFFERENCES

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## **ABSTRACT**

*Agile Scrum methodology is widely regarded as a transformative approach to software development, emphasizing flexibility, collaboration, and iterative progress. However, its adoption is not without challenges, which vary significantly across organizations of different sizes, industries, and geographic distributions. This study explores recurring issues such as resource constraints, communication barriers, and resistance to change, while highlighting trends and successful practices in addressing these challenges. By synthesizing insights from existing literature and limited interviews, this research aims to provide actionable recommendations and a tailored framework for organizations seeking to optimize their Agile Scrum implementation. The findings contribute to a deeper understanding of how industry-specific contexts influence the effectiveness of Agile practices.*

## **1. INTRODUCTION**

The Agile Scrum methodology has become a cornerstone of modern software development, known for its ability to enhance flexibility, improve collaboration, and deliver iterative progress in complex projects. Emerging as a response to the limitations of traditional methodologies like Waterfall, Scrum has been widely adopted across industries, ranging from technology and healthcare to finance and manufacturing. Its emphasis on iterative development cycles, cross-functional teamwork, and adaptability makes it particularly suited to dynamic environments.

Despite its advantages, implementing Agile Scrum is not without challenges. These challenges often stem from differences in organizational size, industry requirements, and geographic contexts. Small organizations may lack the resources to fully adopt Scrum practices, while large organizations often grapple with bureaucratic resistance and communication barriers in distributed teams. Additionally, industries with stringent regulatory requirements, such as healthcare and finance, face unique obstacles in balancing agility with compliance.

This research seeks to identify and analyze the recurring issues that organizations encounter when implementing Scrum. By synthesizing findings from secondary sources and validating them with limited primary interviews, the study aims to uncover trends, explore industry-specific nuances, and provide actionable recommendations. The ultimate goal is to offer a framework that

organizations can adapt to optimize their Scrum practices, ensuring greater alignment with their unique contexts and objectives.

## **2. LITERATURE REVIEW**

### **2.1. Adoption of Agile and Scrum in Software Development**

The adoption of Agile methodologies, particularly Scrum, has gained significant momentum in both large and small organizations as a response to the shortcomings of traditional software development models (Hajjdiab Taleb, 2011). Agile frameworks emphasize flexibility, iterative development, and continuous collaboration, making them suitable for rapidly changing project requirements (Putri<sup>43</sup> anasari et al., 2024). Despite its benefits, Agile adoption introduces unique challenges, particularly in areas of communication, coordination, and management across distributed teams and resource constrained environments.

### **2.2. Challenges in Agile-Scrum Implementation**

Multiple studies highlight that implementing Agile-Scrum poses challenges related to organizational culture, management support, and technological limitations. According to Rahman and Das (2015), global software development (GSD) teams often face issues such as lack of trust, visibility gaps, and skill differences due to geographical, cultural, and temporal distances. Mitigation strategies, including synchronizing work hours, preparation meetings, and enhancing ICT-mediated communication, have been proposed to address these barriers. Small organizations, in particular, encounter significant difficulties due to their limited resources. Putrianasari et al. (2024) identify key barriers such as insufficient management support, lack of technical expertise, and organizational resistance to change. Agile methods, while beneficial for fostering flexibility, often fail when implemented without proper preparation and risk mitigation strategies. These challenges emphasize the importance of aligning Scrum processes with organizational goals and capabilities.

### **2.3. Coordination and Communication in Distributed Agile Teams**

The shift to globalized and distributed software development has amplified the challenges of communication and coordination among Scrum teams. Al-Zaidy and Qureshi (2014) note that poor coordination and communication are primary contributors to project failure in GSD. Scrum, with its emphasis on iterative meetings such as daily stand-ups, sprint planning, and reviews, offers partial solutions to these challenges. However, Al-Zaidy and Qureshi argue that additional strategies, including structured communication channels and better-defined roles, are necessary for success in distributed environments. A similar observation is made by Ma'arif et al. (2018), who discuss the challenges in Malaysian IS projects, such as unclear management signals, ownership issues, and time estimation inaccuracies. These issues hinder the smooth implementation of Agile-Scrum methodologies and underscore the need for effective leadership, robust communication tools, and collaborative practices to manage geographically dispersed teams.

### **2.4. Mitigation Strategies for Scrum Challenges**

Several mitigation approaches have been identified to address Scrum-related issues. Rahman and Das (2015) propose strategies such as ICT-mediated synchronous communication, team training, and synchronized work hours to bridge gaps in trust and visibility. Similarly, Putrianasari et al. (2024) emphasize proactive risk management and stakeholder engagement as essential

components of successful Agile adoption in small organizations. Ali et al. (2022) further highlight the role of static and dynamic testing in enhancing software quality and reducing project risks. Their study concludes that combining Scrum with robust testing processes leads to better project outcomes and higher team satisfaction.

### 3. MATERIALS AND METHODS

This study employed a Systematic Literature Review (SLR) as its primary research method to comprehensively identify, analyze, and synthesize existing challenges and mitigation strategies related to Agile-Scrum adoption. A systematic review is particularly appropriate for ensuring thorough, rigorous, and unbiased coverage of the available literature by following a clearly defined process. The methodology was divided into four main phases: Planning, Execution, Data Extraction, and Data Analysis and Interpretation.

#### 3.1. Research Design

The research design was constructed systematically to ensure that the process was repeatable, transparent, and exhaustive. The study aimed to answer the following questions: 1. What are the key challenges organizations face in adopting Agile-Scrum methodologies? 2. What mitigation strategies have been proposed to overcome these challenges? To achieve this, the research followed the PRISMA framework (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) as a guiding principle, ensuring a systematic flow from the identification of studies to data analysis and synthesis.

#### 3.2. Data Sources and Search Strategy

The studies were sourced from highly reputable academic and scientific databases to ensure the inclusion of quality, peer-reviewed research. A systematic search strategy was employed using the following keywords: • "Agile software development AND Scrum challenges" • "Scrum adoption OR Agile implementation barriers" • "Global software development AND Scrum strategies" • "Mitigation strategies for Agile-Scrum challenges" The search was conducted iteratively and refined by combining keywords, synonyms, and related terms to ensure comprehensive coverage.

#### 3.3. Selection Criteria

The selection of studies was guided by pre-defined inclusion and exclusion criteria to ensure relevance, quality, and focus on the research questions.

##### 3.3.1. Inclusion Criteria:

- Publication Year: Studies published between 2010 and 2024 to ensure up-to-date and relevant insights.
- Type of Publication: Peer-reviewed journal articles, conference proceedings, theses, and empirical case studies.
- Content Focus: Studies addressing challenges, barriers, and mitigation strategies specific to Agile-Scrum implementation.
- Context: o Small and medium-sized enterprises (SMEs), o Global Software Development (GSD), o Distributed and remote software development teams.

- Language: Articles published in English to ensure accessibility.

### 3.3.2. Exclusion Criteria

1. Articles not directly addressing Agile or Scrum adoption challenges. 2. Non-peer-reviewed, editorial, opinion pieces, or gray literature. 3. Duplicate studies and low-quality research (e.g., lack of methodological clarity).

### 3.4. Sampling Size and Study Selection Process

The study selection process was conducted in three rigorous stages to ensure the inclusion of only the most relevant and high-quality studies:

- Initial Search and Screening: o The search across the selected databases yielded 89 initial studies. o Titles and abstracts were screened for relevance, resulting in the shortlisting of 43 studies.
- Full-Text Review: o Full texts of the shortlisted studies were thoroughly reviewed. o Studies that failed to meet the inclusion criteria were removed. o This stage resulted in a refined list of 28 studies.
- Final Selection: o Duplicates and redundant studies were eliminated. o A final sample of 15 studies was selected, comprising: 6 journal articles, 4 conference proceedings, 3 empirical case studies, 2 academic theses. The selected studies offered diverse perspectives on Agile-Scrum adoption, covering a range of organizational contexts and challenges.

### 3.5. Data Analysis and Interpretation

The data analysis process involved a combination of thematic analysis and cross-study comparison to identify recurring patterns and validate findings.

#### 3.5.1.1. Thematic Analysis

- Data were coded and organized into thematic categories following Braun and Clarke's six-phase approach: Familiarization: Repeated reading of the studies to identify key challenges and strategies. Coding: Assigning codes to relevant extracts related to challenges and strategies. Theme Identification: Grouping codes into overarching themes such as communication, coordination, organizational barriers, and technological issues. Theme Review: Refining themes for clarity and consistency. Defining Themes: Naming and describing final themes. Synthesis: Integrating themes to produce

#### 3.5.1.2. Cross-Study Comparison

- Key findings across studies were compared to identify similarities, differences, and patterns. o For example, challenges identified in small organizations (Putrianasari et al., 2024) were compared with those in global software teams (Rahman Das, 2015; Al-Zaidy Qureshi, 2014).

### 3.5.1.3. Triangulation and Validation

- Results were validated through cross-referencing findings from multiple studies and methodologies (case studies, surveys, and systematic reviews). o Empirical data were compared with theoretical insights to enhance reliability.

### 3.5.1.4. Interpretation

The analysis provided a clear understanding of Agile-Scrum challenges and proposed mitigation strategies. o Findings were synthesized into actionable insights for organizations, categorized into key themes and sub-themes. a cohesive narrative.

## 4. RESULTS AND ANALYSIS

This section presents a detailed analysis of the challenges and mitigation strategies for Agile-Scrum implementation, derived from a systematic literature review (SLR) of 15 studies. The findings are categorized into four major themes: communication issues, coordination challenges, organizational barriers, and technological limitations. To provide a holistic view, comparative insights and practical recommendations are also discussed.

The thematic analysis identified four major categories of challenges and corresponding mitigation strategies. Each theme is elaborated below with examples, visual cues, and a synthesis of findings.

### 4.1. Communication Issues

Communication issues emerged as the most significant and frequent barrier to Agile-Scrum implementation. These challenges are particularly prominent in Global Software Development (GSD) and distributed teams, where collaboration is hindered by time zones, cultural diversity, and technical barriers. Challenges Identified:

- Lack of Trust and Team Cohesion: Teams in distributed environments face difficulties building trust due to the absence of face-to-face interactions. This reduces team spirit and undermines collaboration (Rahman Das, 2015).
- Time Zone Misalignment: Teams operating in different geographical regions struggle to synchronize their daily Scrum meetings and project discussions (Ma'arif et al., 2018).
- Language and Cultural Barriers: Differences in language proficiency and cultural norms result in misunderstandings and communication breakdowns (Ali et al., 2022).

### 4.2. Coordination Challenges

Coordination issues often arise due to misaligned processes, inconsistent work practices, and skill gaps, particularly in distributed Agile teams where interdependence between tasks is high.

Challenges Identified:

- Inconsistent Work Practices: Variations in the understanding and implementation of Scrum practices across distributed teams lead to inefficiencies and delays (Hajjdiab Taleb, 2011).
- Skill Gaps: Differences in technical expertise, particularly between onshore and offshore teams, impact the progress and quality of sprint deliverables (Ma'arif et al., 2018).

- **Role Misalignment:** Misunderstanding of key Agile roles, such as the Scrum Master and Product Owner, causes confusion in task prioritization and accountability (Ali et al., 2022).

#### 4.3. Organizational Barriers

Organizational barriers were particularly prevalent in SMEs, where limited resources, resistance to change, and management reluctance hinder Agile adoption.

Challenges Identified:

- **Management Resistance:** Senior management often struggles to align Agile principles with existing hierarchical structures (Putrianasari et al., 2024).
- **Limited Resources:** SMEs face difficulties allocating funds for Agile tools, training, and expert guidance (Ali et al., 2022).
- **Resistance to Change:** Employees often resist the iterative, collaborative nature of Agile processes due to fear of disrupting established workflows (Ma'arif et al., 2018).

#### 4.4. Technological Limitations

Technological challenges, particularly in virtual environments, hinder collaboration, task tracking, and project visibility.

Challenges Identified:

- **Inadequate Tools for Communication:** Outdated or insufficient communication tools limit realtime collaboration (Rahman Das, 2015).
- **Limited Project Visibility:** Lack of transparency in project progress causes delays and confusion in task priorities (Al-Zaidy Qureshi, 2014).

### 5. DISCUSSION

The findings of this study highlight significant challenges and practical solutions related to the adoption of Agile-Scrum methodologies. By categorizing these challenges into four primary themes

- communication barriers, coordination issues, organizational constraints, and technological limitations
- this discussion expands on the implications of these findings and situates them within a broader research context. Additionally, the section critically evaluates the identified strategies, providing actionable insights and suggestions for future practice.

#### 5.1. Communication Challenges: A Persistent Barrier to Agile Collaboration

Communication is the backbone of Agile-Scrum methodologies, which thrive on transparency, daily feedback, and real-time collaboration. However, the findings revealed that communication challenges remain one of the most significant barriers, particularly in Global Software Development (GSD) settings.

### 5.1.1. Key Issues and Broader Context

- **Trust and Cohesion Deficits:** In GSD contexts, where teams are dispersed across regions, the lack of face-to-face interactions significantly impacts trust-building and team cohesion. Agile practices such as daily stand-ups and retrospectives rely on openness and psychological safety, which become difficult to achieve when relationships are remote or virtual (Rahman Das, 2015). For instance, teams in different cultural settings may prioritize work differently, further exacerbating communication breakdowns (Al-Zaidy Qureshi, 2014).
- **Temporal Misalignment:** Different time zones reduce opportunities for synchronous communication, creating delays in feedback loops and decision-making processes. Agile frameworks rely on iterative progress, where real-time discussions are critical for sprint reviews, backlog grooming, and quick issue resolution (Putrianasari et al., 2024).
- **Cultural and Language Barriers:** Miscommunication resulting from language differences and cultural misunderstandings hinders collaboration. In diverse teams, varying interpretations of instructions, expectations, or priorities can lead to inefficiencies and delays (Ali et al., 2022). Practical Mitigation Strategies Organizations must adopt targeted solutions to address these communication challenges:
  - **Real-Time Collaboration Tools:** The adoption of tools such as Slack, Zoom, and Microsoft Teams provides platforms for synchronous communication. These tools, when combined with asynchronous channels like email or Trello boards, help teams manage communication across time zones effectively.
  - **Synchronization of Work Hours:** Establishing overlapping working hours ensures that team members can participate in daily Agile ceremonies, enabling real-time discussions. Even a small overlap (e.g., 2–3 hours) can improve collaboration and decision-making.
  - **Cultural Awareness Training:** Providing team members with regular training on cultural norms and communication styles fosters inclusivity, mutual respect, and understanding, thereby reducing cultural barriers. Implications for Practice: The results indicate that organizations need to treat communication not as a technical challenge but as a cultural and relational one. Investing in advanced communication tools and team-building initiatives can address trust deficits and cohesion gaps. Furthermore, prioritizing cultural sensitivity as part of Agile training enhances team synergy, especially in GSD environments.

## 5.2. Coordination Challenges: Aligning Teams and Processes

Effective coordination is essential for Agile-Scrum teams, which depend on continuous synchronization, clear roles, and consistent workflows. However, the findings highlight that coordination challenges, particularly in distributed teams, often undermine Agile implementation.

### 5.2.1. Key Issues and Analysis

1. **Inconsistent Work Practices:** Disparities in how Scrum principles are implemented across different teams create inefficiencies. For example, one team might adhere rigorously to sprint planning and retrospectives, while another might skip these ceremonies, causing misalignment (Hajjdiab Taleb, 2011).
2. **Skill Gaps:** Variations in technical expertise and domain knowledge slow down project execution. Skill disparities are particularly common in offshore teams, where training and mentoring opportunities may be limited (Rahman Das, 2015).

3. **Role Confusion:** Misunderstanding Agile roles such as Scrum Master and Product Owner disrupts accountability and decision-making processes. For example, unclear product ownership leads to poorly defined backlogs, while ineffective Scrum Masters fail to manage obstacles and team dynamics (Ali et al., 2022).

### 5.2.2. Practical Mitigation Strategies

To address coordination challenges, organizations must focus on:

- **Standardizing Agile Workflows:** Creating documented and consistent Scrum workflows across all teams ensures alignment and reduces variability. Tools like JIRA, Trello, and Azure DevOps facilitate this standardization by providing a shared platform for task management and sprint tracking.
  - **Targeted Skill Development:** Conducting regular technical training, knowledge-sharing sessions, and mentoring programs helps bridge skill gaps. Pair programming and team-based problem-solving exercises can also enhance collective learning.
  - **Clarifying Roles and Responsibilities:** Clearly defining the responsibilities of Scrum Masters, Product Owners, and development team members fosters accountability and minimizes confusion. Role-specific training ensures all members understand their contributions to sprint success.
- Implications for Practice: The findings emphasize that coordination requires both technical and human-centric solutions. Standardizing workflows reduces ambiguity, while investing in upskilling team members ensures consistent sprint outcomes. Role clarity fosters a sense of ownership, improving team alignment and productivity.

## 5.3. Organizational Barriers: Managing Change and Leadership

Organizational challenges, particularly within SMEs, remain a major hurdle for Agile adoption. SMEs often struggle with limited resources, management resistance, and cultural inertia. These findings align with prior studies (Putrianasari et al., 2024), highlighting the need for systemic change management.

### 5.3.1. Key Issues and Analysis

1. **Management Resistance:** Agile adoption often conflicts with hierarchical decision-making in traditional organizations. Leaders may perceive Agile frameworks as disruptive to established workflows, resulting in reluctance to embrace change.
2. **Resource Limitations:** SMEs face challenges in allocating funds for Agile training, tools, and personnel. Resource shortages hinder their ability to implement Agile processes effectively (Ali et al., 2022).
3. **Resistance to Change:** Employees accustomed to linear, traditional development models may resist Agile's iterative and collaborative nature, fearing disruption to their routines (Ma'arif et al., 2018).

### 5.3.2. Practical Mitigation Strategies



- **Leadership Engagement:** Educating senior leaders about Agile benefits and aligning Agile goals with business objectives fosters management buy-in and organizational support.
- **Resource Prioritization:** SMEs must allocate funds strategically, focusing on high-impact areas such as Agile tools, team training, and expert mentoring.
- **Structured Change Management:** Implementing change management programs that communicate Agile's value through workshops, success stories, and pilot projects reduces employee resistance. **Implications for Practice:** Leadership support is critical for Agile success. Organizations must cultivate a culture that prioritizes adaptability, collaboration, and continuous improvement. By demonstrating Agile's tangible benefits through pilot projects, management can lead by example, fostering organizational alignment.

#### **5.4. Technological Limitations: Tools for Visibility and Collaboration**

Technology plays a pivotal role in enabling Agile teams to collaborate effectively and maintain project visibility. However, the findings indicate that inadequate tools remain a recurring issue, particularly for distributed teams. **Key Issues and Analysis**

1. **Outdated Communication Tools:** Legacy tools fail to support Agile's need for real-time interactions and documentation sharing (Rahman Das, 2015).
2. **Limited Project Visibility:** Without robust task-tracking tools, teams lack visibility into sprint progress, individual contributions, and potential roadblocks (Al-Zaidy Qureshi, 2014). **Practical Mitigation Strategies**
  - **Adoption of Modern Agile Tools:** Platforms like JIRA, Trello, and Monday.com offer advanced features for sprint tracking, backlog management, and progress dashboards.
  - **Dashboards for Transparency:** Real-time dashboards and analytics tools provide visibility into team performance, enabling proactive decision-making.
  - **Training for Tool Utilization:** Ensuring all team members are proficient with Agile tools maximizes their benefits and enhances collaboration.

### **6. CONCLUSION**

This study aimed to investigate the challenges and mitigation strategies associated with the adoption of Agile-Scrum methodologies, particularly in Global Software Development (GSD) environments and Small to Medium Enterprises (SMEs). Through a systematic literature review of 15 high-quality studies, the research identified and categorized the challenges into four primary themes: communication barriers, coordination issues, organizational constraints, and technological limitations. Each category was examined in detail, along with the strategies proposed to address these barriers.

#### **Key Findings**

1. **Communication Challenges:** Effective communication is critical to Agile-Scrum success but remains a persistent issue, especially in geographically distributed teams. Barriers such as time zone misalignment, lack of trust, and cultural differences significantly hinder real-time collaboration and team cohesion. **o Solution:** Advanced communication tools (e.g., Slack, Microsoft Teams) and cultural awareness training improve team dynamics and ensure synchronous collaboration.

2. **Coordination Issues:** Inconsistent workflows, skill gaps, and role ambiguity create inefficiencies in Agile teams, leading to misalignment of sprint goals and delayed deliverables. **O Solution:** Standardized Agile practices, targeted skill development programs, and role-specific training enhance team coordination and accountability.
3. **Organizational Constraints:** SMEs face unique challenges, including management resistance, resource limitations, and resistance to change. These constraints hinder their ability to adopt Agile practices effectively. **O Solution:** Leadership engagement, resource prioritization, and structured change management programs foster organizational readiness and alignment.
4. **Technological Limitations:** Inadequate tools for task tracking, real-time communication, and project visibility undermine Agile processes, particularly in distributed environments. **O Solution:** Modern Agile tools like JIRA, Trello, and Azure DevOps, combined with team training, enhance transparency and collaboration.

## Practical Implications

The findings of this study provide actionable insights for organizations aiming to adopt or improve their Agile-Scrum practices:

- **For Distributed Teams:** Investment in robust communication platforms, synchronized work hours, and cultural sensitivity training is essential for overcoming geographical and cultural barriers.
- **For SMEs:** Leadership support, strategic resource allocation, and change management are critical for successful Agile transformation.
- **For Large Organizations:** Standardizing processes, clarifying Agile roles, and upskilling team members ensure consistency and efficiency across teams.
- **For Technological Enablement:** Adopting modern tools that support task tracking, sprint planning, and progress monitoring improves transparency, accountability, and project outcomes.

By implementing these strategies, organizations can overcome Agile-Scrum adoption challenges, unlock productivity gains, and foster a culture of continuous improvement.

## 7. FUTURE RESEARCH DIRECTIONS

While this study provides a comprehensive overview, further empirical research is needed to validate these mitigation strategies in real-world Agile projects. Future studies could:

1. Explore the long-term impact of communication and coordination tools on team performance.
2. Investigate the role of leadership styles in fostering Agile adoption in SMEs.
3. Examine the effectiveness of hybrid Agile methodologies in addressing specific organizational barriers.
4. Conduct case studies in diverse cultural and organizational settings to understand Agile implementation dynamics more deeply.

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