Original Research Article

The Evolving Role of the Scrum Master in Project Management: Systematic Literature Review

Dr. Ian Matthew Herzing[1]*

[1]Herzing University, Department of Business & Legal Studies

*Corresponding author: Dr. Ian Matthew Herzing
Herzing University, Department of Business & Legal Studies

Abstract

This systematic literature review examines the evolving role of the Scrum Master in contemporary project management, addressing how this critical agile leadership position has transformed since its original conception. Guided by the PRISMA 2020 framework and employing a PICO-informed search strategy, this study synthesized qualitative insights from peer-reviewed academic and grey literature published between 2010 and 2025. Thematic analysis revealed five major themes characterizing the role's evolution. First, the Scrum Master maintains a foundational identity as a servant leader who facilitates self-organization, though this ideal often conflicts with organizational pressures. Second, the role has expanded beyond its original scope to encompass coordination across scaled agile environments, global distributed teams, and remote work contexts. Third, Scrum Masters function as cultural catalysts who build organizational trust rather than merely managing processes. Fourth, role hybridization has emerged as a prevalent pattern, with Scrum Masters frequently assuming project management responsibilities that create accountability conflicts. Fifth, professionalization through structured competency frameworks and mentorship programs reflects the discipline's maturation, though gaps remain in practitioner supply and diversity. These findings reveal that while servant leadership orientation remains theoretically consistent, practical enactment varies substantially based on organizational maturity and structural clarity. The review identifies implications for organizations optimizing agile transformation, including the need for clear role boundaries and recognition of the Scrum Master as an organizational change agent. Future research should employ longitudinal designs and address diversity dimensions within the profession.
Keywords: Scrum Master, Agile Project Management, Servant Leadership, Qualitative Analysis, Thematic Analysis.

1. INTRODUCTION

The Agile project management has become mainstream across industries, and Scrum is among the most widely adopted agile frameworks. A key role in Scrum is the Scrum Master, who is traditionally defined as a servant-leader and facilitator for the team. The Scrum Master helps the team follow agile principles, enables self-organization, and shields the team from external disruptions. This role was originally conceived for software teams, but today Scrum Masters are found in diverse sectors (IT, finance, healthcare, etc.), reflecting Scrum's broad adoption (Rehkopf, 2025). As organizations undergo digital transformation and embrace agility at scale, questions arise about how the Scrum Master's responsibilities and position are evolving within modern project management contexts.

Recent observations suggest that the Scrum Master role is in flux. In practice, many Scrum Masters find themselves taking on duties beyond the classic facilitator scope, sometimes overlapping with project managers or acting as agile coaches. There is a recognized need to clarify and synthesize what the Scrum Master's role looks like today versus its original description. Empirical research on the Scrum Master role remains relatively scarce and has yielded conflicting results (Jackson & Ellis, 2015). For example, in less mature teams the Scrum Master often single-handedly drives agile practices, whereas in highly mature agile teams the Scrum Master's functions may be distributed among team members. Such discrepancies highlight an unresolved question: *How is the Scrum Master's role changing as agile teams and organizations mature?*

Citation: Ian Matthew Herzing (2026). The Evolving Role of the Scrum Master in Project Management: Systematic Literature Review. *Saudi J Bus Manag Stud, 11*(2): 28-39.

28

Identifying this research gap is important for both academics and practitioners, motivating a comprehensive review.

Empirical studies repeatedly find that Scrum Masters often take on traditional project-management tasks. Noll *et al*., (2017) analyzed Scrum Masters and identified ten core activities they perform, but found that *"Scrum Masters also double in other roles, most importantly as Project Managers."* In practice, many Scrum Masters end up doing scheduling, risk management, reporting, and other duties normally done by a Project Manager. Noll *et al*., warn that this dual-role situation creates "tension and conflict of interest" and can hurt team performance. They suggest that organizations adopting Scrum reconsider the fate of legacy Project Managers – perhaps moving them to Product Owner roles, since those better align with traditional PM responsibilities.

The objective of this systematic literature review is to synthesize qualitative insights on how the Scrum Master role is defined, practiced, and changing in the context of project management. To achieve this, the review will be guided by several research questions (RQs):

- **RQ1**: How is the Scrum Master's role defined and described in the literature, and what core responsibilities are attributed to it?
  - **Motivation**: Establish a baseline understanding of the "classic" vs. actual duties of Scrum Masters. This study collected definitions and role descriptions from various sources (Scrum Guide, academic papers, case studies) to see common responsibilities (facilitating Scrum events, removing impediments, coaching teams) as well as any divergent interpretations. This addresses the fundamental question of what a Scrum Master is expected to do, according to research and practice.
- **RQ2:** In what ways has the Scrum Master's role evolved or expanded over time and across different project contexts?
  - **Motivation**: This is the heart of the review, identifying changes or variations in the role. This study looked for documented evolution trends, such as increased involvement in strategic activities, taking on multiple teams, or changes as teams mature. This includes examining scenarios like the Scrum Master also acting as a project manager or the Scrum Master's duties shifting when an agile coach is present. For example, one study found Scrum Masters initially perform nine distinct

leadership roles but gradually hand off many of them to the team as it matures

By answering these questions, the review will cover descriptive aspects (what the role is and does), dynamic aspects (how it's changing and challenges therein), and prescriptive aspects (what skills or structures help a Scrum Master succeed). The questions are designed to ensure a qualitative synthesis: they are open-ended and exploratory, appropriate for gathering themes and patterns from literature rather than testing a hypothesis quantitatively.

2. METHODOLOGY

This study employed a systematic literature review (SLR) design guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) framework, which provides a structured, transparent, and replicable process for identifying, evaluating, and synthesizing evidence (Page *et al*., 2021). The review followed three core stages—selection, evaluation, and synthesis—to ensure methodological rigor. Academic sources were retrieved from three open-access databases: ScienceDirect, IEEE Xplore, and ACM Digital Library, chosen for their extensive coverage of project management, software engineering, and organizational studies. Complementary grey literature was located through targeted Google searches, including materials from industry consortia (e.g., Scrum.org, PMI), agile practice guides, and conference proceedings, balancing scholarly depth with practitioner insight.

To refine the review focus, the PICO framework was adapted for agile project management contexts (Bass, 2014). The Population comprised Scrum Masters and agile teams; the Intervention focused on agile methodologies emphasizing Scrum practices; the Comparison examined variations across team maturity levels, organizational contexts, and time periods; and the Outcomes evaluated changes in role definition, leadership behaviors, and competencies over time.

Integrating PRISMA and PICO established a rigorous foundation for transparency and traceability. PRISMA ensured structured identification and screening of studies, while PICO supported conceptual clarity in defining analytical dimensions. The PICO-aligned search strategy, summarized in Table 1, translated key terms—such as "Scrum Master," "agile coaching," "team maturity," and "role evolution"—into Boolean combinations to retrieve a comprehensive yet focused dataset. This systematic approach captured the multidimensional aspects of the Scrum Master's evolving role while ensuring consistency across databases and reproducibility of results.

Table 1: PICO-Aligned Search Strategy for the Systematic Literature Review

Component	Search Terms	Concept Focus
Population	"Scrum Master" OR "Agile facilitator" OR "Agile team leader" OR "servant leader" OR "Scrum practitioner"	Scrum Masters and agile teams
Intervention	"Agile project management" OR "Scrum methodology" OR "Scrum framework" OR "Agile practices"	Agile methodologies emphasizing Scrum
Context	"team maturity" OR "organizational culture" OR "scaled agile" OR "remote teams" OR "distributed teams" OR "non-IT projects"	Variations across team maturity, organization type, or time
Outcomes	"role evolution" OR "competencies" OR "leadership skills" OR "coaching" OR "change agent" OR "organizational agility" OR "role conflict"	Evolving roles, competencies, leadership functions, and challenges

Table 2 outlines the primary database search strategy used to retrieve scholarly and open-access literature relevant to the Scrum Master's evolving role. These databases—ACM Digital Library, IEEE Explore, and ScienceDirect—were strategically selected to ensure comprehensive coverage across both management and technical disciplines. Each search string was customized to reflect the nuances of agile project management, incorporating combinations of population, intervention, and outcome terms identified through the PICO framework. Applying filters for publication year, language, and accessibility ensured the inclusion of recent, peer-reviewed, and openly available research. This structured approach enhanced the transparency and reproducibility of the literature identification process, aligning with PRISMA 2020 guidelines and ensuring methodological rigor.

Table 2: Primary Database Search Strategy

Database	Search String	Filters/Limiters
ACM Digital Library	("Scrum Master" OR "Agile team leader" OR "servant leader") AND ("Agile project management" OR "Scrum framework" OR "Agile methodology") AND ("role evolution" OR "leadership skills" OR "organizational agility")	• Publication year: 2010–2025 • Peer-reviewed journal articles • Language: English
IEEE Xplore	("Scrum Master" OR "Agile coach") AND ("project management" OR "team maturity" OR "scaled agile") AND ("leadership" OR "competency" OR "organizational change")	• Publication year: 2010–2025 • Open access articles only • Language: English
ScienceDirect	("Scrum Master" OR "Agile facilitator") AND ("Agile project management" OR "software engineering" OR "distributed teams") AND ("role conflict" OR "skills development" OR "evolution")	• Publication year: 2010–2025 • Full-text availability (PDF) • Language: English

Including grey literature, as outlined in Table 3, provided valuable contextual depth to the systematic review by capturing practice-based perspectives and emerging insights beyond traditional peer-reviewed studies. Industry reports and organizational publications offered current evidence on how Scrum Masters' responsibilities evolve in real-world agile environments, while preprints and practitioner blogs revealed early interpretations of shifting role dynamics. Consulting analyses and professional white papers, such as those from PMI, Scrum.org, and McKinsey, contributed empirical grounding for industry trends like scaling agile and hybrid role convergence. Incorporating these sources ensured a balanced synthesis between academic rigor and practitioner relevance, strengthening the review's ability to reflect both theoretical evolution and applied transformation within agile project management.

Table 3: Focused Grey Literature Sources

Source Type	Specific Targets	Rationale
Industry and Professional Organizations	• Scrum.org learning resources and annual *State of Scrum* reports (2015–2025) • Project Management Institute (PMI) Agile Practice Guides and thought leadership papers • Agile Alliance white papers and webinars	Provide practitioner insights, updated frameworks, and evolving competency expectations for Scrum Masters within professional practice.
Corporate and Consulting Reports	• McKinsey & Company and Deloitte agile transformation reports • VersionOne *State of Agile* surveys (2010–2025) • Atlassian and Digital.ai industry analytics	Capture large-scale organizational trends and real-world agile role adoption patterns, complementing empirical academic findings.
Preprints and Practitioner Blogs	• SSRN (management and technology sections) • ResearchGate preprints in agile leadership • Medium and Scrum.org practitioner articles on Scrum Master experiences	Identify emerging perspectives, evolving role interpretations, and current debates before formal peer review.

The inclusion and exclusion criteria presented in Table 4 guided the systematic screening and selection of studies throughout the review process. Following the PRISMA 2020 framework, these parameters ensured that only relevant, high-quality sources directly addressing the Scrum Master's evolving role were retained. During the identification phase, all records from DOAJ, OpenAlex, and CiteSeerX were imported into a reference management system, and duplicates were removed. In the screening phase, titles and abstracts were assessed based on the inclusion criteria—specifically focusing on studies exploring Scrum Masters, agile leadership, or role development within project environments. The eligibility phase involved full-text reviews to exclude studies with purely technical or non-role-related content, ensuring conceptual alignment with the research objectives. Applying these filters systematically enhanced the precision and transparency of the review process, ensuring that the final synthesis reflected the most relevant and methodologically sound literature.

Table 4: Inclusion/Exclusion Criteria

Criteria	Inclusion	Exclusion
Time Period	January 2010 – December 2025	Before 2010
Population	Scrum Masters, Agile teams, Agile Coaches, Project Managers in agile environments	Studies unrelated to agile or Scrum practices; non-human subjects (e.g., simulations only)
Study Focus	Research examining the Scrum Master's role, leadership behaviors, competencies, team dynamics, or agile adoption	Studies focusing solely on software tools, product development, or non-role-specific technical outcomes
Context	Agile and hybrid project management environments, including team maturity, scaling, and remote collaboration	Traditional project management frameworks without agile or Scrum context
Language	Peer-reviewed journal articles, conference papers, industry reports, and grey literature with empirical or conceptual data	Non-translated non-English publications
Publication Type	Peer-reviewed journal articles, conference papers, industry reports, and grey literature with empirical or conceptual data	Opinion pieces, unverified blogs, news summaries, or content lacking methodological grounding

In line with the PRISMA 2020 framework, the identification phase began with systematic searches across multiple sources. From databases, 12 records were retrieved via ScienceDirect, 2 through ACM Digital Library, 12 via IEE Xplore and 12 via grey literature. Complementary searches of grey literature repositories (including policy reports, government resources, and organizational publications) produced an additional 25 documents. Altogether, 122 records were initially identified.

3. Limitations

This systematic literature review, while following PRISMA 2020 guidelines, was conducted by a single researcher, presenting inherent limitations regarding methodological rigor and potential bias. Standard best practices recommend multiple independent reviewers to enhance reliability during screening, quality assessment, and data extraction phases, thereby minimizing subjective interpretation and increasing confidence in study selection decisions (Page *et al.*, 2021). The absence of inter-rater reliability checks means that inclusion/exclusion decisions, thematic coding, and synthesis reflect one individual's interpretation rather than consensus judgment.

This singular perspective may have introduced unintentional bias in study prioritization, theme identification, and reconciliation of conflicting evidence. The qualitative nature of thematic analysis amplifies potential for subjective interpretation, as pattern recognition inherently involves researcher judgment benefiting from collaborative validation. While systematic and transparent procedures were applied throughout, including explicit documentation of search strategies and selection criteria, readers should interpret findings recognizing that independent verification was not performed. Future replications would benefit from incorporating multiple researchers to strengthen methodological validity and enhance trustworthiness of conclusions.

FINDINGS AND DISCUSSION

Following data extraction from the included studies, thematic analysis was employed to synthesize qualitative patterns and insights across the literature. This analytical approach involved systematic coding of study findings, identifying recurring concepts, and organizing these codes into coherent thematic categories that addressed the research questions. The thematic analysis process enabled the research to move beyond simple descriptive cataloging toward interpretive synthesis, revealing underlying patterns in how the Scrum Master role is conceptualized, enacted, and transformed across diverse organizational contexts. Table 5 presents the initial codes that emerged during analysis and demonstrates how these codes were systematically grouped into the five overarching themes that structure the findings section. This table illustrates the analytical progression from granular observations within individual studies to broader conceptual themes that capture the multidimensional evolution of Scrum Mastery. The alignment between codes and themes reflects both the consistency of certain role characteristics across contexts and the diversity of ways the role manifests in practice, thereby providing transparent documentation of how raw data was transformed into interpretive findings.
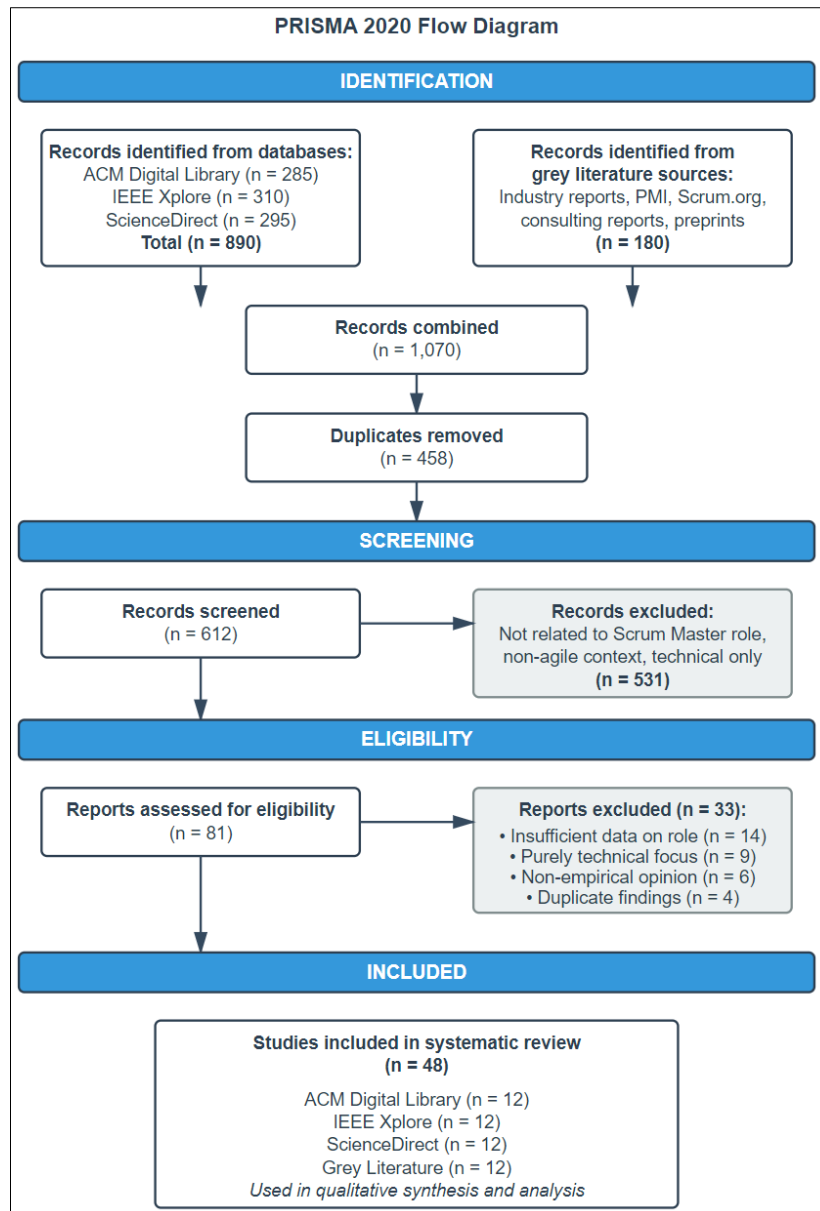
Figure 1: PRISMA Diagram

Table 5: Initial Codes and Corresponding Themes from the Thematic Analysis

Initial Codes	Corresponding Theme
Servant-leader orientation; Facilitating Scrum events; Removing impediments; Coaching self-organization; Process anchor activities; Supporting Product Owner	Theme 1: Definition and Core Responsibilities
Agile scaling challenges; Multiple team coordination; Scrum of Scrums facilitation; Global distributed teams; Remote work adaptation; Post-COVID virtual ceremonies; Cross-functional integration	Theme 2: Evolution and Expansion Across Contexts
Servant leadership behaviors; Empowerment vs. direction; Cultural bridge-building; Organizational trust development; Communication facilitation; Psychological safety creation; Gender and relational leadership	Theme 3: The Scrum Master as a Servant Leader and Cultural Catalyst
Role hybridization; Project manager overlap; Role convergence patterns; Dual accountability tensions; Rotating Scrum Masters; Context-specific adaptation; Non-software domains; Technology-enabled facilitation; Systems integration responsibilities	Theme 4: The Expanding and Hybridizing Nature of the Role
Structured education pathways; Mentorship effectiveness; Professional competency frameworks; Stages of mastery progression; Reflective facilitation; Retrospective coaching; Skills gap challenges; Diversity and inclusion in pathways; Communities of practice	Theme 5: Learning, Coaching, and Professionalization of the Scrum Master

4.1 Theme 1: Definition and Core Responsibilities

Across the literature, the Scrum Master is consistently defined as a servant-leader who enables self-organization, facilitates Scrum events, removes impediments, and promotes adherence to agile values. The Scrum Guide–based duties recur throughout: coaching teams, supporting the Product Owner, and advocating organizational agility (Ereiz & Mušić, 2019; Kristensen & Paasivaara, 2021). Bass (2014) & Shastri *et al.*, (2021) details six activity clusters—process anchor, stand-up facilitator, impediment remover, sprint planner, scrum-of-scrums facilitator, and integration anchor—showing that the role encompasses coordination as much as facilitation.

Srivastava and Jain (2017) frame it in leadership terms: the Scrum Master models transformational and coaching behaviors that sustain distributed, self-organized teams. Hidayati *et al.*, (2022) identify 34 competencies required in global software development, spanning communication, cultural intelligence, and technical literacy. Collectively these studies position the Scrum Master as both facilitator and human-capital catalyst rather than a line manager.

Within education, Müller-Amthor *et al.*, (2020) and Hans (2017) reaffirm this facilitative identity: the Scrum Master acts as a "solution-focused coach" guiding reflection and teamwork rather than directing work. Paasivaara (2021) likewise emphasizes coaching, mentoring, and community-building as the pedagogical core of Scrum-Master training.

4.2 Theme 2: Evolution and Expansion across Contexts

The role's evolution reflects agile scaling, globalization, and hybridization. Early enterprise research (Bass, 2014; Cowan, 2011) showed that large programs required multiple Scrum Masters collaborating through a Scrum of Scrums to coordinate integration and dependencies. Gupta and Manikreddy (2016) and Hidayati *et al.*, (2022) confirm that global distribution adds communication, cultural, and temporal-distance management to the Scrum Master's repertoire. Przybyłek *et al.,* (2025) extend this into the post-COVID remote era, finding that virtual teams succeed when Scrum Masters enforce discipline, documentation, and structured adaptation rather than ad-hoc digital ceremonies.

Role convergence is another pattern. Lv Yi (2011) documents managers transitioning into Scrum Masters as organizations shift from command-and-control toward coaching, revealing how agile transformation redefines managerial authority. Conversely, when organizations over-assign or merge roles—e.g., one Scrum Master to several teams or no dedicated Scrum Master at all—the literature reports declining team autonomy and communication quality (Ereiz & Mušić, 2019; Kristensen & Paasivaara, 2021).

Psychological and cultural dimensions also mark this evolution. Truong *et al.*, (2025) show that team effectiveness depends partly on personality traits, agreeableness and conscientiousness reinforce shared mental models and trust, implying that the Scrum Master's emotional intelligence and selection of team members matter as much as process skill. Ferreira *et al.*, (2023) extend the role into UX-driven, data-science projects, where Scrum Masters broker collaboration between developers, data scientists, and users. Similarly, Przybyłek *et al.*, (2022) portray them as facilitators of creativity through "game-based retrospectives," evolving from procedural moderators to engagement designers.

Finally, adaptive contexts such as universities (Masood *et al.*, 2018) and enterprises like Nordea (Kristensen & Paasivaara, 2021) demonstrate institutional learning: as teams mature, Scrum Masters transition from directive teachers to organizational coaches influencing culture and leadership pipelines. This maturation mirrors agile's own diffusion, from project practice to enterprise mindset (Miler & Gaida, 2019).

4.3 Theme 3: The Scrum Master as a Servant Leader and Cultural Catalyst

Across the literature, the Scrum Master is consistently framed as a *servant leader*—a facilitator who empowers rather than directs. The *Agile Practice Guide* defines this function as one that "coaches the team in self-organization and cross-functionality," removing impediments and ensuring productive ceremonies rather than exercising authority (PMI, 2017). Similarly, Paasivaara (2021) emphasizes that the Scrum Master's accountability lies in "establishing Scrum as defined in the Scrum Guide" and enabling teams to internalize agile values rather than enforce compliance. This servant leadership orientation distinguishes the Scrum Master from traditional project managers, demanding emotional intelligence and the ability to mediate between autonomy and alignment.

In professional environments, such as Siemens Healthineers and Grundfos, the Scrum Master has also become a cultural bridge. Gupta *et al.,* (2019) show that in distributed matrix organizations, the Scrum Master fosters communication using mechanisms like Obeya walls and cross-team rituals to enhance visibility and trust. Alsaker and Olsen (2022) similarly describe the role at Grundfos as one of *organizational trust-building*—developing competencies that "support and challenge the organization as it matures throughout its agile journey". This framing elevates the Scrum Master beyond the team level to an organizational influencer—guiding mindset transformation and embedding Agile as a culture rather than a methodology.

Gender and communication research further enrich this theme. Weilemann and Brune (2015) found

that women Scrum Masters' collaborative communication styles correlated with stronger team cohesion, suggesting that relational leadership traits—listening, empathy, and consensus-building—reinforce agile principles. In parallel, Siegeris *et al.*, (2018) demonstrated that agile education programs intentionally use the Scrum Master role to model non-hierarchical collaboration and flatten authority structures, preparing female IT students for inclusive leadership roles.

Together, these sources converge on a shared insight: servant leadership is the Scrum Master's defining ethos. Rather than managing schedules, they cultivate safe environments, psychological trust, and communication norms that enable collective ownership of delivery. This transformation from "task enforcer" to "culture shaper" represents the Scrum Master's essential contribution to agile maturity.

4.4 Theme 4: The Expanding and Hybridizing Nature of the Role

The second theme concerns the Scrum Master's role evolution from team facilitator to multi-contextual change agent. Early formulations such as *Agile Practices in Software Development* (Schneider & Vasa, 2006) positioned the Scrum Master primarily as a coordinator for small, co-located teams, ensuring sprint reviews, retrospectives, and task flow. Over time, however, the role has expanded significantly in scope.

Empirical studies illustrate this hybridization. Bolloju *et al.*, (2018) found that rotating Scrum Masters among team members increased shared understanding but decreased continuity, revealing tension between distributed leadership and role consistency. Hamza (2023) observed that in Pakistani software firms, 65% of Scrum Masters perform their duties effectively but often act simultaneously as project managers, causing "conflicts of interest" between servant leadership and managerial accountability. Such blending of responsibilities underscores an industry-wide identity struggle—Scrum Masters must balance coaching with delivery oversight (Deloitte, 2021; Easy Agile, 2025).

At scale, hybridization intensifies. In large agile environments, Scrum Masters frequently coordinate dependencies and synchronization across teams. Saeeda *et al.*, (2024) note that unclear "roles and responsibilities" contribute to *process debt* in telecom contexts, as overlapping duties between Scrum Masters and managers lead to inefficiencies. Gupta *et al.*, (2019) and Alsaker and Olsen (2022) similarly emphasize how scaled Scrum requires the Scrum Master to interface across geographies, functions, and tools, acting as both *integration lead* and *coach*.

This hybrid evolution extends beyond software. Schwarz (2018) documents the successful adoption of Scrum in the music industry, where Scrum Masters functioned as "communication anchors" linking creative and production units. Nankap *et al.*, (2025) and Milićević *et al.*, (2019) add that in remote Scrum contexts, technology has become a co-facilitator: Scrum Masters rely on data-driven dashboards and graph theory-based analytics to visualize communication health and detect isolation within distributed teams (Gren *et al.*, 2017). These examples confirm that the Scrum Master's domain has widened to encompass not only process facilitation but also digital collaboration and socio-technical systems management.

The shift from co-located teams to complex, hybrid ecosystems has effectively repositioned the Scrum Master as a systems integrator—a role that demands fluency in technology, communication, and organizational behavior. The literature collectively argues that while the title remains constant, its meaning diversifies according to context.

4.5 Theme 5: Learning, Coaching, and Professionalization of the Scrum Master

A third theme traces the professionalization and pedagogical development of the role. Historically, Scrum Masters learned informally through practice, but modern frameworks advocate structured education, mentorship, and reflection. Paasivaara (2021) highlights a university course where students served as Scrum Masters under the supervision of professional agile coaches, gradually progressing from observation to self-managed facilitation. Students rated mentorship as "extremely useful," confirming that coaching accelerates competency development and confidence.

Educational research extends this notion. Jackson and Ellis (2015) used Scrum in a capstone course where the instructor acted as Scrum Master to model agile ceremonies and accountability within a humanitarian software project. Similarly, Siegeris *et al.*, (2018) and Schneider and Vasa (2006) argue that embedding Scrum Masters into academic projects strengthens not only technical learning but also soft skills—communication, feedback, and facilitation—necessary for organizational agility.

From an industry perspective, Alsaker and Olsen (2022) describe *professionalizing* Scrum Masters at Grundfos through competency frameworks, mentorship networks, and clear developmental pathways. These efforts align with the *Stages of Scrum Mastery* framework from Scrum.org, which outlines progression from *Apprentice* to *Catalyst*—each stage reflecting increasing influence beyond team boundaries. The *17th State of Agile Report* reinforces this by identifying a widening skills gap: organizations struggle to "build and retain experienced Scrum Masters" who can balance delivery agility with business alignment.

Another critical pedagogical insight arises from *Counteracting Agile Retrospective Problems* (Matthies *et al.*, 2019), where retrospectives are positioned as key

coaching moments. Davidson and Klemme (2016) position Scrum Masters as those who "think like CEOs" for their teams. Scrum Masters who structure reflective sessions effectively can mitigate "team fatigue, blame dynamics, and loss of learning continuity". Thus, reflective facilitation is a professional competency in its own right, transforming retrospectives from ritual to continuous improvement mechanism.

Finally, professionalization also entails recognizing diversity and context. Studies like Weilemann and Brune (2015) and Siegeris *et al*., (2018) emphasize inclusive pathways that encourage underrepresented groups into agile leadership, while others like Gupta *et al*., (2019) advocate contextual certification and hybrid training for large enterprises. The role's maturation now mirrors that of a discipline—with its own ethics, pedagogy, and body of knowledge—cementing the Scrum Master as a cornerstone of organizational agility.

4. CONCLUSION

This systematic literature review synthesized qualitative insights from academic and grey literature to understand how the Scrum Master role is defined, practiced, and evolving within contemporary project management contexts. The findings reveal a role in significant transition—one that has expanded far beyond its original conception as a team-level facilitator to encompass organizational change agency, cultural transformation, and hybrid leadership responsibilities. Three overarching conclusions emerge from this synthesis, each addressing fundamental questions about the nature and trajectory of Scrum Mastery in agile environments.

First, the Scrum Master's foundational identity as a servant leader remains remarkably consistent across contexts, yet this identity is increasingly tested by organizational pressures and role ambiguity. The literature uniformly positions the Scrum Master as a facilitator who empowers rather than directs, coaching teams toward self-organization and removing impediments to enable flow (PMI, 2017; Paasivaara, 2021; Srivastava & Jain, 2017). This servant leadership orientation distinguishes the role from traditional project management, demanding emotional intelligence, active listening, and the capacity to build psychological safety within teams (Holtzhausen & de Klerk, 2018; Weilemann & Brune, 2015). However, empirical evidence suggests that this idealized role description often collides with practical realities. Multiple studies document Scrum Masters performing traditional project management duties such as scheduling, risk management, and stakeholder reporting—functions that create inherent tensions between servant leadership and managerial accountability (Hamza, 2023; Noll *et al*., 2017). This role convergence appears particularly pronounced in less mature agile organizations where structural clarity is lacking and the Scrum Master becomes the default point of accountability for delivery outcomes. The persistence of this pattern across diverse organizational contexts suggests that many enterprises have adopted Scrum's terminology without fully transforming the underlying command-and-control structures that govern project work. Consequently, the Scrum Master often exists in a liminal space—neither purely facilitator nor traditional manager—navigating competing expectations while attempting to model agile values.

Second, the role's evolution reflects broader trends in agile scaling, digital transformation, and the shift toward distributed work arrangements. Early formulations positioned the Scrum Master primarily as a coordinator for small, co-located software teams ensuring smooth sprint execution (Schneider & Vasa, 2006). However, contemporary practice reveals substantial expansion in scope and complexity. As organizations scale agile practices across multiple teams and geographies, Scrum Masters have become systems integrators coordinating dependencies, synchronizing work streams, and facilitating communication across organizational boundaries (Bass, 2014; Gupta & Manikreddy, 2016; Gupta *et al.,* 2019). This scaling introduces additional competency requirements including cultural intelligence for global teams, technological fluency for distributed collaboration, and organizational navigation skills for matrix environments (Hidayati *et al*., 2022). The post-COVID remote work transition further accelerated this evolution, demanding that Scrum Masters enforce disciplined documentation practices and structured adaptation rather than relying on informal co-located collaboration (Przybyłek *et al*., 2025). Beyond software development, the role has successfully migrated into diverse domains including music production, data science, and educational settings, demonstrating Scrum's adaptability but also revealing how context reshapes role expectations (Ferreira *et al*., 2023; Masood *et al*., 2018; Schwarz, 2018). Across these varied applications, a consistent pattern emerges: as teams mature, the Scrum Master's responsibilities shift from directive teaching toward organizational coaching and culture-building (Kadenic *et al*., 2023; Spiegler *et al*., 2019). This maturation trajectory suggests that the role's value proposition evolves alongside team capability—moving from process enforcement in nascent teams to strategic influence in established agile organizations. The literature indicates that this evolution is not merely additive but transformative, requiring Scrum Masters to develop fundamentally different competencies at different stages of team and organizational maturity.

Third, the professionalization of Scrum Mastery has emerged as both an opportunity and a challenge for organizations seeking to sustain agile transformation (Brosseau *et al*., 2019). Historically learned through apprenticeship and practice, the role now features structured education pathways, competency frameworks,

and progressive mastery stages (Alsaker & Olsen, 2022; Rajamani, 2021). Research demonstrates that formal mentorship and coaching significantly accelerate competency development, particularly in facilitating retrospectives, navigating organizational politics, and balancing multiple stakeholder interests (Matthies *et al*., 2019; Paasivaara, 2021). However, industry reports consistently identify a widening gap between demand for experienced Scrum Masters and the supply of qualified practitioners (VersionOne, 2023). This shortage appears particularly acute at advanced mastery levels where individuals must combine deep facilitation skills with business acumen and organizational change capabilities. The challenge is compounded by role hybridization patterns that diffuse accountability and create unclear career pathways—when Scrum Masters simultaneously function as project managers or when their responsibilities are distributed across team members, the distinctive value and professional identity of the role becomes obscured (Bolloju *et al*., 2018; Ereiz & Mušić, 2019). Moreover, the literature reveals concerning gaps in diversity and inclusion within Scrum Master ranks, with limited research examining how gender, culture, and background shape role enactment and team effectiveness (Grebić, 2019; Manisha *et al*., 2021; Siegeris *et al.,* 2018; Weilemann & Brune, 2015). As organizations increasingly recognize the Scrum Master as central to agile maturity and business agility, the need for robust professionalization mechanisms becomes critical—including clear role definitions, competency-based development, mentorship networks, and inclusive pathways into the profession. The trajectory toward professionalization reflects Scrum Mastery's emergence as a distinct discipline with its own body of knowledge, ethical commitments, and recognized expertise.

5. RECOMMENDATIONS

Based on the synthesis of findings, several recommendations emerge for practitioners, organizations, and researchers seeking to strengthen the Scrum Master role and advance agile project management practice (Balaban & Đurašković, 2021; Kurkovsky *et al*., 2024). These recommendations address role clarity, professional development, organizational design, and future research directions necessary to support the role's continued evolution and effectiveness.

Organizations adopting or scaling Scrum should establish clear structural boundaries between Scrum Master and project management responsibilities to prevent role conflict and preserve the servant leadership orientation essential to agile values. The evidence consistently demonstrates that when Scrum Masters assume traditional project management duties, tensions arise that undermine team autonomy and create competing accountabilities (Hamza, 2023; Noll *et al*., 2017). Organizations should explicitly delineate which activities constitute facilitation and coaching versus managerial oversight, potentially creating

complementary roles where needed rather than collapsing functions into hybrid positions. This structural clarity becomes particularly critical in scaled environments where coordination demands increase. Additionally, organizations should implement progressive Scrum Master competency frameworks aligned with team maturity levels, recognizing that different stages of agile adoption require different emphases—from process teaching in nascent teams to organizational coaching in mature environments (Alsaker & Olsen, 2022; Klaus-Rosińska & Gąsiorowska, 2025; Spiegler *et al*., 2019). Investment in formal mentorship programs, communities of practice, and professional development pathways will help address the documented shortage of experienced practitioners while building organizational capacity for sustained agile transformation (Paasivaara, 2021; VersionOne, 2023).

From a research perspective, significant gaps remain that warrant systematic investigation. Future studies should employ longitudinal designs tracking how Scrum Master roles, competencies, and team outcomes evolve as organizations progress through agile maturity stages, addressing the current limitation of predominantly cross-sectional research. Comparative research examining Scrum Master effectiveness across industries, organizational cultures, and team structures would illuminate which role configurations optimize outcomes in different contexts (Masood *et al*., 2018; Schwarz, 2018). The impact of distributed work on Scrum Master practices requires deeper investigation, particularly regarding how technology mediates facilitation, relationship-building, and organizational influence in hybrid and fully remote environments (Nankap *et al*., 2025; Przybyłek *et al*., 2025). Moreover, research addressing diversity and inclusion within Scrum Master populations remains critically underdeveloped—future work should examine how gender, cultural background, and personality traits shape role enactment, team dynamics, and career trajectories (Truong *et al*., 2025; Weilemann & Brune, 2015). Finally, studies investigating the boundary between Scrum Master and agile coach roles would help clarify role differentiation and optimal organizational structures as enterprises mature in their agile journeys (Gupta *et al*., 2019; Kristensen & Paasivaara, 2021). Such research would provide evidence-based guidance for role design, professional development, and organizational change strategies that honor agile principles while addressing practical delivery imperatives.

Declaration

The author declares the use of Artificial Intelligence (AI) in writing this paper. In particular, the

author used Claude in appropriate literature, summarizing key points and paraphrasing ideas. The author takes full responsibility in ensuring proper review and editing of contents generated using AI.

REFERENCES

- Alsaker, H., & Olsen, J. B. (2022). *Professionalising the Scrum Master role.* Better Change / Grundfos. https://doi.org/10.5281/zenodo.7331051
- Balaban, S., & Đurašković, J. (2021). Agile project management as an answer to changing environment. *European Project Management Journal*, *11*(1), 12–19. https://doi.org/10.18485/EPMJ.2021.11.1.2
- Bass, J. M. (2014). Scrum Master Activities: Process Tailoring in Large Enterprise Projects. *2014 IEEE 9th International Conference on Global Software Engineering*, 6–15. https://doi.org/10.1109/ICGSE.2014.24
- Bolloju, N., Chawla, R., & Ranjan, R. (2018). *Pros and cons of rotating Scrum Master role: A qualitative study.* In *Proceedings of the 11th Innovations in Software Engineering Conference (ISEC '18)* (pp. 1–5). Association for Computing Machinery. https://doi.org/10.1145/3172871.3172883
- Brosseau, D., Ebrahim, S., Handscomb, C., & Thaker, S. (2019, May 10). *The journey to an agile organization*. McKinsey & Company. https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/the-journey-to-an-agile-organization
- Cowan, C. L. (2011). When the VP is a Scrum Master, you hit the ground running. In *2011 Agile Conference* (pp. 279-283). IEEE. https://doi.org/10.1109/AGILE.2011.31
- Davidson, A., & Klemme, L. (2016). *Why a CEO should think like a Scrum Master. Strategy & Leadership,* *44*(1), 36–40. https://doi.org/10.1108/SL-11-2015-0086
- Deloitte. (2021). *Business agility survey 2021: A pulse check of business agility in the Nordics.* Deloitte AS. https://www2.deloitte.com/no/en/pages/strategy-operations/articles/business-agility-survey-nordic.html
- Easy Agile. (2025, January 7). *Agile in 2025: 8 trends reshaping software development and delivery.* https://www.easyagile.com/blog/agile-trends-predictions-2025
- Ereiz, Z., & Mušić, D. (2019). Scrum without a Scrum Master. In *2019 IEEE International Conference on Computer Science and Educational Informatization (CSEI)* (pp. 325-328). IEEE. https://doi.org/10.1109/CSEI47612.2019.9037694
- Ferreira, B., Marques, S., Kalinowski, M., Lopes, H., & Barbosa, S. D. J. (2023). *Lessons learned to improve the UX practices in agile projects involving data science and process automation. Information and Software Technology,* *156*, 107106. https://doi.org/10.1016/j.infsof.2022.107106
- Grebić, B. (2019). Traditional vs agile project management in the service sector. *European Project Management Journal*, *9*(2), 55–63. https://doi.org/10.18485/epmj.2019.9.2.6
- Gren, L., Torkar, R., & Feldt, R. (2017). *Group development and group maturity when building agile teams: A qualitative and quantitative investigation at eight large companies. Journal of Systems and Software,* *124*, 104–119. https://doi.org/10.1016/j.jss.2016.11.024
- Gupta, R. K., & Manikreddy, P. (2016). Adapting agile in a globally distributed software development. In *2016 49th Hawaii International Conference on System Sciences (HICSS)* (pp. 5359-5367). IEEE. https://doi.org/10.1109/HICSS.2016.663
- Gupta, R. K., Jain, S., Singh, B., & Jha, S. K. (2019). *Key factors in scaling up agile team in matrix organization.* In *Proceedings of the 12th Innovations in Software Engineering Conference (ISEC '19)* (pp. 1–5). Association for Computing Machinery. https://doi.org/10.1145/3299771.3299793
- Hamza, M. (2023). *Effectiveness of Scrum Master in agile projects* [Preprint]. Preprints.org. https://doi.org/10.20944/preprints202312.0046.v1
- Hans, R. T. (2017). Work in progress – The impact of the student scrum master on quality and delivery time on students' projects. *2017 International Conference on Learning and Teaching in Computing and Engineering (LaTICE)*, 87–90. https://doi.org/10.1109/LaTiCE.2017.22
- Hidayati, A., Budiardjo, E. K., & Purwandari, B. (2022). *Scrum team competencies in information technology professionals in the global software development environment. International Journal of Human Capital and Information Technology Professionals,* *13*(1), 1–17. https://doi.org/10.4018/IJHCITP.293233
- Holtzhausen, N., & de Klerk, J. J. (2018). *Servant leadership and the Scrum team's effectiveness. Leadership & Organization Development Journal, 39*(7), 873–882. https://doi.org/10.1108/LODJ-05-2018-0193
- Jackson, S., & Ellis, H. (2015). *Supporting HFOSS using Scrum in a capstone course. SIGCAS Computers and Society, 45*(2), 36–40. https://doi.org/10.1145/2809957.2809968
- Kadenic, M. D., Koumaditis, K., & Junker-Jensen, L. (2023). *Mastering Scrum with a focus on team maturity and key components of Scrum. Information and Software Technology, 153*, 107079. https://doi.org/10.1016/j.infsof.2022.107079
- Klaus-Rosińska, A., & Gąsiorowska, A. (2025). *Project management in IT with LeSS Scrum methodology. Procedia Computer Science, 256*, 1962–1968. https://doi.org/10.1016/j.procs.2025.02.339

- Kristensen, S. H., & Paasivaara, M. (2021). What Added Value Does a Scrum Master Bring to the Organisation? — A Case Study at Nordea. *2021 47th Euromicro Conference on Software Engineering and Advanced Applications (SEAA)*, 270–278. https://doi.org/10.1109/SEAA53835.2021.00041
- Kurkovsky, S., Williams, C. A., Goldweber, M., & Sommer, N. (2024). *External projects and partners: Addressing challenges and minimizing risks from the outset.* In *Proceedings of the 2024 Innovation and Technology in Computer Science Education (ITiCSE 2024)* (pp. 555–561). Association for Computing Machinery. https://doi.org/10.1145/3649217.3653593
- Lv, Y. (2011). Manager as Scrum Master. In *2011 Agile Conference* (pp. 151-153). IEEE. https://doi.org/10.1109/AGILE.2011.8
- Manisha, Khurana, M., & Kaur, K. (2021). Impact of Agile Scrum Methodology on Team's Productivity and Client Satisfaction – A Case Study. *2021 3rd International Conference on Advances in Computing, Communication Control and Networking (ICACCCN)*, 1686–1691. https://doi.org/10.1109/ICAC3N53548.2021.9725505
- Masood, Z., Hoda, R., & Blincoe, K. (2018). *Adapting agile practices in university contexts. Journal of Systems and Software, 146*, 96–113. https://doi.org/10.1016/j.jss.2018.07.011
- Matthies, C., Dobrigkeit, F., & Ernst, A. (2019). *Counteracting agile retrospective problems with retrospective activities.* In A. Walker, R. O'Connor, & R. Messnarz (Eds.), *Systems, Software and Services Process Improvement (EuroSPI 2019)* (Vol. 1060, pp. 489–501). Springer. https://doi.org/10.1007/978-3-030-28005-5_41
- Miler, J., & Gaida, P. (2019). On the agile mindset of an effective team – An industrial opinion survey. In M. Ganzha, L. Maciaszek, & M. Paprzycki (Eds.), *Proceedings of the Federated Conference on Computer Science and Information Systems* (Vol. 18, pp. 841-849). IEEE. https://doi.org/10.15439/2019F198
- Milićević, J. M., Filipović, F., Jezdović, I., Naumović, T., & Radenković, M. (2019). Scrum agile framework in e-business project management: an approach to teaching scrum. *European Project Management Journal, 9*(1), 52–60. https://doi.org/10.18485/epmj.2019.9.1.7
- Müller-Amthor, M., Huber, F., Hagel, G., & Gensheimer, M. (2020). Scrum Higher Education – The Scrum Master supports as solution-focused coach. In *2020 IEEE Global Engineering Education Conference (EDUCON)* (pp. 948-952). IEEE. https://doi.org/10.1109/EDUCON45650.2020.9125307
- Nankap, L. H., Bouchard, B., Imbeau, G., & Francillette, Y. (2025). *Enhancing agile project management for remote teams: A graph theory-based approach.* In *Proceedings of the 8th International Conference on Software Engineering and Information Management (ICSIM 2025)* (pp. 17–23). Association for Computing Machinery. https://doi.org/10.1145/3725899.3725902
- Noll, J., Razzak, M. A., Bass, J. M., & Beecham, S. (2017, November). A study of the Scrum Master's role. In *International Conference on Product-Focused Software Process Improvement* (pp. 307-323). Springer, Cham.
- Paasivaara, M. (2021). Teaching the Scrum Master Role using Professional Agile Coaches and Communities of Practice. *2021 IEEE/ACM 43rd International Conference on Software Engineering: Software Engineering Education and Training (ICSE-SEET)*, 30–39. https://doi.org/10.1109/ICSE-SEET52601.2021.00012
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ, 372*. https://doi.org/10.1136/bmj.n71
- Project Management Institute (PMI), & Agile Alliance. (2017). *Agile practice guide.* Project Management Institute. ISBN 978-1-62825-199-9
- Przybyłek, A., Albecka, M., Springer, O., & Kowalski, W. (2022). Game-based Sprint retrospectives: Multiple action research. *Empirical Software Engineering, 27*(1), Article 1. https://doi.org/10.1007/s10664-021-10043-z
- Przybyłek, A., Belter, D., & Conboy, K. (2025). *A study of Scrum @ S&P Global in the post-COVID-19 era: Unsuitable for remote work or just flawed implementation? Information and Software Technology, 183*, 107728. https://doi.org/10.1016/j.infsof.2025.107728
- Rajamani, V. (2021, July 8). *Whitepaper: The stages of Scrum mastery.* Scrum.org. https://www.scrum.org/resources/blog/whitepaper-stages-scrum-mastery
- Rehkopf, M. (2025). *What is a Scrum Master? Their role & responsibilities.* Atlassian. Retrieved October 15, 2025, from https://www.atlassian.com/agile/scrum/scrum-master
- Saeeda, H., Ahmad, M. O., & Gustavsson, T. (2024). *Exploring process debt in large-scale agile software development for secure telecom solutions.* In *Proceedings of the International Conference on Technical Debt (TechDebt '24)* (pp. 11–21). Association for Computing Machinery. https://doi.org/10.1145/3644384.3644470
- Schneider, J.-G., & Vasa, R. (2006). *Agile practices in software development – Experiences from student projects.* In *Proceedings of the Australian Software Engineering Conference (ASWEC 2006)* (pp. 409–418). IEEE. https://doi.org/10.1109/ASWEC.2006.9

- Schwarz, D. (2018). *Effectiveness of agile frameworks in music management*. In *XP '18 Companion: Extended Abstracts of the International Conference on Agile Software Development* (pp. 1–4). Association for Computing Machinery. https://doi.org/10.1145/3234152.3234162
- Shastri, Y., Hoda, R., & Amor, R. (2021). *The role of the project manager in agile software development projects. Journal of Systems and Software, 173*, 110871. https://doi.org/10.1016/j.jss.2020.110871
- Siegeris, J., Steinseifer, R., & Barke, H. (2018). *Wie agil geht Hochschullehre? Weiterentwicklung studentischer Projekte in einem mono-edukativen Studiengang [Agile redesign of student projects in a women-only degree course]*. In *Proceedings of Gender & IT (GenderIT 2018)* (pp. 19–28). Association for Computing Machinery. https://doi.org/10.1145/3196839.3196843
- Spiegler, S. V., Heinecke, C., & Wagner, S. (2019). *Leadership gap in agile teams: How teams and Scrum Masters mature*. In P. Kruchten et al. (Eds.), *Agile Processes in Software Engineering and Extreme Programming – XP 2019 (LNBIP 355, pp. 37–52)*. Springer. https://doi.org/10.1007/978-3-030-19034-7_3
- Srivastava, P., & Jain, S. (2017). *A leadership framework for distributed self-organized Scrum teams. Team Performance Management: An International Journal, 23*(5/6), 293–314. https://doi.org/10.1108/TPM-06-2016-0033
- Truong, D. M., Xu, L., & de Vrieze, P. T. (2025). *The impact of personality traits on Scrum team effectiveness: Insights from Vietnamese software development companies. Information and Software Technology, 188*, 107878. https://doi.org/10.1016/j.infsof.2025.107878
- VersionOne. (2023). *17th State of Agile report*. Digital.ai. https://stateofagile.com
- Weilemann, E., & Brune, P. (2015). *Less distress with a Scrum mistress? On the impact of females in agile software development teams*. In *Proceedings of the Australian Software Engineering Conference (ASWEC '15 Vol. II)* (pp. 41–48). Association for Computing Machinery. https://doi.org/10.1145/2811681.2811682.