ABSTRACT

The need to improve the efficiency and effectiveness of software development amidst the rapidly changing digital market is increasingly crucial. In this context, Tribe Wholesale Digitization (TWD) is required to produce high-quality products and services with shorter development cycles, making the adoption of the Scrum framework as an agile methodology essential.

This research deeply assesses the maturity level of software development processes at TWD—a strategic unit of PT Telkom Indonesia (Persero) Tbk—using the Scrum Maturity Model (SMM), identifies gaps against ideal conditions, and develops a prioritized improvement roadmap.

The method used is a cross-sectional quantitative survey of 76 respondents from six squads (Product Owner, Scrum Master, development team) and supporting roles (Researcher, Designer, Frontend/Backend Developer, Quality Assurance, and Documentation). The instrument was adapted from SMM dimensions, covering basic Scrum management, requirements engineering, customer relationship management, and performance management; maturity status was determined through Key Process Areas (KPA) scoring and threshold categorization, complemented by validity-reliability tests and triangulation of practice artifacts (backlog, Definition of Done/DoD, and sprint event notes). The results show that TWD is at Level 2 with positive KPA indicators of 90.18% ("fully met") for basic scrum management, and 86.78% ("fully met") for Software Requirement Engineering; however, at Levels 3–5, challenges still exist, including inconsistencies in role understanding, limitations in traceability/process transparency, and organizational rigidity that hinders flexibility, as well as inconsistent application of standardized DoD, robust backlog refinement, quantitative metrics for decision-making, and CI/CD with automated testing.

Gap analysis identified three priorities: (i) strengthening team performance metric governance (velocity, lead time, defect density) and integrating customer feedback into Sprint Reviews; (ii) standardizing core Scrum disciplines (shared DoD, validated and granular backlog, measurable Retrospective follow-ups); and (iii) accelerating technical enablers (CI/CD pipeline, testing coverage) with clear roles and accountability. The agreed ideal maturity level target is Level 4 (Quantitatively Managed), with a phased roadmap of quick wins (0–3 months), scale-up (3–6 months), and institutionalization (6–12 months). These findings provide a measurable maturity baseline and theoretical-practical contributions to strengthening Scrum practices in large-scale organizations.

Keywords: Agile Software Development, Scrum, Scrum Maturity Model, Process Maturity, Tribe Wholesale Digitization, PT Telkom Indonesia, Software Development, Case Study, Quantitative Analysis, Improvement Recommendations.