

Task Management System with AI Power Suggestion

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Abstract- The paper introduces 'Scrummer', a web-based application developed to manage and monitor tasks within software development projects. The study is grounded in the belief that there is a significant market demand for such a tool to help IT companies enhance team efficiency, accelerate time to market, and meet customer demands, all of which are central to the Agile Manifesto. The application is designed to be a simpler, effective tool for applying Agile and Scrum methodologies.

Keywords- Scrummer, software tool, web application, Agile, task management, software development projects, team efficiency, customer demands, time to market.

I. INTRODUCTION

The software industry has increasingly focused on reducing the time required for a product to move from conception to market delivery, a success largely attributed to the adoption of the Agile Methodology. Recognizing the shift in IT companies toward an agile mindset, this study proposes a dedicated software solution, 'Scrummer', to simplify and facilitate the Agile Transformation process. The paper focuses on the popular Scrum framework, which is implemented and amplified by the proposed tool, forming the core foundation of this research.

The Scrummer tool is a web-based application that offers a smoother workflow by incorporating principles of iterative and continuous development. It is designed to automate and streamline interactions among team members by facilitating the essential management of tasks that arise during the analysis, implementation, and testing phases of a project. The paper itself is structured to first present the domain and compare the new tool with similar market offerings, followed by a detailed description of the Scrummer application's functionalities, validation through a survey, and finally, conclusions and future work.

Historically, the need for change arose from the limitations of the Waterfall Methodology, which enforced adherence to fixed requirements, often resulting in projects being outdated upon release and a high waste of resources. The Agile movement, formalized by the Agile Manifesto in the 2000s, introduced principles of continuous user feedback and flexibility (responding to change over following a plan). Today, a specialized Agile project management tool is considered essential for achieving transparency, coordinating effort in dynamic projects, and maximizing workflow efficiency.

II. LITERATURE SURVEY

Filomena Canterino [1], This study contributes to the APM literature in non-software contexts by studying the cultural values that develop inside agile teams and the Scrum principles and practices that are particularly relevant for fostering these values.

Elvan Kula [2], In this paper, we investigate how prioritization criteria vary across project settings and propose a model for generating sprint plans that are tailored to the context of individual teams. Through a survey conducted at ING, we identify urgency, sprint goal alignment, and business value as the top prioritization criteria, influenced by project factors such as resource availability and client type.

Carolyn Unger-Windeler [3] The results of the mapping study states that Product Owners are communicators. We further investigated on this and used the shadowing technique to observe three Product Owners' communication activities. The results support that statement, as the gained data reveal that Product Owners spend 65% of their time in meetings.

Michal Hron [4], this study systematically analyses why and how Scrum was reportedly modified in different instances and contributes with a synthesis

that can serve as a basis for a more systematic approach to future research and practice. We explicate nine common modification objectives for change (e.g., attaining high performance, non-standard contexts, distributed development) mapped against seven generic modification strategies

Chikezie Paul-Mikki Ewim [5], This study introduces a comprehensive framework designed to enhance cross-functional team coordination through structured operational management strategies. By integrating key principles of collaboration, communication, and accountability, the framework aims to bridge departmental silos and promote a culture of teamwork. The proposed model is structured around three core components: communication channels, collaborative tools, and performance metrics.

Carin Lindskog [6], This study aims to create a better understanding of how practitioners implement and work Agile while balancing the tensions arising between stability and change.

MAMOONAMUMTAZ [7], The most cited positive consequence of iteration is quality improvement, whereas the negative impacts of iteration are increasing time, effort, and cost. Our study provides a framework to understand the nature of iteration, what sources can lead to which iterative perspective, a particular iterative situation can have what kind of impacts on project milestones, and also provide research directions

FARZANA AHAMED BHUIYAN [8], The objective of this paper is to help researchers identify research gaps related to software vulnerabilities by conducting a systematic mapping study of research publications that use security bug reports. Method: We perform a systematic mapping study of research that use security bug reports for software vulnerability research by searching five scholar databases: (i) IEEE Xplore, (ii) ACM Digital Library, (iii) ScienceDirect, (iv) Wiley Online Library, and (v) Springer Link. From the five scholar databases

Existing System

The primary contrast is with the rigid Waterfall Methodology, which served as the traditional approach but often led to significant issues. The Waterfall model did not allow for changes once

requirements were set, resulting in products that were often outdated by the time they reached the client.

In the context of competitive market solutions, the paper mentions and compares the proposed system with existing project management tools, specifically Jira Software and Tuleap, which are used to manage Agile projects.

Proposed system

The proposed system is Scrummer, a web-based, Agile project management application.

- **Design and Function:** Scrummer is tailored to the specific needs and roles of a Scrum Team, providing distinct and flexible role-based access for the Product Owner (PO), Scrum Master (SM), and Development Team. It is designed to be a simpler, more powerful alternative to existing solutions, offering an intuitive interface and real-time collaboration features. For instance, the PO can create projects and manage the Product Backlog, while the SM manages sprints and tracks impediments.
- **Technology:** The application is built using the MERN stack, which stands for MongoDB, Express JS, React JS, and Node JS. This full-stack approach utilizes a NoSQL (MongoDB) database, which offers greater flexibility for changes to the data model in an Agile environment.

III.CONCLUSION

The paper concludes that Scrummer successfully introduced an intuitive, user-friendly, and effective web-based tool for facilitating core Scrum practices. The application's focus on role-specific functionalities ensures alignment with Agile principles, leading to demonstrated improvements in team collaboration and efficiency, and ultimately shortening project delivery timelines. The tool provides a Scrum Board and the ability to manage work items to ensure team transparency and efficiency.

For future work, the authors plan to expand the application by integrating AI for predictive analytics, such as forecasting task completion and identifying

bottlenecks. Additional planned enhancements include adding email notifications, detailed charts for finished Sprints (Burn-down Chart and Velocity Chart), and a feature for running and saving notes from Scrum ceremonies.

REFERENCES

- [1] Mumtaz, M., Ahmad, N., Ashraf, M. U., Alghamdi, A. M., Bahaddad, A. A., and Almarhabi, K. A., 2022. Iteration Causes, Impact, and Timing in Software Development Lifecycle: An SLR. *IEEE Access*, 10, pp. 65355-65375. <https://doi.org/10.1109/ACCESS.2022.3182703>.
- [2] Lindskog, C., and Netz, J., 2021. Balancing between stability and change in Agile teams. *International Journal of Managing Projects in Business*, 14(7), pp. 1529-1554. <https://doi.org/10.1108/IJMPB-12-2020-0366>.
- [3] Unger-Windeler, C., Klünder, J. A. C., Reuscher, T., and Schneider, K., 2021. Are Product Owners communicators? A multimethod research approach to provide a more comprehensive picture of Product Owners in WSEAS TRANSACTIONS on COMPUTER RESEARCH DOI: 10.37394/232018.2025.13.47 Amel Hanoosh, Iuliana Marin E-ISSN: 2415-1521 520 Volume 13, 2025 practice. *Journal of Software: Evolution and Process*, 33(1), pp. 1-10. <https://doi.org/10.1002/smr.2311>.
- [4] Hron, M., and Obwegeser, N., 2022. Why and how is Scrum being adapted in practice: A systematic review. *Journal of Systems and Software*, 183, pp. 1-10. <https://doi.org/10.1016/j.jss.2021.111110>.
- [5] Ewim, C. P. M., Achumie, G. O., Adeleke, A. G., Okeke, I. C., and Mokogwu, C., 2024. Developing a cross-functional team coordination framework: A model for optimizing business operations. *International Journal of Frontline Research in Multidisciplinary Studies*, 4(01), pp. 15-34. <https://doi.org/10.56355/ijfrms.2024.4.1.0030>.
- [6] Kula, E., van Deursen, A., and Gousios, G., 2024. Context-Aware Automated Sprint Plan Generation for Agile Software Development. In *Proceedings of the 39th IEEE/ACM International Conference on Automated Software Engineering, ASE '24*, Sacramento, USA, October 27 – November 1, 2024, pp. 1745-1756. <https://doi.org/10.1145/3691620.3695540>.
- [7] Patrucco, A. S., Canterino, F., and Minelgaite, I., 2022. How do scrum methodologies influence the team's cultural values? A multiple case study on agile teams in Nonsoftware industries. *IEEE Transactions on Engineering Management*, 69(6), pp. 3503-3513. <https://doi.org/10.1109/TEM.2022.3146717>.
- [8] Bhuiyan, F. A., Sharif, M. B., and Rahman, A., 2021. Security bug report usage for software vulnerability research: a systematic mapping study. *IEEE Access*, 9, pp. 28471-28495. <https://doi.org/10.1109/ACCESS.2021.3058067>.