

## **Abstract**

**Monitoring in the Scrum process becomes important due to the unique challenges posed by Scrum implementation, such as time constraints for Scrum execution. This can lead to delivery delays and deviations from user expectations. Some studies have solely relied on internal measurements to monitor software development team progress. However, research outcomes indicate that a monitoring process solely reliant on internal measurements tends to result in projects that lack engagement and support from stakeholders, such as prospective users. As user satisfaction takes precedence in agile development, internal measurements alone are insufficient. Measurement of external team aspects, specifically using customer satisfaction, is necessary.**

**Hence, the purpose of this research is to monitor software development teams by combining both internal and external measurements, namely the velocity chart and customer satisfaction. Data for this study is derived from various Scrum activities performed by the team, such as sprint planning, sprint review, and sprint retrospective. Employing quantitative analysis, the collected measurement data is processed to ascertain team velocity and customer satisfaction values. The outcome of the monitoring, represented by team velocity measurement data, can be used to estimate the number of story points achievable in the next sprint. Similarly, the data from customer satisfaction measurements can provide insights into user contentment levels after each sprint.**

**Through Spearman correlation analysis, it was determined that no significant relationship exists between internal and external measurements. Thus, even if a team performs well in completing tasks, it does not always guarantee customer satisfaction, and vice versa. Consequently, it is crucial to continuously conduct both internal and external team monitoring and measurements. This practice aids the team in completing projects on time, in line with user needs, and meeting the predetermined scope set by stakeholders.**

**Keywords: agile, scrum, internal measure, external measure, velocity, customer satisfaction**