

**RECOMMENDATIONS TO IMPLEMENT SOFTWARE  
METRIC PROGRAMS IN AGILE SCRUM  
ENVIRONMENT**

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## ABSTRACT

Agile Scrum is a widely used framework that helps to control complex and chaotic scenarios within the IT industry. Scrum helps to address changing requirements and deliver a shippable product increment in a short period. Moreover, Agile Scrum is based on a set of norms and best practices that revolves around the people factor. To improve the process, certain attributes of the process should be measured and based on the measurement data, need to evolve the process. Process improvement depends on the success of the ingested measurement program and how sustainable the program is.

This research intends to provide recommendations to implement software metric programs in Agile Scrum environment. The objectives associated with this research are to identify the existence of software metric programs in the Sri Lankan IT industry and find factors that influence the successful implementation of Scrum metrics.

The quantitative approach has been used when conducting the research and used an online survey form to collect data required for the analysis. Software professionals within the Sri Lankan IT industry have been considered as the population. The collected data has been cleaned and fed into the IBM SPSS tool for analysis. Descriptive statistics and inferential statistics have been performed upon the data set and conclusions derived for the sample and the population accordingly.

Descriptive analysis for demographic data revealed that most of the sample respondents follow Agile Scrum and the majority have awareness about software metrics.

‘Process adherence’, ‘effective utilization of metric information’, ‘presence of professional bodies within the organization’ and ‘goal alignment’ have a positive moderate correlation with the ‘successful implementation of scrum metrics’, but ‘infrastructure & tools’ has a positive weak correlation with the ‘successful implementation of scrum metrics’.

After the analysis, the researcher identified that, ‘process adherence’, ‘effective utilization of metric information’, ‘presence of professional bodies within the organization’, ‘goal alignment’ and ‘infrastructure & tools’ have an impact on the successful implementation of scrum metrics. To achieve the successful implementation of scrum metrics, an organization should consider about above factors so it would help to establish a sustainable metric program within the scrum environment.

**Keywords:** Agile Scrum, Software Metrics, Software Metric Program

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## **LIST OF ABBREVIATIONS**

IV – Independent Variable

DV – Dependent Variable

IT – Information Technology

QE – Quality Engineering

GQM – Goal Question Metric

KPI – Key Performance Indicator

ICTA – Information and Communication Technology Agency

SAFe – Scaled Agile Framework

ANOVA – Analysis of Variance