An Empirical Evaluation of SQA Practices and Their Effectiveness in Sri Lankan Software Industry

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DECLARATION

I hereby declare that to the best of my knowledge, this submission is my own work and it neither contains direct material previously published nor written by another person or material, which to substantial extent, has been accepted for the award of any other academic qualification of a university or other institute of higher learning except where acknowledgement is made in the text.

Certified by

Signature :……

Date :……

Name of Supervisor I :…….

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Date :…….

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ABSTRACT

Quality Assurance (QA) refers to the planned activities carried out in a system, so that quality requirements for a product or service will be fulfilled. It is the systematic measurement, comparison with standards, analyzing processes and associated feedbacks focusing on high level of accuracy.

Quality assurance in software is a highly demanding and an emerging area effecting to the success or failure of a software project critically, hence an integral part of project management. The importance of sustaining a positive quality assurance is highly determined by the fact that it builds a proactive management system that reduces the rework amount, leading to low cost and improve productivity. Software Quality Assurance (SQA) domain deals with the quality principles in software engineering development processes. It defines and measures the outputs at different stages of software development process quantifying the quality in terms of defects.

In Sri Lanka software industry is the fifth largest job category according to 2019 ICT Workforce survey by the Information and Communication Technology Agency (ICTA). The objectives of this study are achieved by gathering data by consultation with IT professionals; developers, QA engineers, project managers and analyze them by the use of various statistical techniques such as, percentage analysis, chi-squared analysis and correlation analysis presenting results in suitable hypothesis and relevant interpretation.

The purpose of this empirical evaluation is to explore different SQA practices across a range of IT organizations in Sri Lanka aiming to help these organizations to identify what approaches in eliminating bugs are effective and support finetuning their QA strategies in software development projects by focusing on few of important areas, such as, software testing, quantitative project management, etc. while bridging the gaps identified in various areas of project management relating to software development.

Key words: Software, Quality assurance, Effectiveness, Sri Lanka

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LIST OF ABBREVIATIONS

CMMI	Capability Maturity Model Integration
ICTA	Information and Communication Technology Agency
IEEE	Institute of Electrical and Electronics Engineers
IT	Information Technology
ISO	International Organization for Standardization
QA	Quality Assurance
SaaS	Software as a Service
SDLC	Software Development Life Cycle
SCM	Software Configuration Management
SPSS	Statistical Package for the Social Sciences
SQA	Software Quality Assurance
QMS	Quality Management Systems
USD	United States Dollar
WBS	Work Breakdown Structure