QUALITY FACTOR BASED CRITICAL ASSESSMENT OF THE SCRUM SOFTWARE DEVELOPMENT METHODOLOGY

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Declaration

This thesis is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions.

The work was done under the guidance of Eng. Kithsiri Samarasinghe, at the University of Moratuwa, Sri Lanka as a fulfilment of MBA in MOT programme.

S.N. Kalambaarachchi — 13/12/2010 — Date

In my capacity as supervisor of the candidate's thesis, I certify that the above statements are true to the best of my knowledge.

Eng. Kithsiri Samarasinghe — 13/12/2010 — Date

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Abstract

Software Export industry is a booming industry presently in Sri Lanka. Over the past couple of years, there was a shift from the multi-national companies' dominance to an increasing number of the newly established fast-growing software export companies. Sri Lanka is a favourable offshore destination in terms of high technical literacy rate, favorable investment climate, software quality and satisfactory infrastructure. Software exporting is highly competitive industry among countries like India, China, Sri Lanka and Malaysia. Therefore Sri Lanka should practice appropriate quality management strategies with latest software development methodologies to compete with other software export countries all over the world.

Numerous of researches and international quality standards are available with regards to general project management. The objectives of this exercise are to identify the different quality factors applicability for SCRUM software development and identify relationships with SCRUM project performance and also to recommendations to improve project performance in terms of software quality. In this research first the common quality factors practicing with SCRUM software development in software export companies were identified and based on that, a conceptual model was built to analyze the relationships.

The empirical data was drawn from 19 SCRUM software development practicing companies and analyzed using mainly with descriptive analysis to identify the nature of data and statistical analysis for testing the hypothesis. Also factor analysis used to validate the research constructs and Cronbatch Alpha was used for reliability Analysis.

In this study quality factors Functionality, Reliability, Usability, Efficiency, Maintainability and Portability critically assessed with SCRUM Software Project Performance.

The Findings of the research indicates that there is a positive relationship existing between quality factors Efficiency, Usability and Reliability with Project Performance. Based on above results recommendations to improve SCRUM software development methodology with quality factors was derived.

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List of Abbreviations

Abbreviation	Definition
CMMI	Capability Maturity Model Integration
IBM	International Business Machines
IEEE	Institute of Electrical and Electronics Engineers
IT	Information Technology
ISO	International Organization for Standardization
N/A	Not Applicable
QA	Quality Assurance
SLASI	Sri Lanka Association of Software Industry
SLASSCOM	Sri Lanka Association of Software and Service Companies
SLICTA	Sri Lanka Information and Communication Technology Association
SEA	Software Exporters Association
SQM	Software Quality Management
TQM	Total Quality Management

List of Definitions

Term	Definition
SCRUM	Scrum is an Agile methodology that can be used to manage and control simple to complex software and product development using iterative, incremental practices.