



# **SOFTWARE PROCESS IMPROVEMENTS THROUGH CAPABILITY MATURITY MODEL IN SRI LANKA**

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## Abstract

It is visible that software companies must establish practices that enhance quality and advanced process management techniques in order to remain competitive. Thus, they have increasingly turned to software process improvement methodologies (SPIM) nowadays. Understanding how to implement best fit SPIM successfully is arguably the most challenging issue faced by the software development field today. The Software Engineering Institute's (SEI) Capability Maturity Model (CMM) is widely adapted and has received great publicity in the software development industry.

However adoptability of CMM has been the topic of ongoing debates. Since most current software process models are developed and provided by either the United States or European standard committee, it can be said that CMM models are generally tailored for western cultures.

The objective of this research was to analyze the experiences of IT professionals in implementing CMM in Sri Lanka and to identify the key factors that influence the adoption and applicability of CMM. Further the aim was to introduce a framework to evaluate CMM adoptability and applicability for companies that are practicing CMM and planning for CMM implementation and to discover how to tailor the western style process for the Sri Lankan software development society. It was looked across in 2 main dimensions; cultural factors and work practices and investigated the impact of each dimension with regard to detail factors.

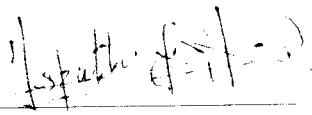
By analyzing the data of 62 individuals from 3 segments namely; Management, Software Engineers and Quality Assurance / Quality Control teams of II IT companies listed under ICTA for CMM implementation in Sri Lanka, it was evident that the CMM adoptability was influenced by cultural factors; M-time Vs P-time, High-Low Context Languages, Power Distance and Longshort term orientation. With regard to work practices, it was found that CMM applicability was influenced by Marketing practices, Knowledge on SPIM and Success work practices.



Overall research findings evidenced that process improvement through CMM is not adoptable and applicable with regard to culture and work practices in Sri Lankan context. However, majority of the management segment responded differently to other two segments as in agreement to the fact that CMM is adoptable and applicable in Sri Lanka. The key recommendations of this research are that the organizational culture and the work behaviors should be thoroughly studied and tailored the models accordingly prior adopting a SPIM and employees in all categories should be participated in activities of process improvement.

## DECLARATION

I confirm that, except where indicated through the proper use of citations and references, this is my own original work. I also confirm that my work included in this dissertation in part or whole has not been submitted for any other academic qualification at any institution. Further, I confirm that subject to final approval by the Board of Examiners of University of Moratuwa, a copy of this dissertation may be placed upon the shelves of the library of the University of Moratuwa and may be circulated as required.




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To best of my knowledge the above particulars are correct.



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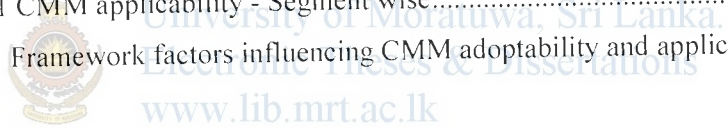
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## LIST OF ABBREVIATIONS

CMM	Capability Maturity Model
CMMI	Capability Maturity Model Integration
CMU	Carnegie Mellon University
ICBP	ICT Capacity Building Programme
ICT	Information and Communication Technology
ICTA	Information and communication Technology Agency
ISO	International Organization of Standardization
IT	Information Technology
KPA	Key Process Areas
QA	Quality Assurance
QC	Quality Control
SEI	Software Engineering Institute
SLASI	Sri-Lanka Association for Software Industry
SPI	Software Process Improvement
SPIM	Software Process Improvement Methodologies
UK	United Kingdom
US	United States



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