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ASSESSING THE RELATIONSHIP BETWEEN SOCIO-TECHNICAL CONGRUENCE AND TASK PERFORMANCE IN INCREMENTAL PROJECT LIFECYCLE

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Coordination in the development of a software engineering project refers to the relationships between two or more people working on same tasks and achieving mutual understanding or agreement. However, coordination in distributed development projects is threatened by external issues. Therefore, with the first objective of this study which is: 1) to identify issues related to coordination in task performance; this study is using Systematic Literature Review (SLR) to synthesis these coordination issues. Through SLR, four main issues were discovered which are different time zone, cultural factors, organisational boundaries and geographical distance that mostly affect task performance in software development project. The issues discovered further leads to the need for coordination measurement to ensure that social coordination between members and dependent work is sufficient to carry out such technical work, even when it comes to dynamic software teams. Thus, Socio-Technical Congruence (STC) were introduced to conceptualize and measure developer coordination in software engineering project. Although previous studies on STC have shown that the fit between social and technical dependencies leads to improved task performance, however, little is known about how it relates to tasks performance in software development life cycle. As such, the second objective of this study intended: 2) to evaluate the relationship between STC and task performance in a project that is developed using incremental model. This study is motivated because software engineering projects may employ different types of software development life cycle (SDLC) in their project. Despite this, flexible SDLC models such as incremental model are seen to be able to reduce the overruns either in term of budget or schedule, but the extent to which STC is congruent in software development implementing this model is still unknown. Extraction and analysis method then is used to validate the study's hypothesis that support claim resolution time decreases with the increase of congruence. The process of analysing data utilised Mining Software Repository (MSR) as a standard approach to extract the data from the repository. Result of this study found that the existence of social interaction accompanies technical task led to improved task performance. These results contribute to the effectiveness of the STC as a measure of developer coordination in other contexts of software engineering projects that utilise the SDLC environment, particularly in incremental models.

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TABLE OF CONTENTS