ENHANCEMENT OF SOFTWARE PROJECT PERFORMANCE BY OVERCOMING WASTE, VOLATILITY AND CONSTRAINTS SIMULTANEOUSLY

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I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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ABSTRAK

Terdapat banyak projek dan penyelidikan yang telah dijalankan untuk mengenal pasti faktor – faktor kegagalan dan kejayaan projek perisian komputer. Lazimnya, faktor – faktor kejayaan dikekalkan kerana ia memberikan hasil yang diingini manakala faktor – faktor kegagalan dielakkan kerana memberikan hasil yang tidak diingini. Mengelak daripada faktor kegagalan tidak bermakna kejayaan serta merta, tetapi ianya boleh meningkatkan risiko kegagalan dalam bentuk yang lain. Dalam kajian ini, beberapa persamaan and perulangan telah dilihat dalam kajian – kajian berkenaan yang dijalankan selama dua dekad. Persamaan faktor – faktor ini telah difahamkan dan dikategorikan berdasarkan kajian – kajian lepas dan pandangan pakar – pakar dengan berlandaskan tiga teori terkemuka iaitu Lean, Requirement Volatility dan juga Theory of Constraint. Sembilan jenis kerugian, tiga jenis ralat yang menyebabkan volatiliti keperluan dan lapan jenis kekangan telah dikenalpasti dalam kajian ini. Melalui perbincangan dengan 15 pakar dan kefahaman tentang kajian lepas, terdapat kebergantungan antara 20 faktor yang tergolong dalam tiga kategori tersebut. Kaedah DEMATEL digunakan untuk mengenal pasti hubungan antara faktor – faktor tersebut. 'Impact Relation Map' kemudiannya dibentuk untuk melihat hubungan antara faktor – faktor tersebut dan membantu dalam membuat keputusan yang berkenaan dengan faktor – faktor tersebut. Sebuah rangka kerja juga telah dibentuk untuk membantu dan memudahkan kerja – kerja perancangan yang melibatkan factor – factor yang dikenalpasti. Volatiliti keperluan telah ditekankan dalam kajian ini bukan sahaja kerana ia mempunya kesan langsung terhadap kejayaan sesuatu project perisian komputer, tetapi juga mempunyai kesan terhadap factor – factor lain yang dikenalpasti.

ABSTRACT

There have been many projects and researches conducted to identify software projects' failure and success factors. The success factors were always remained as best practices as it favours desired results while the failure factors are always avoided as it yields undesired factors. However, it is least understood that focusing on avoiding a failure factor could actually influence other forms of failure risk(s). In this study, it has been understood through literature review that most of the findings on software projects failure factors have been repetitive for more than two decades. These failure factors commonality was then understood and categorized by bridging few studies and experts' opinions based on three well-known theories; Lean, Requirement Volatility and Theory of Constraints. There are nine types of wastes, three types errors that leads to requirement volatility and eight types of constraints in relevance to software projects. Through literature and discussion with 15 experts it was apparent that there could be interdependency and interrelationship amongst these 20 variables. The relationship amongst the variables were studied by employing the DEMATEL methodology. DEMATEL was opted to show the Impact Relation Map which could serve as a good source of reference to help decision makers formulate their decisions pertaining these 20 variables. A Software Project Success Framework was then developed to assist the foundation for planning and prioritizing relevant mitigations and corrective measures about software projects failure factors. Requirement volatility has been emphasized as the main cause of software project failure. It does not only cause direct impact towards software projects failure but also influences other identified factors to affect the sotware project performance adversely.

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