CRITICAL SUCCESS FACTORS
FOR SUCCESSFUL SOFTWARE DEVELOPMENT PROJECT

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Laporan ini dikemukakan sebagai
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By

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I hereby acknowledge that this paper has been accepted as a part fulfilment for Bachelor Degree of Technopreneurship with Honour

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DECLARATION

"I admit that this report is a product of my own work except the citation for each which I have mentioned the sources."

Signature: ……

Name: ……..

Date: ……

DEDICATION

First of all, I would like to say thank you to my parents which is Tan Guan Siew and Lee Hui Ching. I am great that my parents are always giving me the strength and courage in study and complete the final year project. Besides that, they will support me on all the things I done. I am grateful to have them as my parents.

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ABSTRACT

Every successful project is supported by Critical Success Factors (CSF), but every project is supported by different CSF. There are a lot of Critical Success Factors, the every different project need different Critical Success Factors to support the project. For example, the Critical Success Factors identified in other industries cannot be used as valid critical factors for Successful Software Development Project. Results from the previous research paper, the most common CSF of Successful Software Development Project are user involvement, support from top management support, specific project goals, user involvement, project management and communication management. This research paper is aim to identify the Critical Success Factors of Successful Software Development Project as the main objective. This research area is focus in the outcome of the Successful Software Development Project which is related in project management studies area. There are a lot of related research had been done, but the reason of doing this research is there are less of this research area focus in Successful Software Development Project. The CSFs of Successful Software Development Project were Development Team's Technical Skill, Leadership of Project Managers, Effective Team Communication, Top Management Support, and User Involvement. The target sample in this study was the project team members in Malaysia, Selangor area only. As the result, it showed Development Team’s Technical Skills, Leadership of Project Managers, and Top Management Support only were significant positive effect with the Successful Software Development Project. The recommendations were suggested in the end of the report to improve the reliability of the future research.

ABSTRAK

Setiap projek berjaya disokong oleh faktor-faktor kejayaan kritikal (CSF), tetapi setiap projek disokong oleh CSF yang berbeza. Terdapat banyak faktor-faktor kejayaan yang kritikal, projek itu setiap yang berbeza memerlukan faktor-faktor kejayaan kritikal yang berbeza untuk menyokong projek ini. Sebagai contoh, faktor-faktor kejayaan kritikal yang dikenal pasti dalam industri-industri lain tidak boleh digunakan sebagai faktor kritikal sah untuk projek-projek pembangunan perisian. Hasil daripada kertas penyelidikan sebelumnya, CSF yang paling biasa projek-projek pembangunan perisian adalah penglibatan pengguna, sokongan daripada sokongan pengurusan atasan, matlamat projek tertentu, penglibatan pengguna, pengurusan projek dan pengurusan komunikasi. kertas kajian ini adalah bertujuan untuk mengenal pasti faktor-faktor kejayaan kritikal yang berjaya projek pembangunan perisian sebagai objektif utama. Ini kawasan kajian adalah fokus dalam hasil projek pembangunan perisian yang berkaitan dalam pengurusan projek kawasan kajian. Terdapat banyak kajian yang berkaitan telah dilakukan, tetapi sebab menjalankan kajian ini adalah terdapat kurang daripada kawasan kajian ini tumpuan dalam projek pembangunan perisian. The CSFs daripada Berjaya Projek Pembangunan Perisian adalah Skill Pasukan Pembangunan Teknikal, Kepimpinan Pengurus Projek, Pasukan Komunikasi Berkesan, Sokongan Pengurusan Tertinggi, dan Penglibatan Pengguna. Sampel sasaran dalam kajian ini adalah ahli-ahli pasukan projek di kawasan Malaysia, Selangor sahaja. Oleh itu, ia menunjukkan Pasukan Pembangunan Kemahiran Teknikal, Kepimpinan Pengurus Projek, dan Sokongan Pengurusan Tertinggi hanya adalah kesan positif yang signifikan dengan Projek Pembangunan Perisian berjaya. Cadangan-cadangan yang telah dicadangkan di akhir laporan itu untuk meningkatkan kebolehpercayaan kajian masa depan.

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CHAPTER 1

INTRODUCTION

1.1. Background of Study

Information technology tools are widely used in the most of the organizations in the global according to their field requirements. It is unusual to find an organization without information technology tools to execute their daily activities or complete their works. These tools are generally expertise by well-experienced individuals and qualified personnel with knowledge in developing information technology (Sweis R., 2015).

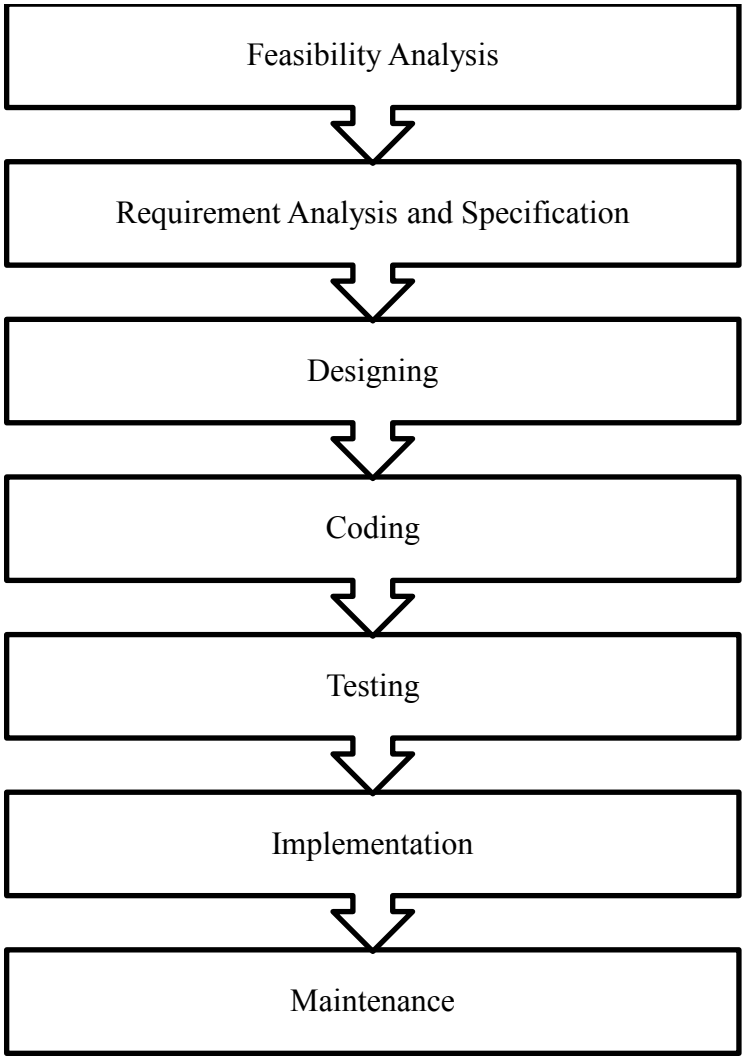
A prefect project should be completed in planned duration, but not every project can completed within the planned timeline. Incomplete a step of software development can lead to the software development failed. In this information age, the software development project is increasing day by day to compete among the business community. Even there are software development project everyway, but not all the projects are successful. A software development projects which are successfully completed and are already practical in systems may need costly constantly maintenance support or other software services and well release (Chow, T.,& Cao, D.B., 2008).

Critical Success Factors (CSF) are the factors that can support a project become successful. There are a lot of Critical Success Factors, the every different project need different Critical Success Factors to support the project. This research is tries to determine the CSF of Successful Software Development Projects. Every different person will define success and failure in a different way but the similarity is to have all

stakeholders that have an concern in the system or project that is being accepted to come together and recognise or agree on CSFs of the successful project (Procter, C. and Businge, M., 2013).

Software development is a process of developing new software. Software Development Life Cycle (SDLC) is a model to describe how the software is developed (PK.Ragunath et al, 2010). It included seven steps to complete the process, this process also named as software development lifecycle process (SDLC). The steps are identification and planning of required software, analysis of the software requirements, detailed specification of the software requirements, software design, programming, testing, and maintenance. This process must proceed step by step, if stuck in a step then cannot proceed to the next step. To finish different step might require different duration. If one of the steps spends exceed than expect duration also can lead to a failed project.

Commonly, the phases of the project management are start from the project being planned, scheduled, and managed as a separate project. If an existing project is taking over by a new project manager, the new project manager would take over as the next phase was started. This usually caused in many uncompleted design or other struggles being cleared forward into the next phase, especially in construction, field operation, and design projects, as well as in information technology projects (Russell et. al., 2012). The process of SDLC is shown in Figure 1.1.



Source: (Munish Saini and Kuljit Kaur, 2014)

Figure 1.1: Process of SDLC

1.2. Problem Statement

Based on The Standish CHAOS report 2015, the successful project is only occupied 29%, 56% for challenged project and 19% is failed project. In the report shown that the bigger size of the project, the lower the rate of successful. Due to the low success rate of the software development project, there are increased the number of researchers on doing research related to successful of a project (Sudhakar, G., 2013). There are many factors which are essential to achieve a successful project. There are called Critical Success Factors, and have been the subject of numerous studies tries to define, clarify or analyse them.

Critical Success Factors (CSF) is defined as the most essential factors that caused a project success. There are many researchers over the world to identify the Critical Success Factors but no common settlement on which factors are important to success of a project (Abdulaziz A. and Pam M., 2013). This is because there are different descriptions about the successful project for everyone.

However, most of the previous research work defined that the Successful Software Development Projects are completed on time, done within budget, fault free, and achieved client's requirements. In a short sentences, all the requirements and needs of client can delivered as expected situation is consider as a Successful Software Development Project. In software development projects, which projects were completed and installed in client's computer but over budget, late, or had fewer features and functionality than initially specified is termed as software crisis but not as successful project (Schach S. R., 2008).

Actually, there are no conclusion from previous research has been reached yet about how to judge the failure or success in a project, usually they are list out the common outcome of project or determine the outcome based on the performance of the project. Some of the observer's perception measure the outcome of project based on set of principle or the completion of the project. A same project outcome can be determined as success and also failure based on different perception of participants, because their ways to identify successful of project are different (Procter, C. & Businge, M., 2013).

Even though it is hard to conclude, some researchers express shock at the insufficient of documented information as the key success stand in project planning.

However, nowadays to determine the success or failure of a project has become a more complex issue than before. The success of a project is judge from the perception of different people. In fact, a user fulfilment with the final product has a lot to do with the insight of success or failure in the project. In this research is not focused on the concept of failure or success, but on the study of the Critical Success Factors that can support a project to be success. There are a lot of CSF had been identified from previous study, there are more over than 40 factors (Mohd Hairul Nizam Nasir and Shamsul Sahibuddin, 2011).

Critical Success Factors are factors that are significantly positive relationship with the successful project. The critical factors are commonly well-known in general for project in different industries, such as manufacturing, training, construction and engineering rather than being focused on software development or information system projects. Not the same success factors can apply to all projects. As a result, the Critical Success Factors identified in other industries cannot be the applicable critical factors for software development projects.

In today's everyday changing business environment, the critical requirement of staying successful is to find out and meet the challenges and success factors and concentrate on success factors. If the organizations be able to meet this requirement and predicting it properly, the organization can become more productive for stakeholders and as a result, it will become more accomplished.

In fact, by doing literature review on related papers and book the researcher find out that the common CSF in western or middle east country, but there are less researchers have been done research about the common CSF for software development projects. Results from the previous research paper, the most common CSF of software development projects are user involvement, support from top management support, specific project goals, user involvement, project management and communication management.

1.3. Research Questions

The research questions are frame work for the research projects. These questions will lead research during the process and will define the research surrounding and will keep us focus on content of our research. In this study is to identify the common CSF of Successful Software Development Project. Some research studies and articles have reported on the Critical Success Factors specific to software and information technology project; however these studies are specific to one particular country. This has been no comprehensive study reported on different project sizes in various domains and in multiple countries. Such a thorough analysis is important in order to identify critical factors that are applicable for software projects.

In this research the below questions are the main question of the research which guide their search going smooth. Main questions are:

i. What are the Critical Success Factors that can lead to a Successful Software Development Project?
ii. Which is the most important Critical Success Factor for Successful Software Development Project?
iii. What is the level of influencing for each Critical Success Factor towards Successful Software Development Project?

1.4. Research Objectives

The main purpose of this research is to identify the CSF of Successful Software Development Project. Following is the objectives in this research:

i. To identify the Critical Success Factors of Successful Software Development Project.
ii. To determine the most important CSF in Successful Software Development Project.
iii. To investigate the level of influencing for each Critical Success Factor towards Successful Software Development Project.

1.5. Scope

This research area is related to the project management, which the topic of the research is Critical Success Factors of Successful Software Development Project. There are a lot of software development projects, but not all the project can success. The successful of a project must be support by few factors, various kinds of tools, technologies and techniques related to improvement of this process. The supporting factors for a success project called Critical Success Factors (CSF). In this study is to identify the Critical Success Factors of Successful Software Development Project. Besides, this research data is only focuses to collect from the project team members are work in the company.

1.6. Limitations

Different needed of CSF is depends on the different kind of project, this is because the requirement of each project is different. Hence, there is no fixed CSF that can apply to all projects. Although there are over 40 Critical Success Factors, in this research only to narrow down five CSF that common affect the outcome of Successful Software Development Project. The common CSF from previous research such as; top management support, specific project goals, user involvement, project management and communication management.

The research location is only focus in the company which located in Selangor, Malaysia. These companies are information technology company, their project might include financial software development project, non-profit software development project and others project. Even the IT companies which located in Selangor area mostly are headquarter office, but there are also included some subsidiary company. Besides, these companies not only doing local projects, but also are overseas projects.

The sample of this study is only focus for the service provider's side of project team members; those are Top Management Team, Project Manager, Project Management Office, Business Analyst Team, Development Team, User Team, Technical Team and other positions. Within these people, they are not included project team members for client's side. Hence the collected data might not cover all the opinion for the whole project team members.

The period to complete this study is only within 1 year. The limited time period might not enough time for the researcher to analyse the previous research, collect data and analyse the collected data. With the limited time can complete the project, but the data might not strong enough to support the reliability of the results for the study.

1.7. Significance of the Study

In this information age, software development projects are everyway but not all the projects can lead to successful. A successful project can benefits to the company such as increase the image of the company so can attract mare client; whereas a failed project might damage and lost the trust of client on the company. So, a project need some factors to support the project be success, these factors are Critical Success Factors. There are no a proved conclusion about which CSF must exist in a successful project, but only analysed the common CSF for the successful project. This is due to different kind of project required different CSF.

For the previous research are focus in specific country and the most researchers are focused others sectors such as construction but there are less researchers focus in Successful Software Development Project. This is the reason of doing this research which about CSF for Successful Software Development Project. In this research is to determine the top Critical Success Factors for Successful Software Development Project. All this existing research so far that was shown is almost fulfilling the empirical studies that are collected today.

1.8. Structure of Dissertation

This study can be divided in to 5 chapters and several sessions in each chapter. All these chapter and secession will try to coherently cover all the essential information and data in this study including introduction which introduce briefly the area of the research in this chapter. The remainder of this work as Chapter 2 gives the literature review from the previous related research, Chapter 3 discusses the research methodology and explain the views and opinions from the team members with different position on the CSF for the Successful Software Development Project, the data and discussion of results will show in Chapter 4 and finally Chapter 5 will present the conclusion of this research.