

THE APPLICATION OF WEB-BASED PROJECT MANAGEMENT SYSTEM
TOWARD CONSTRUCTION COMPANY PERFORMANCE

Submitted by:

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Abstract

Web-based project management system is an innovation in company's management. The researcher describes the function of Web-based project management system which is storing and managing project can enhance the construction company performance. This research also will show the impact of implementing the web-based project management system and reason of implementing this application. Besides, this research also will be enhance the others company which is still using manual method in their management and storing to implement the web-based project management system to their company management system.

Abstrak

Sistem Pengurusan Projek berasaskan Web adalah satu inovasi dalam pengurusan syarikat. Penyelidik menerangkan fungsi Sistem Pengurusan Projek Berasaskan Web yang menyimpan dan menguruskan projek boleh meningkatkan prestasi syarikat pembinaan. Kajian ini juga akan menunjukkan kesan melaksanakan sistem pengurusan projek berasaskan web dan sebab melaksanakan permohonan ini. Selain itu, kajian ini juga akan meningkatkan syarikat yang lain yang masih menggunakan kaedah manual dalam pengurusan mereka dan menyimpan untuk melaksanakan sistem pengurusan projek berasaskan web untuk mereka sistem pengurusan syarikat.

Chapter 1 Introduction

1.1. Background Of study

Web-based project management system is an online application that is commonly used by a company that developed technology in their management. According to Adamsoo (2010) states the web-based project management is help user to handle the project. This web-based project management system can track if the project are overflow budget, shows the user either the project are on schedules or not, analyze the progress of project and so on. In otherwise, it is used to manage and store any kind of information of the project. Due to variety of web-based project management system's multifunction and advantages to their user, many companies have applied this application to their management especially construction company.

Based on the characteristic of web-based project management system, it is might helpful in improving their performance in implementing the project. This is because, this web-based project management system helps general manager or any kind users to monitor the status the status of the project at any time and any from place. It also can identify a problem that may occur later. So, the general manager or users can solve it first or avoid the problem before it really happens.

Adamsoo (2010) point out that web-based project management system can enhance company performance. Based on Chou and chong (2008), project performance measurement that integrates earned value analysis and control

Within a Web-based system which would allow construction personnel to track, modify and update cost and time-based data of project status online.

1.2. Research Question

Web-based project management system is a useful application which can help company increase their company performance. It is make project manager easier to monitor information and access to information from any location of their choice and thus they could manage their projects without being present on location.

So, the research question that researcher have to answer is what is the reason for company implementing the Web-based project management system? What are the advantages in implementing the Web-based project management system? How far the effectiveness of Web-Based Project Management System toward company performance? Lastly, how the progresses of Web-Based Project management System enhance company performance?

1.3. Research Objectives

The objectives of this study are to find the application of web-based project management system toward construction company performance.

- 1.3.1.** To study the reasons for company implementing the Web-based project management system.
- 1.3.2.** To analyze the advantages in implementing the Web-based project management system.
- 1.3.3.** To investigate the effectiveness of Web-Based Project Management System's managing and storing projects.
- 1.3.4.** To investigate the progress of project by applies Web-Based Project Management to enhance company performance.

1.4. Scope Of Study

The scope of this study is the construction company around Kuala Lumpur which is used the web-based project management system in their company system. The researcher chooses Kuala Lumpur area because it is easy to find the construction company that had applied the web-based project management system. Besides, the researcher wants to focus to Executive Manager, Manager and Engineer each company. The focus of this research is to study the application of web-based project management system give good impact to the construction company performance. So, in this research the relationship between the applications of web-based project management system and the construction company performance had been explored.

1.5. Limitations

First limitation that researcher has identified in this research is to study the application of web-based project management system can enhance the company performance. Second is, all respondent of this research must have used the web-based project management system and there absolutely from construction company. Lastly, the researcher assumed that all respondents have provided honest and correct answers.

1.6. Significance Of Study

This research is very important to identify the factors that influence the company to choose this application as their preferences. The analysis of this web-based project management system will show the benefits applying the application to the company system management. The company might be

choosing from the friendly user, Green Technology product and Green Technology system. Besides, this research can help the web-based system developer to improve their application or make some innovation for a better future. This is because the company's characteristic of web-based project management system users can be identified by this research.

1.7. Summary

This chapter can be concluding by when the company used the Web-Based Project Management System, it can increase the company performance. The performance of the company is very important to make the company well-known at the market. To improve the performance, company must show their good potentials such as their schedules, cost management, and efficiency while running the projects. In this chapter, the research objectives will answer the statement above.

Chapter 2 Literature Review

2.1. Introduction

Literature review is a critical review and evaluative summary of the themes, issues and arguments of a specific clearly defined research topic, research objective and answering research question. In this literature review, the researcher have read books, journal and internet article that related with his topic. The researcher also makes summarize and analyze the data that have been collected from sources. Two major reasons exist for reviewing the literature (Sharp et al. 2001). First is the preliminary search that helps the researcher to generate and refine research idea. Second is often referred as critical review or critical literature review.

The literature review will be presents the theories that the researcher applied in this study. This section will describe the approach and findings of previous studies, either from within or outside the country associated with this study. However, only certain of the interest topic related and nearly related to this study will be taken as references for construct this research and some of the related or nearly related will be discuss in this topic. At the end a theoretical framework will be establish for data collection.

2.2. Theory of Construction Company Performance

Bititci, Carrie and McDevitt, (1997) defined performance management as a “process by which the company manages its performance in line with its corporate and functional strategies and objectives”. This definition is often used in management research studies. According to Bititci, Carrie and McDevitt (1997), it is the objective of that process to provide an integrated control system, where the corporate and functional strategies are deployed to all business processes, activities, tasks and personnel, and feedback is obtained through the performance measurement system to enable appropriate management decisions. The ultimate purpose of that process is to improve company performance.

According to Bert Markgraf (2014), performance can be describe by it operation which is the key operational variables for performance evaluation are sales and profitability. To what extent you achieved the sales volume predicted in your planning and how changes in your sales volume compare to the changes at your competitors are accurate measures of company performance. The percent profit margin indicates how much of each dollar earned from sales your company keeps as profit and is a good indicator of overall performance.

Then, performance in customer satisfaction is a key factor in long-term success. The key performance variables are repeat orders and the rate of customer acquisition. If you have satisfied customers, you retain those you have and get new ones at a rapid rate. Your evaluation of performance in customer satisfaction highlights potential problems for overall performance.

Besides, quality products lie at the root of superior company performance. Two variables indicating whether your products are high quality are returns and warranty claims. These product indicators measure company performance on quality but also impact profitability directly. High rates of returns and warranty claims cut into profitability.

In addition to numerical factors such as profit margin, other indicators allow you to evaluate your company's performance on purely financial terms. Liquidity and solvency ratios evaluate your company's performance with regard

to ensuring that it can continue its operations. Liquidity is the ratio of current assets minus current liabilities divided by total assets and measures how quickly a company can raise cash. Solvency is the ratio of net profit plus depreciation divided by total liabilities and measures your company's ability to continue to service its debt. You can compare these ratios to those of other companies to evaluate performance.

Lastly, two indicators of a company's performance internally are employee job satisfaction and training levels. These impact overall performance through the ability of the company to offer high levels of service to its customers. You can evaluate employee job satisfaction by measuring changes in the average length of service. A measure of training levels is the percent of employees who received training each month.

2.3. Web-Based Project Management System Vs. Manual System (Traditional)

Since 1964, Industrialized Building System in Malaysia is not well accepted by the construction parties because of failure to adequately deal with risks in the Industrialized Building System projects. There are twelve major risks in construction using IBS which are acts of God, change in work and defective design, changes in government regulation, contractor competence, delayed payment and resolving contractual issues, financial failure-any party, labor and equipment productivity, labor, equipment and material availability, quality of work, safety, site access and manufacturers poor performance. Therefore, it is hoped that the finding of this research could assist Malaysian contractors in making risk management planning besides improving decisions making to achieve project (Hassim et al., 2009). The previous research, the researcher want highlight the factors of IBS Malaysia are not well accepted by the construction company which is financial failure, quality of work and contractor competence. Around this year, Malaysia just used the traditional method which is manual system in their project management. Innovation with emphasis on information technology is becoming a major issue in the

construction industry worldwide. The Malaysian government has been pushing everyone's businesses, public agencies and even individuals to adopt Information Technology as part of a larger objective to achieve the developed country status by the year 2020 (Jaafar et al., 2007)

According to Westland (2013), advantages of using Web-based project management is it's easy to access your files which is the tools have user-friendly interfaces that make them easy to learn, so it's just like using another website. Another benefit is that you can access files from anywhere. Whether your team is in the office, at home or on the road, they can still get hold of the latest project schedule or risk log. This gives you some security benefits too, as there is no need to copy files onto a flash drive which could get lost. Instead, you can access the latest copy of everything from wherever you happen to be. Secondly, get information in real-time. There's no excuse for not being able to keep everything up to date in real-time. Your team members can complete their timesheets, update their tasks and record their status as they go. If they are using the project management software as their main interface for the working day, there's no issue with going into another application to submit documentation or update issues. The other benefit here is that you can use the in-built reporting features to pull information about project progress and status – and it will always reflect the situation of today, not what happened last month. Lastly, collaborate with your team which is if you are working with virtual teams and most of us, then you can start discussions, send instant messages, set up email alerts and share files. Being able to chat as a group is a real benefit because it saves the overhead of having to send lots of emails. It also means that your whole discussion is recorded and can be archived, which is great as you'll get a complete history of why decisions were taken. Web-Based project management system is a very effective way of working. It gives you lots of security, full back ups, collaboration features and instant access to important project files. Besides, by using the web-based project management system, it is more speed and efficiency, timely data, accuracy issues and risk of Fraud (Bonnie Conrad, 2014).

However, by using manual system, there are some real advantages and disadvantages. There is trustworthiness because they can tangibly get our hand on, carry around and scribble on. Then, manual tools are portable because the file can be carried to meeting, job sites and office. In the meantime, there are some disadvantages by using manual system. There are specific commercially available paper systems sold by a number of companies. Second, updating is convenient; getting a clean copy of the current revision especially those of revision number 20 or greater can be difficult because those revisions tend to be messy. Lastly, because everything is manually created, different views of information take extra times. It is logical to put items in a vertical task breakdown (Pierce et al., 1998).

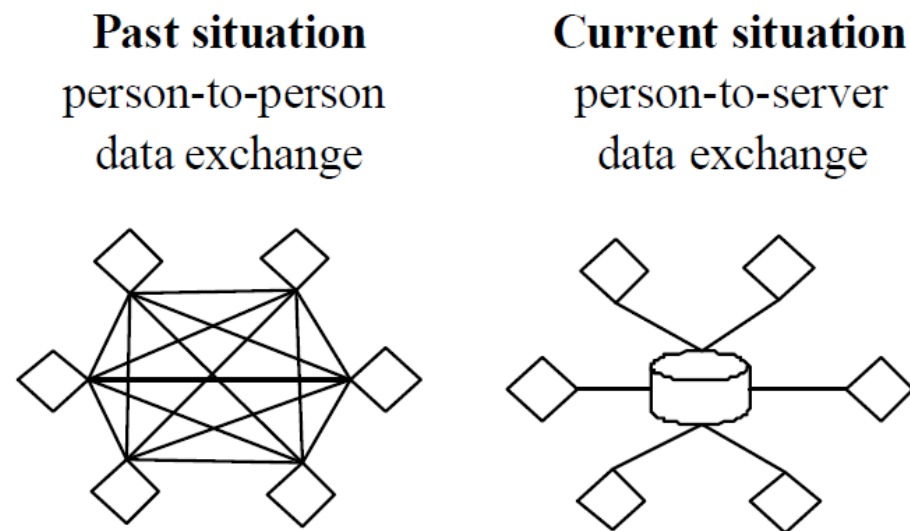


Figure 1: Communication mechanism between employees

2.4. Reasons of implementing the Web-based project management system

According to Stevens (2014) states implementation is not only crucial but also a distinguishing characteristic of successful project management consulting firms. Experienced project management consultants know that a phased approach which is helps to overcome resistance to change, allows for lessons learned in early phases to be incorporated in systems installed in later phases and establishes a solid foundation of available project-level data prior to rolling-up enterprise-level information.

Besides, the reasons of implementing the web-based project management system is no loss of data due to computer crashing which is when your monitor unexpectedly goes blank. All your information can be stored in remote locations that are secure and which you can access from anywhere. Secondly, no memory spaces are required. The online project management company takes care of data storage for you. Besides being convenient, it also means that you can relax because your data is secure and backed up. Then, the users can access to program from anywhere because all online project management sites can be accessed from anywhere you have an internet connection. Furthermore, the users can directly online communication with team members because WBPMS improves their ability to interface with the program and their colleagues, give updates, receive reports and get things done. Lastly, the WBPMS are automatically saved data. The users will always have the satisfaction of knowing that their work has been saved. So, they don't have to worry about repeatedly hitting the save button either. With web-based project management system, their data is saved automatically and backed up without requiring them to do anything (TopTenReviews Contributor, 2014)

2.5. Overview Of Web-Based Project Management system

Based on Srinivasan and Seshan (1996), web-based project management system is a method executed by a computer system as part of a computer program, said system for coordinating the management of a project, said computer system to comprise of a central database server connected to an electronic network, said method using a two way electronic messaging system that allows different types of organizational work-group team members to send messages to the computer program and receive messages from the computer program via the said electronic network, said method storing and accessing data from a multi-project database, said method to be automatic in nature and with built in triggers which are based on the nature and status of said data without need for manual project management coordination, said project management coordination to involve all the steps of the project management cycle including planning, resource leveling, status reporting and reminding, tracking and updating plans, said method to be configurable for the said organizational work-group environment. The physical distance between headquarters and project sites generates communication barriers. The use of web-based project management system as the communication platform can help information transfer more effectively during the construction process (Deng et al., 2001)

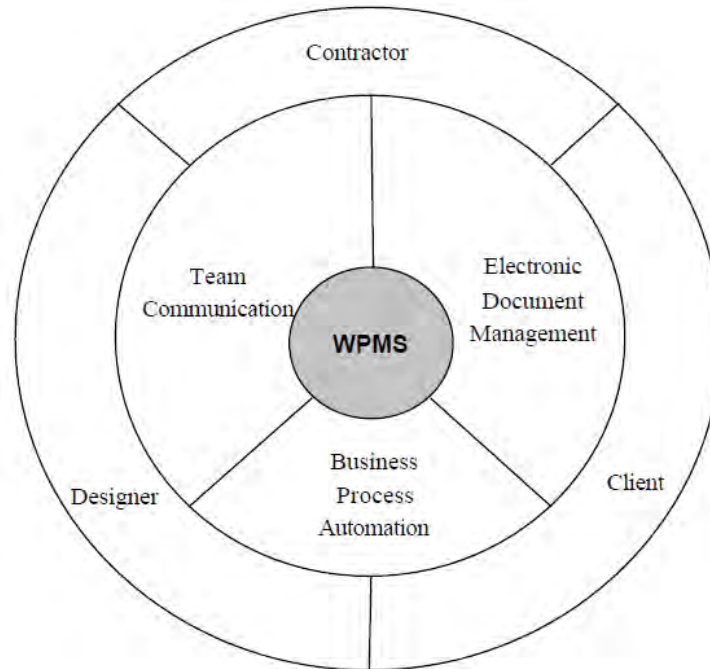


Figure 2: Communication and Collaboration Schema of WBPMS

2.5.1. Effectiveness of Project Management by Web-Based Project Management System

Based on Liu and Xu (2001), web-based project management system can be seen as an integration tool connecting many different areas, which ensures that the right information in the right form is available to the right person at the right time. When properly implemented, web-based project management systems will result in faster work, fewer errors, less redundancy, and smoother workflow for an organization. Web-based project management system was developed to aim at solving this problem. It enables people from all departments, divisions and supply chains to participate in design, development, and process stages of the product throughout its life cycle. So, by all the features that web-based project management provides, it is very useful in managing the project activities in construction company especially construction company which is apart from their headquarters office. By using the web-based project management system, the manager or people who involve in the sentence project no need

to go somewhere to get information or sent any urgent document manually. It could take a long time to do those activities manually and it is not the effective ways.

2.5.2. Effectiveness of Storage by Web-Based Project Management system

The Web-based project management system user can search company's data or information through his or her desktop computer. The actual searching and finding process is handled by the server, using the meta-database search engine. The files are stored in the managed files or data vault. The server finds the specific information and then transfers it back to the user's screen with proper format (Liu & Xu, 2001). With this application, besides it easier to users, it is also can avoid any damaged to document. Furthermore, the web-based project management system can also be as back-up for hardcopy document. This is because, the hardcopy document more often to damage or loss without the people knowledge.

2.5.3. The Web-Based Project Management toward Company Performance

Based on Nitithamyong, P. and Skibniewski, M. (2006), it is about 42 factors that can potentially affect performance of Web-based project management system and 36 measures that can be used to evaluate such performance. These 42 factors are categorized into four distinct groups which is characteristics of the project, the project team, the service provider, and the specific Web-based Project management Systems system used in the project. The 36 measures reflect performance of in Web-based Project management Systems six different perspectives which is strategic, schedule or time, cost, quality, risk, and communication. The implementation of a Web-based construction Project Performance Monitoring System (PPMS) that aims to assist project managers in exercising construction project control. With the aid of a panel of project

management specialists, the following project performance measure categories are identified for inclusion in the PPMS: People, Cost, Time, Quality, Safety and Health, Environment, Client Satisfaction, and Communication. For each of the performance measure categories, performance indicators and their measurements are also established. The use of the PPMS can help senior project management, project directors, and project managers, and so on in monitoring and assessing project performance. (Cheung et al., 2004).