

# Improvement of Project Portfolio Management in an Information Technology Consulting Company

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**Abstract.** The scope of this research is to improve the efficiency of multiple project management in an information technology consulting company through the adaptation of the project portfolio management technique. The project management information system (PMIS) is implemented to establish effective communication channels so that internal and external teams as well as all relevant stakeholders can be employed to negotiate their work schedules. In addition, all activities created by multiple teams can be systematically reviewed and combined into a single checklist to be used as an agreed working plan for all team members. A general guideline for project portfolio management in information technology consulting companies is also proposed, which could result in a higher level of project on-time delivery.

*Keywords: Project Portfolio Management, Communication Plan, Standard Procedures*

## 1. Introduction

The case study of this research is an information technology consulting company which manages and customizes IT solutions according to the needs from multiple industries such as government office, banking, corporate company, university, etc. The head quarter of the case study is located in Singapore, managing multiple projects in South East Asia including Thailand, Malaysia, Philippines, Indonesia as well as such emerging markets like Sri Lanka, Bangladesh, Brunei and Vietnam.

One of the key performance indicators of the case study is to successfully manage multiple projects to achieve project on-time deliveries and hence, the percentage of project on-time delivery is its performance measurement. The annual target for every country is to achieve at least 95% of the projects being completed on-time. Statistically, during 2012 – 2013, 592 projects were launched in South East Asia. However, the number of projects completed on-time was only 532, resulting in 60 uncompleted projects which were carried over to 2014. Out of this number, 15 projects belong to Thailand.

Regarding the ongoing projects in Thailand, 8 uncompleted projects were launched in 2012 resulting in the percentage of on-time delivery in 2012 being much less than target. In addition, more new projects were added in 2013. Due to the low percentage of project on-time delivery, two main problems are



identified by top management. The first problem is hardware related problem cause by the existing IT systems of customers that cannot properly interface with the new deployed technology. This problem has already been alleviated by providing a number of technical trainings and hardware solution supports. The second problem, is internal management related problem cause by poor IT specialist resource arrangement, miscommunication between sellers and project teams, together with vague standard operating procedures. The latter problem is the issue considered and discussed in this research.

The objective of this research is to improve the case study company's performance in managing multiple projects through adapting project portfolio management techniques based on the project management information system (PMIS) theory in order to establish effective communication plan and standard operating procedures that will be followed by all concerned parties.

Project management institute, as cited in "A Guide to the Project Management Body of Knowledge" (2011), defines project portfolio management as the centralized management of one or more portfolios, which includes identifying, prioritizing, authorizing, managing, and controlling projects, programs and other related works, to achieve specific strategic business objectives. Portfolio management ensures that projects and programs are reviewed to prioritize resource allocation. Also, the management of the portfolio is consistent with and aligned to organizational strategies. Project portfolio management adapts information technology as a tool to gather, integrate and disseminate the outputs of project management processes. It is used to support all aspects of the project, from initiation to completion, and it is applicable to both manual and automated systems.

Satawin (2011) adapted the techniques of project portfolio management to improve the production outputs of a construction company in order to meet delivery deadlines. He also developed the framework for resource allocation for current projects and resource planning for future projects. Malek and Alain (2011) used the Genetic Algorithm for fuzzy resource leveling for the helicopter maintenance domain. Marjolein and Ralph (2011) suggested project managers to apply PMIS as a decision support tool for planning, organizing, and controlling projects. Lee and Yu (2012) used PMIS to insure project success in construction. They developed and validated the application services providers and provided users with a useful framework for evaluating the success of PMIS. Braglia and Frosolini (2012) proposed PMIS to enhance planning and scheduling capabilities within a supply chain event management system to be able to manage the shipbuilding industry.

Project communications management includes processes required to ensure timely and appropriate generation, collection, distribution, storage, retrieval, and ultimate disposition of project information (PMBOK 2011). Communication management covers cross-cultural communication management during multicultural construction projects. Case studies from Kenya and UK indicated that one of the critical components of communication management was the creation and development of effective cross cultural collectivism, trust, communication and empathy in leadership, as well as execution of outcome (Ochieng and Price 2008). Rodney (2004) recommended that the best project performance occurred when there exists a high collaboration between the client and project manager, which could be realizable by incorporating the followings: (1) communication, (2) maintaining face-to-face meetings and (3) providing quantitative data required by the client.

## 2. Research Methodology

### 2.1 Project Management Information System

To increase the percentage of project completion and resource leveling, PMIS consisting of tools and techniques which are used to gather, integrate, and disseminate the output of project management process is applied. It is used to support all aspects of the project from initiation to closure (PMBOK 2011). Multiple projects details are gathered, such as project name, activity, period, resource, etc. Microsoft Project 2013 is used as a tool to manage multiple projects by inserting subprojects into a master project and pulling available resources from resource pool file (Bonnie 2013). The output of this method is a performance report which will provide various performance results including, but not limited to, the percentage of portfolio project completion, deliverable status, schedule progress, and resource usage.

### 2.2 Portfolio Communication Management

Portfolio communication management plan is developed by preparing inputs which are portfolio project details and portfolio reports such as percentage of portfolio project completion, resource utilization, issue items or risks, and other performance reports. Stakeholder analysis is used to identify recipients and set different groups of people separated by their concerns, interests, and actions. In addition, communication requirement analysis is applied to help determine proper frequency and communication vehicles. Finally, a portfolio management plan is developed to specify communication areas, frequency, intended recipients, and communication vehicles. This plan is approved by an authorized person.

### 2.3 Standard Guideline

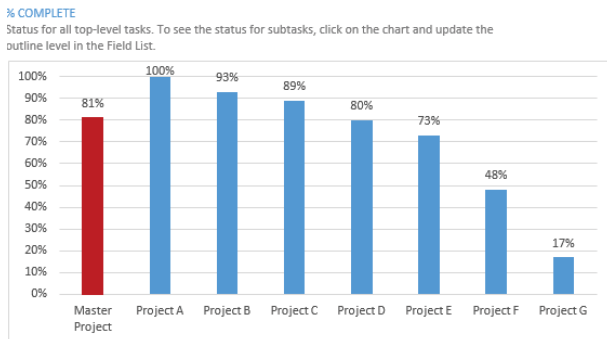
The standard guideline is created through checklists related to the project management process, such as initial project, sales to delivery, internal meeting, performance monitoring, and closure. This document can help reduce duplicated jobs, rework and possibly reduce change requested from customers, and help the whole team to follow the standard operating process.

## 3. Result

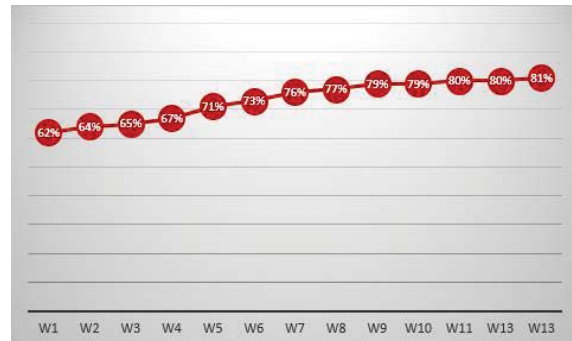
Through the application of project portfolio management techniques, a standardized procedure which consists of performance reports, resource balance, new communication schedules, and checklists is created. Hence, the procedure increases the percentage of project delivery as shown below.

### 3.1 Result from Developed Portfolio Project Management

After applying Microsoft Project 2013 as a PMIS tool, project information can be presented to the team using graphical reports easy to customize. Fig. 1 shows the percentage of master project completion and the percentage of each non-master project completion within the same tracking period (week 13 was used for this data collection.) Information on the percentage of completion completed each week can then be collected and presented in a graphical report as shown in Fig. 2.

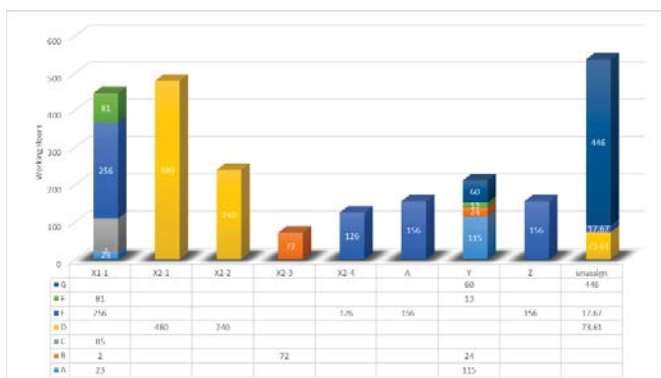


**Figure 1.** Percent Projects Complete at week 13<sup>rd</sup>

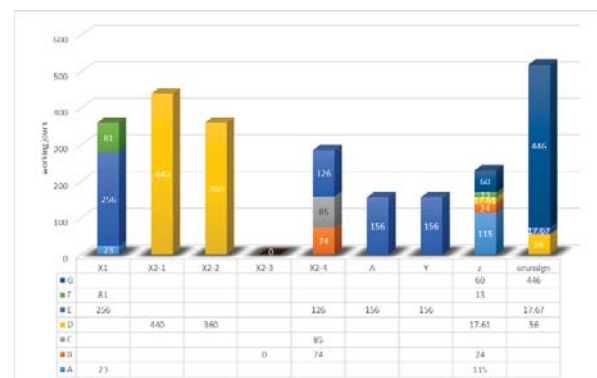


**Figure 2.** Percent Portfolio Projects Completed

Resource leveling is a technique which aims at completing projects adhering to their due dates within a given resource usage. That is to level all resource usages as much as possible throughout the total project durations. Based on the result of the critical path method, the resource leveling is defined based on the project activity schedules without violating precedence constraints (Figs. 3 & 4).



**Figure 3.** Resource hours before resource leveling



**Figure 4.** Resource hours after resource leveling

### 3.2 Portfolio Communication Management

The communication schedule consists of three communication areas reported monthly, bi-weekly, and weekly, depending on the requirements and details of communication (Table 1).

**Table 1.** Communication schedule

Communication Area	Frequency	Intended Recipient	Communication Vehicle
Portfolio Governance	Monthly	SEA Director, SEA PPM, Resource Manager, SEA Business Manager, Country PPM, Country Project Manager, Resources, Co-Project	1. Monthly Meeting 2. Monthly Report in internal Portal

Portfolio Performance Reports, Key Risks and Issues Updates	Bi-Weekly	Country PPM, Country Project Manager, Resources, Co-Project	1. Bi-Weekly Meeting 2. Bi-Weekly Report in internal Portal
Portfolio Dashboard	Bi-Weekly	SEA Business Manager Country PPM, Co Project	1. Bi-Weekly Meeting 2. Updated Performance Report in internal Portal 3. Email Distribution
Resource Utilization	Weekly	Resource Manager, Country PPM, Country Project Manager	1. Monthly Meeting 2. Resource Utilization Update Report 3. Email distribution

For a monthly report, based on a meeting report, each country reports its portfolio project status, key risks, issues, and required resources informed by the resource managers. For a bi-weekly report, the report is written after a local country meeting is completed. The country's project portfolio manager leads the meeting raises updated key risks and issues everyone in the project team needs to know in the meeting, and follows up on issues raised in the previous meeting. The last communication vehicle is resource utilization in which the resource manager leads the meeting to get issues from the country's engagement manager, project manager, and consultants who support the country's projects.

### 3.3 Standard Process Checklist

Three main processes are indicated in the project management process, i.e. (1) initial, (2) performance and (3) closure. All standard processes created by multiple teams are then listed and combined into a single checklist to be set as a standard for all teams and all team members.

ชื่อลูกค้า	ชื่อโครงการ	ผู้จัดการโครงการ	Technical
<b>Initial</b>			
กิจกรรม	ผู้รับผิดชอบ	กิจกรรมย่อย	ผลลัพธ์
<input type="checkbox"/> เริ่มโครงการ	EM	ตรวจสอบเอกสาร และ เริ่มโครงการ	สัญญาจ้างงาน
<input type="checkbox"/> สรุปรายงานโครงการ	PM	เขียนแผนของโครงการ	สัญญาจ้างงาน
<input type="checkbox"/> ทบทวนเอกสารที่ไม่ใช่โครงการ	PM	ทบทวนเอกสารที่ไม่ใช่โครงการ	งาน และ ชะลอขั้นตอนของงานที่ชัดเจน
<input type="checkbox"/> Conduct Sales-to-Delivery Transition Meeting	PM, SE, Resource	จัดการประชุมเพื่อสื่อสารกับลูกค้าเกี่ยวกับโครงการ	Sales to Delivery Checklist
<input type="checkbox"/> ประชุมภายใน	PM, SE, Resource	เตรียมการประชุมเพื่อสื่อสารกับลูกค้าเกี่ยวกับโครงการ	Internal Kickoff Meeting Checklist
<input type="checkbox"/> ประชุมกับลูกค้า	PM, SE, Resource	ทำการประชุมเพื่อสื่อสารกับลูกค้าเกี่ยวกับโครงการ	Customer Kickoff Presentation
<b>Sales to Delivery</b>			
กิจกรรม	ผู้รับผิดชอบ	กิจกรรมย่อย	ผลลัพธ์
<input type="checkbox"/> แนวทางการพัฒนาผลิตภัณฑ์	EM	ตรวจสอบเอกสาร	Project Charter
<input type="checkbox"/> ภาพรวมโครงการ	Seller	เตรียมเอกสาร	เอกสารโครงการ
<input type="checkbox"/> ศึกษาคำขอเสนอ	Project Manager	ตรวจสอบเอกสาร	คำขอเสนอ
<input type="checkbox"/> การบริหารจัดการ	Project Manager	จัดการเอกสาร	เอกสารโครงการ
<input type="checkbox"/> ข้อเสนอแนะ	Engagement Manager	จัดการเอกสาร	ข้อเสนอแนะ

<b>Internal Kickoff</b>			
กิจกรรม	ผู้รับผิดชอบ	กิจกรรมย่อย	ผลลัพธ์
<input type="checkbox"/> การเตรียมเอกสารส่งมอบงานที่ลูกค้าได้รับ	Portfolio Project Manager	Statement of Work (SOW)	เอกสารขาย/ปฏิบัติงาน
	Project Manager	การประชุมเพื่อสื่อสารกับลูกค้าเกี่ยวกับโครงการ	เอกสารขาย/ปฏิบัติงาน
	Portfolio Project Manager	การประชุมเพื่อสื่อสารกับลูกค้าเกี่ยวกับโครงการ	เอกสารขาย/ปฏิบัติงาน
	Sales	การประชุมเพื่อสื่อสารกับลูกค้าเกี่ยวกับโครงการ	เอกสารขาย/ปฏิบัติงาน
<b>Performance</b>			
กิจกรรม	ผู้รับผิดชอบ	กิจกรรมย่อย	ผลลัพธ์
<input type="checkbox"/> Status & Project Monitoring	Portfolio Project Manager	สถานะของโครงการ	ข้อมูลของโครงการ
<input type="checkbox"/> Project Control	Project Manager	การควบคุมโครงการ	ข้อมูลของโครงการ
<input type="checkbox"/> Change Management	PPM & Project Manager	จัดการการเปลี่ยนแปลงกับลูกค้าเกี่ยวกับโครงการ (Project Change)	ข้อมูลของโครงการ
<input type="checkbox"/> Risk Management	Project Manager	ระบุความเสี่ยงกับลูกค้าเกี่ยวกับโครงการ	ข้อมูลของโครงการ
<input type="checkbox"/> Management Solution/Project Issues	Project Manager	จัดการความเสี่ยงกับลูกค้าเกี่ยวกับโครงการ	ข้อมูลของโครงการ
<b>Closure</b>			
กิจกรรม	ผู้รับผิดชอบ	กิจกรรมย่อย	ผลลัพธ์
<input type="checkbox"/> Project Handover	Project Manager	ส่งมอบงาน	ใบแจ้งหนี้
<input type="checkbox"/> Lessons Learned	PPM & Project Manager	สรุปบทเรียน	ข้อมูลของโครงการ
<input type="checkbox"/> Project Close	PPM	ปิดโครงการ	เอกสารปิดโครงการ

Figure 5. Checklist for Project Management Standard Process



#### 4. Conclusion

The main problem of this case study which impacts delay-delivery is the lacking of project monitoring and tracking. This is due to project teams having to handle multiple projects simultaneously without sufficient skills in multiple tasks management. Relating to the objective of this research, multiple projects in an information technology consulting company needs to be improved to achieve higher percentage of on-time delivery. This can be implemented through the adapted techniques of project portfolio management. The theories of portfolio project management, project management information system, and project communication management are applied to develop appropriate methods to solve the problem.

After PMIS is employed to the case study, it results in the reduction of the pending jobs and provides the ability to track percent completion of portfolio projects. In addition, the percent completion of activities in each project can be easily tracked. The resource leveling can be applied to multiple consultant resources by the assistance of Microsoft Project.

Communication schedule is created as a standard communication process and sent recurrence meeting to those concerns, from top management to operation levels. Continuous notification is given to all team members to acknowledge the status and performance of ongoing projects including new coming projects to identify key risks, special issues, and resource requirements for all projects in South East Asia. This two-way communication helps the regional manager to allocate available resources to each country.

Finally, a standard guideline is developed as a regulation for sellers and project teams to follow which can reduce unsatisfactory steps and over scope requirements from customers. The main benefit is to avoid miscommunication and information distortion while transferring from customers to sellers and then to project teams.

#### 5. References

- [1] IEEE Guide - Adoption of the Project Management Institute 2011 Standard A Guide to the Project Management Body of Knowledge Fourth Edition
- [2] Project Management Institute 2013 the Standard for Portfolio Management Third Edition
- [3] Satawin, R. 2011, Project Portfolio Management System
- [4] Marjolein C.J., Ralph, C. and Bakens, J.J.M. 2012 The effects of Project Management Information Systems on decision making in a multi project environment International Journal of Project Management 30 162-175
- [5] Lee, S-K. and Yu, J-H. 2012 Success model of project management information system in construction Success model of project management information system in construction 25 82-93
- [6] Turner, J.R. 2004 Communication and Co-operation on Projects between the Project Owner as Principal and the Project Manager as Agent European Management Journal 22 327-336
- [7] Ochieng, E.G. and Price, A.D.F. 2010 managing cross-cultural communication in multicultural construction project teams: The case of Kenya and UK
- [8] Braglia, M. and Frosolini, M. 2012 an integrated approach to implement Project Management Information Systems within the Extended Enterprise International Journal of Project Management 28 449 - 460
- [9] Masmoudi, M. and Haït, A. 2013 Project scheduling under uncertainty using fuzzy modelling and solving techniques, Engineering Applications of Artificial Intelligence 26 135-149
- [10] Biafore, B. 2013, Microsoft Project 2013: The Missing Manual, 515 - 565

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