|  |  |
| --- | --- |
|  | **2012** |
|  | **VanLang University**  TEAM 05\_K15T1 |

|  |
| --- |
| **[TEAM ASSIGNMENT #4]**  **Case Study 3 : Estimate a tool** |
|  |

Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Description** | **Date** | **Author** |
| 1.0 | Draft version , template | 10/11/2012 | Thanh Nguyen |
| 1.1 | Goal , Event , Character , Technical | 13/11/2012 | All team member |
| 1.2 | Update how to improve a process | 29/11/2012 | Thanh Nguyen |

Contents

[1 Case study Summary 4](#_Toc342302150)

[2 Goal of Case study 4](#_Toc342302151)

[3 Terminology 4](#_Toc342302152)

[4 Characters 4](#_Toc342302153)

[5 Event 5](#_Toc342302154)

[6 Analysis and Evaluation 5](#_Toc342302155)

[6.1 The good quality activities 5](#_Toc342302156)

[6.2 The poor quality activities 6](#_Toc342302157)

[6.2.1 Overview 7](#_Toc342302158)

[6.2.2 Description 7](#_Toc342302159)

[7 Process Improvement to the case study 7](#_Toc342302160)

[8 Reflection 9](#_Toc342302161)

[9 Reference 9](#_Toc342302162)

# Case study Summary

* The mini case study, “Estimation as a Tool,” examines how people interested in improving their estimation process might begin to look for information that will help them with future decisions about estimates. Most of the techniques for estimation require historical information. Understanding this information and its origin will make using the data easier and more productive for estimating.
* A software project manager must make an estimate for a job and figure out what issues are influencing the estimate. He must figure out what are good inputs into the process so as to make a good estimate.

# Goal of Case study

* See a situation and learn how to assess and analyze different situations quickly
* Learn how to read tell tail signs from a project to look for patterns
* Learn how to ask and answer questions from the information in front of you in the case
* Finally learn how to relate cases to real life projects.

# Terminology

|  |  |
| --- | --- |
| Role | Description |
| Junior engineer | Engineers with less than ﬁve years of experience |
| Metrics | A relative understanding of how data can be used to evaluate some  Activities |
| Productivity numbers | A measure of how much project work the company gets |
| Senior engineer | Engineers with more than ﬁve years of experience |

# Characters

|  |  |
| --- | --- |
| Name | Descripion |
| Marvin Saymore | Marvin Saymore is Junior engineer.  He was being asked to estimate his ﬁrst full project after starting his new job with Transad. |

# Event

* Marvin Saymore had to give his boss an estimate, and he was not sure what the primary estimation issues on his projects were. He began to reflect on what he had learned back in school about estimation and what might influence the Washington Transit Authority (WTA) project.
* Marvin realized that to understand the history for projects, he would have to understand the metrics the organization collected on projects in the past.
* Marvin Saymore used a simple technique over a short period of time that would enable him to understand clearly how each type of engineer spent his time.
* Marvin began to examine the company concept of “sameness” that was used by engineers to evaluate requirements. As Marvin discussed this with his engineers, he found that this sameness was not quite the same for everyone involved. He decided to conduct a direct requirement-by-requirement examination of a new project compared with the “base” project, which was being changed.
* One other piece of information that Marvin began to put together for his projects was the idea of whether there might be some significant events during projects that were contributing to a large number of hours.
* Marvin planned to update his estimation process so that he could incorporate his new knowledge. He had to figure out how best to explain to his boss that he had a new tool to better estimate the WTA project**.** Now all Marvin had to do was convince Enrique, his boss, that this was the right thing to do.

# Analysis and Evaluation

## The good quality activities

|  |  |  |
| --- | --- | --- |
| Event | Correct/ Incorrect | Analysis |
| Marvin realized that to understand the history for projects, he would have to understand the metrics the organization collected on projects in the past. Marvin first discovered that metrics were fine for other people but not necessarily for his group because none of metric efforts had been maintained for a long period of time or were used to predict future performance | Correctly | * Historical data of Transad company are almost collected from best guess of what might happen, not a prediction   + Best guess came some risk and some probability of success or failure. * In addition, historical data was available that was mainly bean counter data, that is:   + Number of hours on the project   + Hour’s preproduction: did not specifically break out any software event, only how many hours were used.   + Hours postproduction   + Repair hour in field * Historical data of company do not real accurate to Marvin uses to estimate for his new project but more accurate, he had used what data from the past that he clearly understand to serve for his estimating |
| He used a simple technique over a short period of time that would enable him to understand clearly how each type of engineer spent his time | Correctly | When understanding clearly how each type of engineer spent his time, Marvin will easy know the engineer ability. So, Marvin will base on that can estimate accurately for next project with the similar resource. |
| Marvin began to examine the company concept of “sameness” that was used by engineers to evaluate requirements | Correctly | A same project consists of half requirements of the project that had done and other half requirements had been modified, and about half of these modifications involved significant or moderate changes.   * Marvin defined the same project, he will reduce half requirements that maybe estimate wrong and focus on other half requirement. So, estimating result will achieve a higher accuracy rate. |
| One other piece of information that Marvin began to put together for his projects was the idea of whether there might be some significant events during projects that were contributing to a large number of hours. | Correctly | * 80/20 principle is “Pareto principle” or “principle of least effort”. It means that with 20% effort will generate 80% of final result * Marvin applies that principle to focus to collect data which use for estimating the critical tasks that will impact to system if it really occurs and then the schedule will being stretched and impact to the another task. |

## The poor quality activities

* ***There are two big problems that Marvin has to face in this case study:***
* He did not exactly know whether his estimation techniques or the information that Marvin has at his disposal effective or not. He just simply did not know how to check his conclusion.
* Has not yet predict some issues that are most affecting the estimation decisions Marvin has to make.
* ***Solution:***
* Based on these problems, we can come up with some recommendations so that he might do better
* Although historical data may be not as good as it used to be, we can use these data for checking if his techniques are correct or not. However, there always seems to be much data, we must find out what data are good for our project and use it as a validation for future estimation.
* In addition, the act of comparing accurate data he had with his historical data for finding out what historical data are useful is good. However, the way he gathered what he called accurate data is quite not good as his purpose. He just collected engineer project hours for currently operating projects at Transad without productivity numbers. Although he was not sure whether it may or may not have a major impact on the estimates, he did not do anything further because he felt that it is enough. Well, that is definitely not enough. We think he should collect productivity numbers together with working hours so that he can have a better proof for his methods.
* Before doing estimation, Marvin should list a top ten-list risk so his estimation methods so that he can avoid some may occur into problems and affect his estimation technique result.

### Overview

|  |  |  |
| --- | --- | --- |
| Issues | Requirement | Activities |
| Apply historical data technique | Using for the same projects | Marvin use it for different project |
| Implement historical data | Selecting regular object measured | Marvin collect data for special object and not regular |

### Description

#### Apply historical data:

#### Implement historical data

# How to make a process improvement to the case study

* In this case study, they used historical data to primary estimate. However, if our environment, we will combine other estimate methods such as: Brain storming, wide-band Delphi… with historical data to estimate.
* To fix the different working time of each member. We will:
* First, we will list tasks in project. Then, we will define effort (work hours) of each member in project and general total hours of all member in the project to define the hours spent for each task.
* The second we spent a lot of time to determine problems, changes and risks can occur in furniture. So, if they occur, we will easy handle them on schedule.
* And the final, we also know historical data only accuracy if historical data had been used independently. So, do define accuracy historical data, we will invite expert estimation to help our estimate.
* We all know that project; historical data is used as a main. In our environment, our group would like to propose some tips that will make estimation more usable and precise.
* To estimate for a project, we need to use more than one estimating technique such as brainstorming, use historical data… and when they combined; the estimation results will be more accuracy. Involving all members for the estimating process is a good idea, as they would be the ones who would be finally working on the various tasks. It's a known fact that the best estimates are the ones that are "bottom up" and not the ones that are top down.
* List all the tasks that will carry out in our project, the more details, and the more accuracy. After the tasks have been listed, ask each person to estimate the time for his/her task, taking into account normal workloads and interruptions
* Define all the change, risks that can occur in our project and have a plan to reduce or resolve it. When we have a clearly plan for that change or risks, our estimation will be more precise.
* Software projects are typically controlled by four major variables; time, requirements, resources (people, infrastructure/materials…), and risks. Unexpected changes in any of these variables will have an impact on a project.
* Making good estimates of time and resources required for a project is crucial and it is usually a challenge for most project teams and project manager. It could be because we do not have experience doing estimates, we are unfamiliar with the technology being used or the business requirements are unclear; there are dependencies on work being done by others, and so on…*Time estimates* drive the setting of deadlines for delivery and planning of projects, and hence will impact on other people assessment of team’s reliability and competence. The estimate is very important, so for the estimation can achieve the desired results, we need a specific plan and a process to improvement

1. **First step : define the changes and risks that may occur in the project**

When making the estimate, we need to make sure that we have the time for risks and changes. Defining and planning a clear plan for change and risk, we will be more active in the division of time and human resources for the project, and ensure everything is controlled.

1. **Second step : Design a Process**
2. Process

Define what will need in a process

For examples:

* Project scope, objectives, constraints and assumptions are defined.**..** Project Milestones and customer deliverables are identified
* Project Proposal (Project cope, SDLC, Milestones and deliverables information)

1. Project tasks

* Break the project down into the different tasks needed. Try to get as many tasks as possible. A useful way to break down tasks is to consider typical software activities such as analysis, design, build, demo, test, fix, document, deploy, and support and see if they are required for each task and whether they need to be broken out into new tasks.
* Evaluate each task on two scales: complexity (high, medium, low) and size of work (large, medium, and small).

1. Estimation techniques

* To estimate for a project, we need to use more than one estimating technique
* Involving all members for the estimating process is a good idea, as they would be the ones who would be finally working on the various tasks.

# Reference

* [1]15c-Estimation\_as\_a\_Tool