# Post Implementation Reflective Review

## Part ONE

### Question 1

#### Requirements Specification

Business Requirement Specification specifies the requirements for the system which is intended to be ready for the customer.

Software Requirement Specification provides a complete description for both functional and nonfunctional requirements and specifications which the project has to fulfill. A detailed and comprehensive framework and user interface description of the system are the vital points, and may be used as a contract between us and client.

ER Diagram is a specialized graphic which illustrates the interrelationships between entities in a logical structure of database.

#### Project Management

***“Project management is the application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs or expectations from a project****.”*

* *Lecture week 2*

Business Case provides all the relevant information in a concise business level manner. It outlines the purpose, intended audience and structure of the business case document. It describes what the project is expected to deliver as well as what it will not be deliver, as well as a summary of the product’s functionality and how external factors may affect the project’s scope.

Project Charter documents the existence of the project and provides direction on the project’s objectives and management. It acts as a form of acknowledgement and agreement to the project and is require to be signed off by key stakeholders.

Project Plan is a crucial document which consists of Work Breakdown Structure and Schedule to assist us in managing the project. The Work Breakdown structure provides detail of the overall task and disseminate it into a smaller and manageable pieces. Information from all project knowledge areas are require for planning activities which are to fulfill the needs of the specific project. It also provides detail so that a ‘new member’ could read the document and understand how the project is being managed.

Reflective Review is a useful process to consolidate information and feedback from team members. Through this, the team can improvise and strategize their plan.

#### Project Development

Recovery Scripts are required when developing a system that connects to a database. It is used for populating tables with sample data so demonstration of working components can be shown effectively.

As mentioned earlier, Software Requirement Specification and ER Diagram can also be in part of the Project Development process because we are required to use this as a reference point to ensure the database hierarchy is correct to avoid future complications and the final product matches the requirements.

Test plan is required to provide a quality implementation by considering what aspects of the system should be tested, and how they will be tested. Often, it is not possible to extensively test all the parts of the project because of time and resource limitation. Therefore, to effectively test the system and its deliverables, larger tasks are broken down to manageable ones such as Test Case. It helps to determine which areas to focus on and which testing types to use, and examine the risks that are critical to your system.

Derived from Test plan, Test Case identifies the functions which are expected to be perform for that particular deliverables. It is tested to ensure they meet the requirements. Each test case provides the inputs and expected outputs.

Test Result is the processed output of Test Case. This is use to ensure that the deliverable is of what is expected to perform. Includes necessary actions to modify them should there be any defect arises, and these step should be repeated till the desirable result is acquired.

### Question 2

#### What purpose was the project plan intended to serve?

The plan was there to ensure that the project was well thought through in advance, to allow allocation of time appropriately, set a routine procedure (eg weekly meetings), have contingencies like risks into consideration.

#### From where or which information sources did you obtain the information to complete it?

We primarily used lecture notes to get info about what to put in the plan, but also including team members’ past experiences and knowledge along with practices the team were doing that was working well.

#### What reasons are there for inaccuracies in the project schedule?

Planned project schedules are rarely accurate when planned so far in advance of the actual activities taking place and lack experience and knowledge in that area. We also realized members been allocated to specific tasks were not as effective as compared on other task.

#### After a schedule is produced, how much effort each week should be devoted to maintaining it (keeping it up-to-date with actuals)?

Ask Dell – she said quite a bit, especially getting the dependencies right

### Question 3

#### When you delivered the final product, what did you actually hand over to the client?

The items that we hand over to the client are those that we have agreed upon to during the sign off. It is a web based application which runs in any internet browser, comprising several interfaces for different users and access controlled via user accounts. A user is redirected to the appropriate web page once they have logged in via an initial login screen. User accounts are maintained by system administrators. It has comprehensive online help facility. The system is developed in Java using an Oracle database and all source code is provided as well as scripts for the database schema. All executables and configuration files along with system manual which consist of configuration and maintenance information, and a User Manual for environmental officers.

#### Provide a rule-of-thumb formula for determining the effort required to produce these items.

The effort required to produce these items can be estimated based on the size measure, such as lines of code (LOC) and function points (FP).

Line of Code:

This is the number of lines of the delivered source code of the application, excluding comments and blank lines and is commonly known as LOC. The exact LOC can only be obtained after the project has completed, however, it can be estimated by using experts’ judgment together with PERT method. The PERT method involves experts’ judgment of three possible code-size: , the lowest possible size; , the highest possible size; and , the most likely size. The estimate of the code-size S is computed as:

PERT method can also be used for individual components to obtain an estimate of a software application by summing up the estimates of all the components.

Function Points:

This is a measurement based on the functionality of the program. The total number of function points depends on the counts of distinct types in the following five classes:

1. User-input types: data or control user-input types
2. User-output types: output data types to the user that leaves the system
3. Inquiry types: interactive inputs requiring a response
4. Internal file types: files (logical groups of information) that are used and shared inside the application
5. External file types: files that are passed or shared between the system and other systems

Each of these types is individually assigned one of three complexity levels of 1 (simple), 2 (medium) and 3 (complex) and given a weighting value that varies from 3 (simple inputs and outputs) to 15 (complex internal and external files). The unadjusted function-point counts (UFC) is given as

Where and are respectively the number and weight of types of class I with complexity j

This initial function-point count is either directly used for effort estimation or is further modified by factors whose values depend on the overall complexity of the project. The value can be further adjusted by take into account the degree of distributed processing, the amount of reuse and the performance requirement, etc. The final function-point count is the product of the UFC and these project factors. The advantage of the function-point measurement is that it can be obtained based on the system requirement specification in the early stage of the application development.

Once the size of the application is obtained, the effort can be estimated by using an algorithmic method. The algorithm is based on mathematical models that produce cost estimate as a function of a number of variables which are considered to be the major effort factors. The algorithm has the form:

Where denotes the effort factor (i.e. LOC, FP …etc.)

The algorithmic methods differ in two aspects: the selection of effort factors and the form of the function f. The most commonly used is the form of the function which has many different models for different kind of projects. One of the simplest models is the linear model which has the form:

Where denotes the effort factors and are the coefficients chosen to best fit the application.

#### It should be possible to use your rule-of-thumb formula to estimate the effort required for other projects as well (e.g. the next commercial project you work on). Etc

WHAT

* Sean to research

## Part2

### Consider what you have learned from this project and how this might scale to a larger more complex project.

We believe the experience that we have acquired in this project are beyond any words can describe and it will definitely help us with our future endeavor. The current project not only simulate a replica of how the real industry functions as it trained us with all the appropriate protocols and documents required to undertake any future project should we become involved in any ourselves one day. Regardless the scale of the project, a proper documentation and administration to whom it shall address and what the requirements are is a necessity.

Apart from all these documentation experience that we have gain, we were also introduced to an adequate amount of level in programming which makes us versatile in any given roles which we were originally designated with and surely, we are indispensable to the team. Even so, through this we also learned the key fundamentals of teamwork which are, neutral understanding, compromising, and the most crucial of all, communication. Without these, even the smallest task could result in catastrophic let alone a larger and complex project in future.

### Your group may or may not have used your project plan to assist in controlling the implementation of the project. If you did, answer this question on the basis of your experience with it.

Fortunately, our project plan was tailored to be as realistic as possible and was structured in a concise manner as to cater for the demand of the ever changing industrial environment with extra rooms of improvement without having to revamp the entire plan. The level of its adaptability together with some of our member’s real life past experience and knowledge greatly honed the overall results.

Our team effectively accomplished every component listed in Project Plan with accordance to what was required. And as described earlier, a project plan is a crucial documents which consists of Work Breakdown Structure and schedule that assist us in managing the project. The Work Breakdown structure provides detail of the overall task and disseminate it into a smaller and manageable pieces. These tasks were then evenly distributed throughout the team members to focus on so as to achieve full utilization of human resources and ensured our project is completed well before the agreed deadline.

### What difficulties may arise in the implementation of a complex product with a team of people? What is the impact of these difficulties on the quality of the product (includes the content of the product and the delivery schedule)?

Even before the beginning of this entire project, there were few existing hurdles which we have to overcome as a team. That was allocating of task accordingly to their strength, time management between courses, and the one that we were concerned with most is communication barrier.

Our team has a fair mixture of IT gurus and Business oriented students of different education levels. Therefore assigning of task was not really an enormous issue to address. However, even with a perfect project plan and schedule planned out for the team, we often ended up burning away our weekends to complete our given tasks as neither anyone of us is able to cope with multiple assignments from other courses as well as other external factor in order to prevent scope creep. With the diversity of nationality, we soon discovered a problem in conveying our intended message because English is not the first language for some of the group members. Fortunately this problem was soon overcame as the team was very spontaneous and willing to take the extra effort to elaborate further to eliminate any possibilities of misunderstanding the specification required from the system. With our well established Risk Management Plan, any escalating fault will be dealt with appropriately to mitigate and avoid jeopardizing the entire project.

Certainly it can be advantageous and beneficial if everyone in the team thinks like a single person does. This will greatly cut down the amount of time spent on explaining and planning. However it is equally not that bad if they do not share the same perspective, because this generates ideas which could be out of the box and multiple solutions can be derived out of it as well, achieving high quality and meeting deadlines.

What made us a better team among the rest is the amount of inevitable teamwork and frequent communication that we have in this project to overcome all difficulties we had faced together, the bond between us grew exponentially with neutral understanding and respect.

***“Coming together is a beginning. Keeping together is progress. Working together is success.”***

* *Henry Ford*

### How does a project plan assist in the control of these difficulties?

Sufficient amount of planning in advance may help streamline processes before it can escalate and evolve into hindrance. A well documented Project Plan should consist of a meticulous planning for Risk Management to prevent that. It is utmost one of the most crucial part not to be missed out as it is use to prepare the team with contingency plan to see through the completion of the project. It has the ability to identify, assign, and respond to risk throughout the life of a project and in the best interests of meeting project objectives. Risk is often a natural occurrence which revolves around us and it is bound to happen to any project even if it is professionally organized. The only differences between these risk is the level of severity it could cause to jeopardize the project. Therefore planning on how to reduce, mitigate and even avoid these risk is a crucial part of the project planning.

### What part does the schedule play in this?

A well documented Project Schedule are more likely to be profitable and less tedious maintaining. It manages the whole project and keep track of deadlines and progress such as what are required to be done and who are the people involved to complete it. This allows us to determine realistic deadlines and plan well ahead before the start of next upcoming task. Not only that, Project Schedule also indicates which task are dependent to the other so deadline can be adjusted accordingly in advance. This way we will not set unrealistic deadlines and penalized for it.

### Why would a list of tasks (instead of a schedule) not be sufficient?

As project phase gets underway, the Project Manager would want to keep track on not only the progress but also their dependencies between tasks and weather there are any critical paths which may arise. Unlike schedule, list of tasks are just a scrape of surface on what are required to complete and that does not indicate to us if certain task requires the completion of its predecessor before beginning or other way around, and weather additional resources allocation are required or not. With so many hidden agenda, the consequences of using this instead of schedule can be risky and likely to cost the project overhead and scope creep.