The University of Melbourne

School of Computing and Information Systems

SWEN90016 Software Processes and Management

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Assignment One – Project Case Study and Analysis

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1. Summary

Selecting an appropriate software development life cycle(SDLC) model for a project in practical is a big challenge. The report provides some criterion to help development team to choose SDLC model with a real project “Southern State TAFE”, and indicates some potential risks the project probably face. From a variety of perspectives considered, incremental model is chosen for the project.

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2. Introduction

Software development life(SDLC) cycle models has been used during the development of IT projects in many organisations. Using a suitable SDLC model can improve the quality of software and performance, and efficiently control the process of development. However, Sami (2012) argues that an improper SDLC model chosen might lead to project delay, poor performance or disorganized management. Therefore, choosing a suitable SDLC model is becoming a challenging task for software development teams. This report will investigate a project "Southern State TAFE" (SST) and provide the most suitable SDLC model for it by comparing strengths and weaknesses of multiple SDLC models. It will recommend some methodologies to select a SDLC model for a project. Aspects to be explored encompass the critique of the scope and requirements of SST project, the justification of incremental model, the indication of some unknown risks the project will possibly face and a few challenges.

3. Southern State TAFE Project Goal

The project "Southern State TAFE" aims to produce a Business Intelligence data warehouse with a cross application reporting capability and Business Intelligence (BI) portal (Williams, 2016, p.5).

4. Software development life cycle model analysis

By comparing advantages and disadvantages of some general SDLC models on several perspectives, the most suitable model for SST project is incremental model. The reasons are followed:

4.1 Requirement

The requirements of the project are relatively clear. It has provided specific business requirements, system requirements, software requirements and hardware requirements. Moreover, a context diagram and a system interfaces diagram (see diagrams in appendix) are given to enhance the understanding of functionalities of the business intelligence data warehouse. From the clearity of requirements perspective, all models fit the project.

4.2 Familiarity of technologies

This project requires the development teams (BPC and SST) a variety of technology knowledges. Such as, building a SQL server data warehouse, proficiently using SharePoint to manipulate ETL process and manage business intelligence portal, using Active directory groups to control user security, using Excel for manual data entry, etc. Here is a high chance that team members are not very familiar with those technologies. From the familiarity of technologies involved perspective, spiral model and incremental model perform better than agile model, waterfall model and V-model (Sommerville, 2011).

4.3 Time

According to time constraints on this project, the project must be completed by one calendar year. Time is relatively enough for development. From time perspective, although all models can be used, customer must hope they can see product as soon as possible and provide feedback. Therefore, waterfall model and V-model are not appropriate as customer can only check the product after all phases are completed. The advantage of incremental model is to deliver key functionalities early to customer and get feedback early, which increases the probability of success of product.

4.4 Management

In business requirements, there are 12 tasks with high priority which must have been done first. Moreover, four of them require both SST and BPC to take part in development. Therefore, the project needs strong management to make sure that each task is carried out in an orderly manner. From project management perspective, incremental model relatively requires more management skills and attention. Other models such as waterfall model have no too much management pressure.

4.5 Finance

The project got a funding of $189,400 and no contingency. It might be limited for the project. Need money to purchase software like Microsoft SQL Server 2012, Microsoft SharePoint 2013 and Oracle Oledb drivers, and hardware like server machine, large capacity disk. From finance perspective, incremental model can perform better under limited funding. The whole

requirements are divided into multiple smaller requirements. As a result, the cost of changes of requirements can be reduced to minimum.

4.6 Scope

From the project scope, both BPC and SST do need documentations to management resources of projects. Majority of them are related to implementations of functionalities. For example, Excel workbooks are required to manage manual data entry. From documentation management perspective, most models can do excellent documentation management except agile model. Transformation of technologies to new team member could be quite challenging due to lack of documentation in agile.

4.7 Data integrity

The purpose of project is to implement a BI data warehouse. The data will be loaded from Student Management System(QLS), Financial System (Oracle Financials), Payroll System(Chris21) and Various workbooks. Hence, the accuracy and integrity of loaded data is the most important thing. From data accuracy and integrity perspective, incremental model will perform well as it provides testing and debugging to detect error data during each smaller branch.

5. Risks

5.1 Unclear requirement

Some requirements lack of details. Although inputs and outputs are given, the internal processing logic is vague. This might lead to deliverables do not match customer expectations (Carvalho & Rabechini, 2015).

5.2 New software

The project is introducing a variety of software like SharePoint, Excel, SQL server data warehouse, ETL, Scorecard, Active directory groups, etc. These are somewhat new for SST and BPC staffs. This might cause project delay or incorrect implementations.

5.3 Unknown data quality

The Business Intelligence data warehouse are importing data from multiple systems. The quality of loaded data is unknown. This might lead to the

reports based on the data incorrectly reflect the information from source systems.

5.4 Limited funding

The project got a funding of $189,400 without contingency. Once customers increase or change the requirements, these funding might not enough to support those changes.

5.5 Communication challenge

Communication might be a challenge in the project. The whole development team can be divided into two parts: Southern State TAFE team providing technologies and Business Performance Consulting providing functionality integration. How the two teams efficiently cooperate and communicate with each other will decide the quality of final product.

6. What could make it a difficult project?

There indeed exist some potential issues that make the project difficult. Some issues as followed:

6.1 Too many tasks at once

Toivonen (2015) argues that one of the biggest challenges in the task management arises when there are multiple tasks that need to be taken care of at the same time. In the business requirements, there are 12 tasks with first level priority which required to be completed first. This leads to challenging task managements for project manager.

6.2 Technology complexity

The project not only requires a lot of knowledges on a variety of field such as database or data analysis but also high-tech knowledges. This could be a challenge for development team.

7. Conclusions

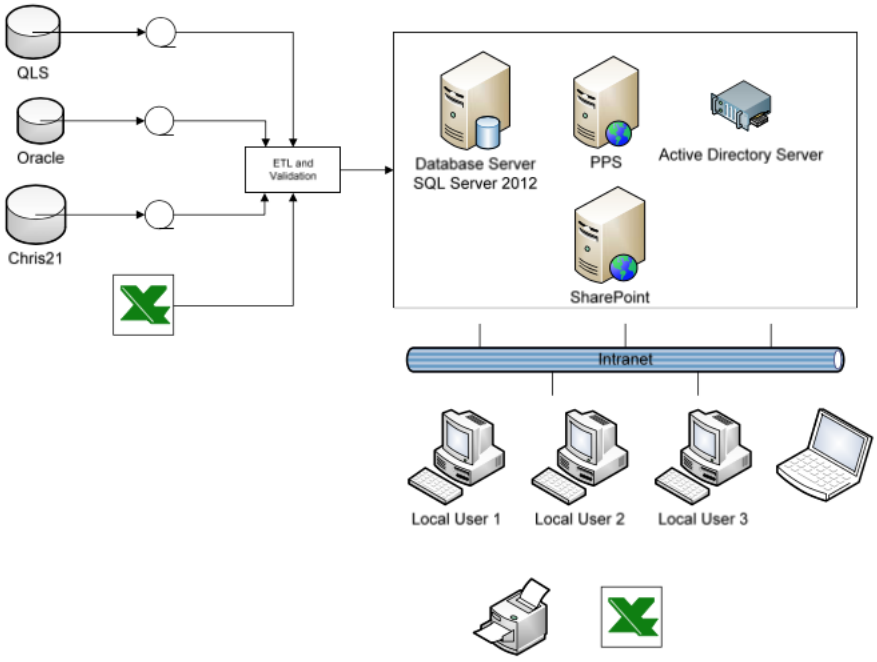
The project “Southern State TAFE” is to implement a Business Intelligence data warehouse with reporting capability and BI portal. The report analyzes the project from requirements, familiarity of technologies, time, finance, project management, scope and data integrity perspectives, incremental model is the most appropriate software development life cycle model for the project. Moreover, it indicates some potential risks such as lack of implementation details, unfamiliar technology, unknown data quality, limited finance and communication challenge.

8. References

[1] Williams, R. (2016). Southern State TAFE – Business Intelligence Phase 1. Retrieved from Business Performance Consulting.
[2] Sami, M. (2012). Choosing the right software development life cycle model. Retrieved from https://melsatar.blog/2012/03/21/choosing-the-right-software-development-life-cycle-model/.
[3] Toivonen, E. (2015). What makes a project portfolio difficult to manage. Retrieved from https://www.thinkingportfolio.com/what-makes-a-project-portfolio-difficult-to-manage/.
[4] Sommerville, I. (2011). Software engineer (9th ed.). Boston: Pearson, c2011.
[5] Carvalho, M., & Rabechini, J. (2015). Impact of risk management on project performance: the importance of soft skills. International Journal of Production Research. p321-340.

9. Appendices

9.1 Context diagram



9.2 System interfaces diagram