Development of Financial Information System: One Technology

Norsaedah Hazimah Redzuan Nor Azliana Akmal Jamaludin
Faculty of Computer Science & Information Technology
University Selangor
45600 Bestari Jaya, Selangor.

Abstract
A financial information system (FIS) is in charge of monitoring finances within an organization or business. It captures complex data and processes it into specialized reports. Thus, this system saves time and effort in dealing with business accounting. While financial information systems have many benefits, it should be noted that having an FIS in place can be costly and usually requires training for those people operating the system. This paper focusses study on the financial information system (FIS) using the ERP solution technology based. There is a case study regarding the existing project development of financial information system (FIS). Partially, there is also a comparison between two actual systems which include the previous system called ACCPAC system and currently new implemented system called Technology One system. The team clients who involves in this project are the co-workers at Financial Department of Taylor's University Sdn Bhd. The vendors who implement this project are co-workers from XYBASE Sdn Bhd. After a few years, Taylor's University Sdn Bhd has successfully expanded their business operation. So, their previous ACCPAC system is not able to cater all the data management in financial information system. Technology One system is the one that able to fulfil the clients' requirement because it could provide a flexible functionality of the system. The main purpose of this research paper is to study the enhancement of Financial Information System's functionality. Then, the other purpose is to investigate whether the agile project methodology is applicable or not for this project implementation process. To achieve the main objectives, Technology One system provides the additional functionality of the system which meets the client's needs. In this paper, there is a discussion and comparisons of the functional requirements which help Taylor to enhance their financial information system (FIS) to become more productive and efficient.

Keyword: *Financial Information System (FIS), Functional Requirements, ACCPAC system, Technology One system.*

1.0 Introduction

According to Radu (2012), financial Information System (FIS) helps the organization to analyze financial data in order to make good financial management decisions in running the business. Aurelia (2011) stated that the basic objective of the financial information system is to meet the firm's financial obligations as they come due, using the minimal amount of financial resources consistent with an established margin of safety. Outputs generated by the system include accounting reports, operating and capital budgets, working capital reports, cash flow forecast, and analysis reports. The evaluation of financial data may be performed through ratio analysis, trend evaluation, and financial planning modelling. In the past years, traditional management based on the analysis and interpretation of accounting data has turned out to be incapable to assess and express, in a clear and correct manner, real performance of the entities involved (Manea, 2011).

In this paper, there are two main purposes of this study. The main purpose of this research paper is: 1. To study the enhancement of Financial Information System's functionality. 2. To investigate whether the agile project methodology is applicable or not for this project implementation process. Before this, Taylors are using the ACCPAC system, but the previous system could not cater the client's requirement because Taylors has expanded their business. Therefore, in order to solve this problem the clients of Taylor University have been offered to use the Technology One system as the new system application that satisfies their requirements and meet beyond their expectations. Technology One system also is the one that able to fulfil the clients' requirement because it provides a flexible functionality of the system.

The case study is based on the existing system called Technology One system. The Technology One system is a financial system which is able to develop, market, sell, implement and support fully integrated software solutions. It also constructs the solution suite based on leading market, followed the innovation of technology and backed up by doing the Research and Development program to ensure the customers with long term security. This technology strategy helps to provide a significant Research and Development to be a

market leader and to enhance the way to satisfy the client's requirement. This system provides the comprehensive enterprise suite of software solutions that is fully integrated to provide organizations with a solution to manage the customer's needs. The integrated module includes Technology One Core Financials module, Technology One Supply Chain module, Technology One Business Intelligence module and Technology One Budgeting module.

This paper also provides the project methodology which has been used to complete the existing Technology One system project. The project methodology has used the agile methodology to complete the project in efficient ways. The agile methodology is able to manage the project timeline, reduce the project cost and produce effective results. In this research paper, there is one case study which discusses the ACCPAC functional specification. Besides that, there are findings which cover the functional specification of Technology One System.

2.0 Project Methodology

Agile software development requires alignment of decisions on the strategic, tactical, and operational levels in order to overcome challenges. Elsevier (2011) stated that the agile development also requires a transition from specialized skills to redundancy of functions and from rational to naturalistic decision-making. This takes time; for the case companies from one to two years to change from traditional, hierarchical decision-making to shared decision-making in software development projects. Furthermore, Elsevier (2009) stated that by using the agile software development approach**,** there are many factors that will influence the success of projects.

So, this approach factors comprise the client satisfaction, client collaboration, client commitment, decision time, corporate culture, personal characteristics, societal culture and training and learning.

Figure 1 shows the Agile Development Process which has been applied to develop this project. There are five phases in this process. The phases include gathering the requirements, designing the solution, building the solution (development), testing the product and delivering the product to the clients. If the product fails then it will start the iteration process until it provides a successful result. If the product is in success condition, then it will be released to the clients.

2.1 Discussion of Project Methodology

Many representatives of the agile development movement claim that agile ways of developing software fit more to what is actually needed in industrial software development (Beck, 2000; Cockburn, 2002). Communication and cooperation among the development team are considered to be fundamental and necessary in agile software development. Cockburn (2000) argues that people sitting near each other with frequent, easy contact will develop software more easily. (Cockburn, 2001; Highsmith, 2001) states that good communication and interaction within a development team can make the employees operate at a higher level compare to using their individual skills. Therefore it is worth enhancing both individual competencies and collaborative skills. Boehm (1981) states that the work quality of the project team is one of the most influential factors in constructing successful software by regarding formal processes and tools as less important. One of the basic arguments for agile methods is the increased efficiency of people who work together.

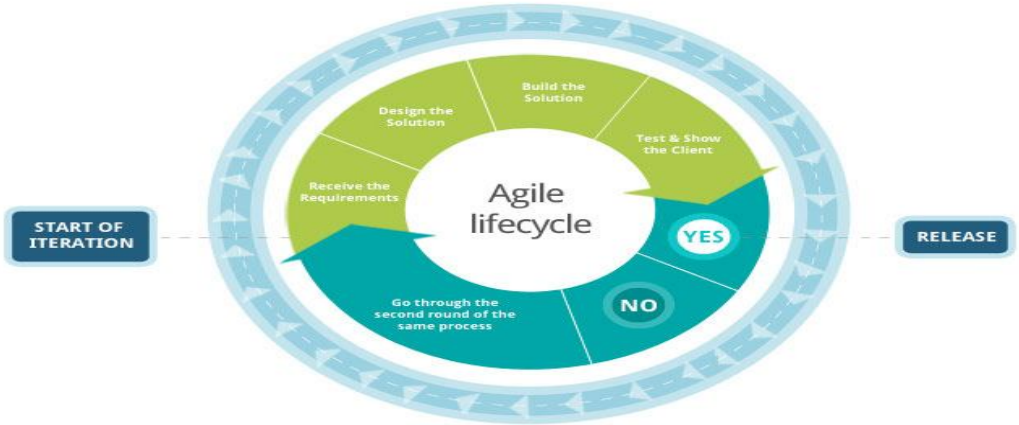

Figure 1 shows the Agile Development Process

The waterfall model (Royce, 1970) emphasizes on development through sequential phases with predefined documents, milestones and reviews after each phase. Shine Technologies (2003) conducted a simple survey of the global experiences with ASD. They found that companies that follow agile practices have lower costs, better productivity, better quality, and better business satisfaction.

Agile software development represents a major departure from traditional, plan-based approaches to software engineering. Agile development methods are suitable for small teams, but for larger projects, other processes are more appropriate. Table 1 below shows the main differences between traditional development and agile development.

Then this system is using the Microsoft SQL a Server-specific feature that makes the product runs well on SQL Server. This kind of design is able to improve the reliability, scalability, functionality and the product can be tested in a variety of environments. The ACCPAC system has a similar functionality with the Technology One's system, which includes the fully integrated software solutions and using the MYSQL server as the database server. Both of these systems are simple, user-friendly and support multimedia features and customized query processing facilities for easily retrieving the required information.

Table 1: Main differences between traditional development and agile development

Table 2
Main differences between traditional development and agile development [47]

	Traditional development	Agile development
Fundamental assumption	Systems are fully specifiable, predictable, and are built through meticulous and extensive planning	High-quality adaptive software is developed by small teams using the principles of continuous design improvement and testing based on rapid feedback and change
Management style	Command and control	Leadership and collaboration
Knowledge management	Explicit	Tacit
Communication	Formal	Informal
Development model	Life-cycle model (waterfall, spiral or some variation)	The evolutionary-delivery model
Desired organizational form/structure	Mechanistic (bureaucratic with high formalization), aimed at large organizations	Organic (flexible and participative encouraging cooperative social action), aimed at small and medium-sized organizations
Quality control	Heavy planning and strict control. Late, heavy testing	Continuous control of requirements, design and solutions. Continuous testing

Moreover, there are several reasons why this project is using the agile development process. Firstly, this agile development process provides a flexible software development, promotion of iterations, open collaboration and adaptability throughout the entire process of project development. Services agile development process can be done in small steps to achieve a minimum of planning, rather than long-term project. With this methodology, the risk is reduced and the project is able to adapt to changes easily. Secondly, the agile development process also provides services to people who are focused on learning and friendship, constant attention to the development team.

3.0 Case Study

Based on the previous system which Taylor's University used, the system named ACCPAC, according to a paper of ACCPAC Advantage Series Architecture (2005), a large investment has been made to develop this ACCPAC architectural framework but this system is primarily serving a small and medium sized of businesses.

According to Linda (2009), the core financial module helps the organization to maximize productivity through improved workflow features and flexible personalization capabilities. The ACCPAC system offers four core accounting software package modules which includes the

Accounts Payable, Bank Reconciliation, General Ledger, and Fixed Assets. In contrast, the Technology One system provides seven core accounting software package modules which cover the Accounts Payable, Accounts Receivable, Allocations, XLOne Reporting, External Systems Interface, Fixed Assets and Reconciliation.

The ACCPAC system provides the General Chart structure in the form of alphanumeric. The previous component structure in ACCPAC only covers four components of Chart of Account. The components include the Natural Account, Department, Business Unit and Company Code. There is a limitation design in the General Chart structure. For example, the journals are manually prepared on spreadsheets by GL staff and they manually analyse the available funds. The

spreadsheet is referred to the accountant or manager in-charge who can approve the Journal document before entry by GL staff into ACCPAC. Some journals are repetitive by nature such as monthly payroll, prepaid expenses, accrual for utilities and statutory expenses (Audit fee), depreciation, income accrual for interest and also management fee (inter-company). The solution of this matter is Technology One system provides the journals which able to be raised electronically. The journals also will be required to be approved according to the department receiving the expense. A matrix of the approval will be configured into the advanced workflow to facilitate the assignment of the journals. The approved journal will be returned to the GL staff member who will raise the journal to post. Essentially workflow will capture the electronic signature of the approving party. This will reduce the paper flow significantly with the view to expedite the process from raising > approval > posting. Most of these invoices are managed manually using spread sheets and varied means of tracking. Essentially an Accounts Receivable module is not being used in ACCPAC. Journals are raised for intercompany invoices and are approved by the receiving entity.

In ACCPAC system, there is no Business Intelligence Module provided to Taylors. This is because all the data analysis has been analyzed manually using the spreadsheet. For example, the overall performance of loss and profits is based on their final reporting printed. This will take a long process for the top management to see the overall business performance of their organization. According to the situation, Taylor has required to purchase the licensed of Business Intelligence module which has been provided by Technology One system. From the Taylor's point of view, business intelligence is needed in their organization to gain an understanding of the whole strategic marketing planning process.

Aurelia (2010) stated that the financial reporting provides information for corporate leadership. Members of the accounting profession with financial reporting skills and knowledge provide business advice to board directors, analysts, shareholders, creditors, colleagues and other stakeholders. Radu (2011) stated that in a competitive international environment, financial reporting provides users with information to formulate corporate strategies, business plans and leadership initiatives. According to George (2012), the Financial Reporting is designed to provide users with financial reporting, technical accounting and business skills and values that are applicable in a professional and global environment.

In previous ACCPAC system, Taylors has facing a problem regarding the financial report information. The main problem is the financial report in ACCPAC system gives imprecise data calculation of results. For example sometimes their report displays the imbalance in debit amount and credit amount. Apart from that, when the client generates the financial report which is the summary of thousands transactions, the report takes more than an hour to appear in the application screen. ACCPAC system uses the Microsoft Visual tools to develop the financial report and almost of the reports are in standard package. Thus, there is a limitation functional of the financial report.

4.0 Findings

Currently, Taylor's used Technology One system as their official Financial Information System (FIS). Technology One system is a new design and latest version of ERP (Enterprise Resource Planning) solutions software implementation. According to Hossein (2004) ERP is the integration systems of internal and external management of information across an entire organization which covers the embracing finance or accounting, manufacturing, sales and service, customer relationship management and etc.

Figure 2: The Core Financial Modules in Technology One system adopted by Technology One Corp. webpage (2013)

Figure 2 shows the Core Financial Modules in Technology One system which covers the main core financial module and the supplementary financial module. The main core financial module includes the General Ledger, Accounts Payable, Accounts Receivable, Allocations, XLOne Reporting, External Systems Interface, Fixed Assets and Reconciliation. But in this paper it only describes the functionality of General Ledger and Accounts Receivable. The supplementary financial module covers the XLOne

Modelling, Business Intelligence Analysis, Business Intelligence Dashboard, Timesheet Entry & Costing, Cash Accounting, Workflow Maintenance, Recurring Documents, Direct Debits, Web Services, Purchase Cards, Multi Currency and Archiving. This paper only covers the XLOne Modelling, Business Intelligence Analysis and Business Intelligence Dashboard. Eva (2011) stated that Technology One system provides clients with the tools to manage their organisation's financial data in one effective solution with the ability to produce reports targeted to assist strategic decision making.

4.1 Functionality of General Ledger Module in Technology One System

Taylor's requires a system with the ability to capture transactions and report at different levels throughout the organisation. At a General Ledger level, transactions need to be reported on in a summary by Entity, Location, School, Program, Department and Natural Account. Taylor's also needs to capture budgets at an employee level, individual car park level and various projects within the group.

treasury ledger, project ledger and employee ledger. In the general ledger's chart of account structure, there are the Entity, Location, School, Program, Department, Natural Account and Analysis.

The structure has been designed in this following below figure:

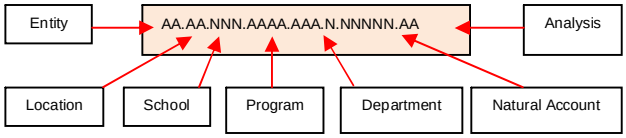

Figure 4: Chart of Accounts adapted by Grootjans (2010)

4.2 Functionality of Account Receivable Module in Technology One System

In the Technology One system, Accounts Receivable module is fully integrated with the general ledger, providing a consistent user interface, functionality, and processing philosophies. The Accounts Receivable module also provides a multiple ledger for the increased flexibility functional requirement.

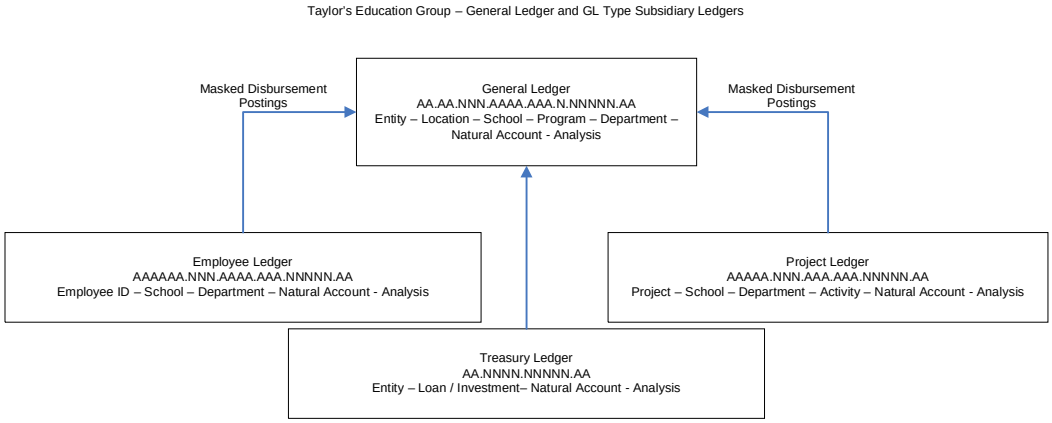

Figure 3: The Structure of the Chart of Accounts Components adopted by Grootjans (2010)

The configuration of the charts needs to be flexible as current reporting requirements may change in future.

Figure 3 shows the structure Chart of Accounts Components which has been used in the Technology One system. The following structure has been identified as the best way of catering all of the groups' requirements. Each ledger is linked to a chart which has additional attributes that allow flexible reporting and enquiry. There are four types of the structure Chart of Accounts Components which include the main general ledger and three subsidiary ledgers. The subsidiary ledgers cover the

Technology One system supports the processing of documents through the use of data entry formats. Data entry formats permit the customisation of data entry screens to meet the data entry requirements of Taylor's Education Group. Each data entry format is associated with a processing group, which determines the ledgers, disbursement and control postings of transactions. Technology One system in Accounts Receivable module has been designed around document processing; this is in contrast to the design approach of transaction processing. This means that Technology One system can hold the complete history around the life cycle of the document, when it was paid and what cheque the payment was made

on. The Accounts Receivable data capture system reflects this document focus in the terminology 'Document' is used to describe items such as a creditors invoice and 'Document File' refers to a group, or batch, of documents.

4.3 Accounts Receivable workflow

Figure 5 shows the Accounts Receivable Workflow process which meets the Taylor's functional requirement. This is a process which involves the top management's approval to create the Accounts Receivable documents. First step, the financial officer must create the Accounts Receivable documents by keying in the data entry at Enquiry section. After financial officer complete the data entry, she or he must submit the document file to the Financial Manager. If the document has been rejected, the status of the document is in suspended. Only budget holders or finance manager is able to reject the document. If the document is in "Approved" status, then the document is required to print the Accounts Receivable's transaction. Before the transaction is printed, the document must be notified or assigned to other initiator. If the documents has been successful notified by other manager, then the Accounts Receivable's transaction is able to be printed. Lastly, the finance officer must post the document until the status of the document is committed to "POST" or else the status of the document is in "SUSPENDED".

4.4 Functionality of Business Intelligence Module in Technology One System

The Technology One system uses the Business Intelligence tools to represent the data modeling. By using the Business Intelligence tools, there are data challenge occur in the Technology One system. According to Smith (2009), a high-level data model in business is the way to abstract model transform into reporting documents. It also enables to organize the business data for communication between functional and technical people. The important thing is the data model is used to show the data needed and created by business processes.

Based on the figure 6, there are four processes in developing the Business Intelligence module. In the first process, the user's data will be grabbed from the operational or source data. In the Technology One system, they use the ERP operational data to integrate all the financial module, budget module, supply chain management module and Human Resource module into one financial system. Secondly, the data will be extracted and loaded into the data warehouse. This process has also been applied in Technology One system.

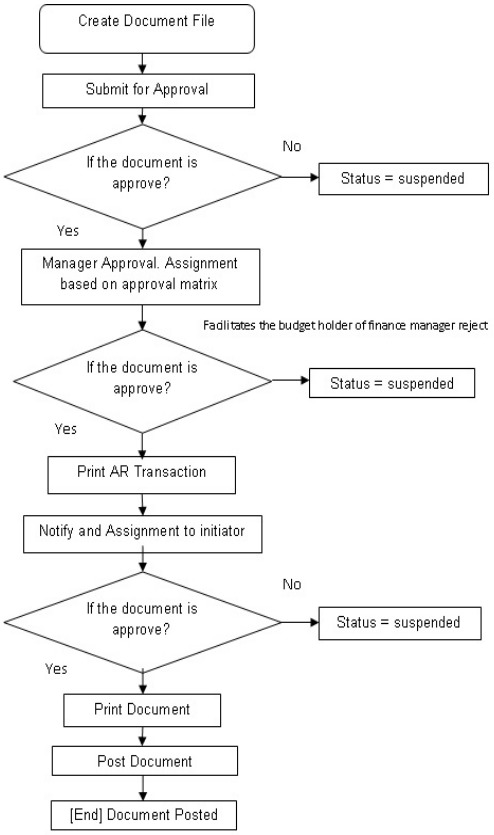

Figure 5: Accounts Receivable Workflow process adapted by Grootjans (2010)

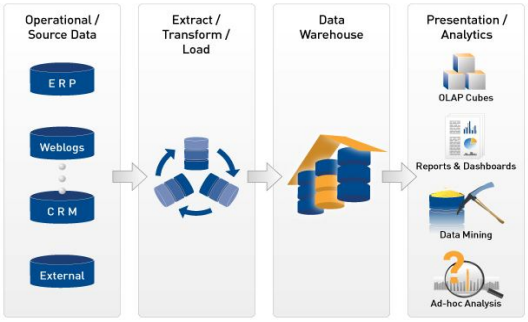

Figure 6: shows the processes of Business Intelligence adopted by Hackney (2011)

In the system, the database administrator will load all the data using the data migration process. This is because the data is needed to be migrated with the existing data in previous system to place the data in new upgrading system. After the data have been loaded, the data will be presented in graphically data analysis. For the data presentation in Technology One system, it uses the reports and

dashboards to summarize information presented on a web page.

Figure 7: The screen shows the outcome of information graphical data analysis adopted by Eva (2010)

Figure 7 shows how the data-modeling team designs a proper data graphic analysis based on the relational model. According to Catherine (2009), business Intelligence can provide organization with better knowledge of the factors affecting current business by accessing real-time key strategic information. In the Technology One system, the business intelligence abstracts the information graphic data analysis such as metrics on sales and revenue, projects, internal operations and management key performance indicators (KPIs) and other core financial module. This will help top manager who is the user to see a clear overall picture of business performance whether the business gains profits or face loss.

4.5 Functionality of Purchasing Module in Technology One system

In the Purchasing module, there are nine scenarios processes which need to be completed in the Purchasing process. The aim of this process is to describe the purchase requisition, order amendment, goods receipt and invoice matching business processes to be implemented at Taylor'. Then, the processes also provide the electronic Workflow functionality and configuration details.

The first process in the Purchasing module is the Finance Officer will create the Purchase Requisition document. A purchase requisition is a request sent to the purchasing department to procure goods or services. It is originated and approved by the department requiring the goods or services. Typically, it contains a description and quantity of the goods or services to be purchased, preferred make, a required delivery date, account number and the amount of money that the purchasing department is authorized to spend for the goods or services. If the Purchase Requisition document has been cancelled or amended, then the status of the document will be in suspended. After that, if the Purchase Requisition document has been approved, then the Purchase Requisition document is ready to be printed. After the printed transaction is displayed on the screen, the Purchase Requisition document will be change to the Purchase Order document status. At this stage, the Purchase Order has been released in successfully. If the Purchase Order document has been cancelled or amended, then the status of the document will be suspended. Later, if the Purchase Order document has been approved, then the Purchase Order document is ready to produce a receipt. Another scenario, if the Purchase Order's receipt has been cancelled, then the status will revert back as the previous Purchase Order's document and return to the supplier.

Technology One system provides two types of financial reports which include the standard report and customization report. The standard reports are in built-in reports which are designed as a common global language for business affairs. So that company accounts are understandable and comparable across international boundaries. The customisation report provides the flexible functionality which able to cater the complexity of data management in Taylor's University. Taylor's requires both summary and detailed reports. The emailing functionality is required to be utilised within the reporting tools that includes the Graphical Report Writer using crystal report and XLOne reporting become the main reporting tool used to create and generate reports.

Technology One systemdeliver organisation-wide control and integration of information essential to improving the bottom line while meeting statutory financial reporting

requirements. With rich functionality, powerful online enquiries and versatile reporting ability, its unique architecture enables creation of an unlimited number of ledgers delivering the ability to manage any range of items such as mobile phones, motor vehicles, provisions, capital works and travel. There are three main objectives are identified for reporting purposes. Firstly, the main objective is to deliver a report on commitments as well as actual

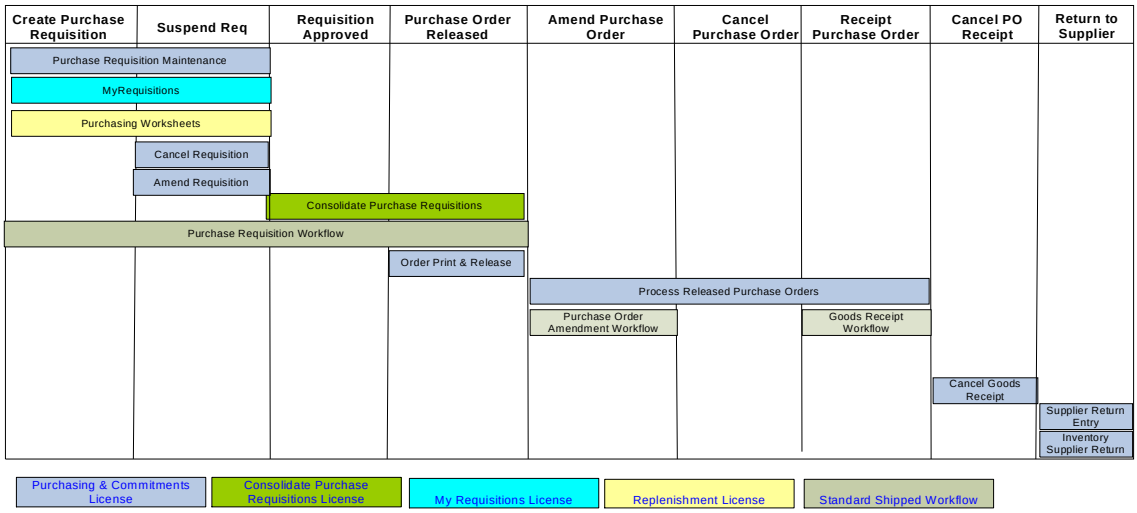

Figure 8: The Purchasing Stage and Function adopted by Eva (2010)

data. The second objective is to create a financial report which has the ability for users to run reports themselves. Lastly, the objective is to create a user friendly report writer.

Technology One system provides four different reporting or enquiry tools which include Graphical Report Writer, XL One, Executive Information Enquiry and My Queries (standard enquiry tool for each user). Crystal or Graphical Report Writer (GRW) in Technology One system is an application used within the system to report on data confined within Technology One system tables. GRW is a powerful tool that is predominantly used for financial and management reporting. Moreover, the XLOne reporting tools enables users to design Technology One system management reports in a Microsoft Excel spread sheet. The features of XLOne helps Technology One system data is refreshed directly into the Microsoft ® Excel spread sheets without the need of export and import routines. Furthermore, XLOne feature provides the unrestricted use of all other Microsoft ® Excel functionality plus access to Technology One system objects such as Ledgers, Account Components and Selection Codes.

5.0 Discussion and Conclusion

This paper discusses the case study and findings of the two existing system's functional requirement. The two existing system which are the ACCPAC system and the Technology One system have been implemented at the Taylor's University Sdn Bhd. Based on the comparison between ACCPAC system and the Technology One system, the most applicable Financial Information System is the Technology One system. Technology One system is able to cater the functional requirement which is the best fit for Taylor's to manage their business operation.

Generally the ACCPAC system is able to cater the small organization which is not fit the Taylor's current business operation. Most of the functionalities in ACCPAC system are limited. For example, ACCPAC system does not provide the Accounts Receivable module. Thus, Taylor's will create the Accounts Receivable transaction manually by using the spread sheet. Accounts Receivable's receipt also has been done and created manually by the Taylor's financial officer.

Hence, another example of situation of using the ACCPAC system is the ACCPAC system does not provide the Business Intelligence module. Nowadays business operations need to use the Business Intelligence modules to enhance their business performance. Most of modern ERP or SAP solutions use the Business Intelligence modules to provide the category of the benefits. The category of the benefits includes the enhancement in terms of Business operations reporting, Forecasting, Dashboard and Multidimensional analysis purposes.

In conclusion, this research paper's objectives have been successfully provide an effective result. This is because, after investigating and analyzing the functional requirement between ACCPAC system and the Technology One system, there is a contradict functionality of these two existing systems. Functional Requirements refer to very important system requirements in a software engineering process such as technical specifications, system design parameters and guidelines, data manipulation, data processing and calculation modules and etc. The key goal of determining functional requirements in a software product design and implementation is to capture the required behaviour of a software system in terms of functionality and the technology implementation of the business processes.

Based on the case study and finding in this research paper, there are very wide changes have been made in terms of the functionality of the financial information system. So, the wide changes of the system functionality makes the project becomes more complex. According to the project manager of this project, he finds that clients always keep changing the functional specification during the implementation of the system. So, the most suitable project methodology for this project is agile methodology. So in this situation, the second objective of this research paper also has been achieved. The agile project methodology is applicable for this project implementation process. The agile methodology can applicable for this project because it is able to deliver high-quality software that can rapidly adapt to changing requirements. Furthermore, there are many benefits of using the agile development process to complete this project. The benefits include helping clients to stay competitive, increasing collaboration, increasing visibility, maximizing the amount of work done and improving effectiveness. Hence, agile development process is useful for business development and software development for any society.

6.0 Acknowledgement

This research project would not have been possible without the kind support and help of many individuals and organizations. The highly indebted to Taylor's University Sdn Bhd for their guidance and constant supervision as well as for providing necessary information regarding the project and also for their support in completing the project.

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