Title: Case Study: Enterprise Resource Planning at Central Queensland University

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Executive Summary

Organisations of different sizes are changing their information technology (IT) strategies in order to achieve efficiency and effectiveness in today's global economy and to integrate their internal and external information by implementing Enterprise Resource Planning (ERP) systems. Literature is full of case studies discussing successful and unsuccessful ERP implementations. One thing is certain that any technological investment must add value to the company. To set this value and associated costs, companies must make a business case for technology investments and develop a framework to measure the performance of the latter.

This case study concerns latest business system at the Central Queensland University (CQU). CQU adopted a mixture of in house legacy systems associated with commercial products. The current system is not capable to operate the basic functions of the University and must be replaced as a priority. After a failed concept of the integration in developing special Student, Finance and Human Resources systems, the University decided to look for an external solution. Andersen Consulting was contracted to improve the infrastructure of the university administration. The costs were estimated $14 million in a period of three years. After $20 million investment and elapse of two years, student's financial system was delivered only. CQU review the needs of current and future system. This resulted in a project handover to a new management system provider TechnologyOne in Australia (StudentOne). The objective of this case study is to identify and report risks associated with StudentOne Enterprise Application System with a reflection on the history of the CQU ERP systems.

This paper will discuss the ERP, reasons and challenges of setting up an ERP and risks associated with it. The risks identified in this regard are complexity of project, operational risk, ongoing costs including regular hardware and software updates, data conversion and integrity, change management, perceived lack of direction and control, level of customisation, and integrate different ERP systems. Recommendations will be provided for successful implementation of ERP systems.

Introduction

The case study concerns latest business system at the Central Queensland University (CQU). CQU adopted a combination of in house legacy systems associated with commercial products. The current system is not capable to operate the basic functions of the University (such as information management students). This system must be replaced as a priority. New systems must focus to reduce the administrative burden and sensitized personnel are needed to consolidate change and focus on value-added activities. Existing financial systems are not integrated with other core functions of the university and the necessary information must enable staff to make informed decisions. CQU mentioned that human resources system used by CQU staff does not support the position of self-help. In addition, the HR system is not integrated with the systems of the students and staff of finance and planning is deactivated.

After a failed concept of the integration in developing special Student, Finance and Human Resources systems, the University decided to look for an external solution. Andersen Consulting was contracted to improve the infrastructure of the university administration. CQU mentioned that costs were estimated $14 million in a period of three years. Andersen Consulting works closely with *PeopleSoft*, a hardware and software solution for integrated finance, human resources, payroll and administrative components. The project was to take place in three phases over three years beginning from 1999. The first step is the admission of students, ledger, budgeting and acquisition modules and liabilities. The second stage includes records of students, student financial services, modules billing and accounts receivable and inventory. The third phase will manage the the assets and staff understanding modules. After $20 million investment and elapse of two years, student's financial system was delivered only.

CQU mentioned that announcement of the merger with CQTAFE led to a review of the needs of current and future system. This resulted in project handover to a new management system provider TechnologyOne in Australia. Although this principle in VET (formerly TAFE) may have limited operations, the plan is to roll a StudentOne product to the university in general that will be replacing the current system of PeopleSoft. No announcement was made about the future of Finance (PeopleSoft) and staff (Talent Alesco products) systems. The objective of this case study is to identify and report risks associated with StudentOne Enterprise Application System with a reflection on the history of the company systems to CQU.

Enterprise Resource Planning

The *ERP* (Enterprise Resource Planning) is defined as a subset of the information system that can take over the entire management of the company, including accounting and financial management, production management and logistics, human resources management, administration and sales management of sales and purchases (Sarfaraz, 2012). This provides major benefit to perfectly communicate the various operating areas of the company. It includes the following general characteristics:

- Effective management of several business areas through integrated modules or packages that would ensure collaboration processes (Čelar, 2011);
- The existence of a single repository of data (AVRAM, 2010);
- Ability to quickly adapt to the rules of operation (business, legal, or resulting from the internal organisation of the company);
- The administration of the application subsystem uniqueness (Iskanius, 2009);
- Standardisation of human-machine interfaces (same screens, same buttons, same family menu bar even function keys and shortcuts, etc.).

In addition to *ERP*, there are some organisations applying specific or non-standard systems, design custom developed systems, which is not found on the market. The ratio between *ERP* and specific systems varies from one company to another (Vilpola, 2008).

Reasons and Challenges of Setting up ERP System

The process of selecting an *ERP* is adaptation to a context. Primarily, harmonisation and modernisation of information management systems to meet the changing needs of the CQU were the basic motives to get ERP systems (Ondrej, 2014). It was expected that the ERP implementation will create value at CQU through cost reduction, time reduction, productivity improvement, quality of service, functional efficiency, better resource management, improved decision making, performance monitoring (Yajun, 2013). Thus CQU will be relying on a single, coherent system that provides centralize information and facilitate their movement.

StudentOne ERP system will organize the flow of internal and external information and it will transfer to a qualified third party the burden of corrective maintenance and evolution of applications in order to focus on the aspects of business of the company (Prasanta, 2013).

CQU sees many advantages to adopting a software package. Indeed, specific software generators are often expensive and development is risky. They have high cost of service to the extent that the management of information systems is only one side to an application development costs comparable to that of a new development of specific applications during inevitable changes (Rama, 2013).

Risks Associated

ERP systems allow management aims to integrate the different functions of the system, such as production, finance, purchasing and sales (Hakim, 2010). These systems allow the company to replace existing information systems, but also conducive to standardize the management of information flow. ERP systems offer significant advantages for businesses, such as business process management and improve timely access to information on the supply chain through the use of electronic automation - communications and electronic commerce. The author will process the main risks that can arise in the implementation of ERP at CQU by TechnologyOne.

Fisher (2006) case study shows a clear understanding of the ERP objectives, communication of these objectives, and why in the implementation of ERP systems is an important success factor. The study also showed that a necessary condition for a strong commitment and leadership of managers. It also continues to support the need for good project management. This is a goal that needs a clear definition of the scope and project tasks strict supervision. The study also noted that these changes primarily in the operation of the ERP system of the company. These implementations not only software, but to improve business processes.

Ondrej (2014) discussed that an important task of implementing ERP systems is to understand the difference between functions and modules. This function is defined as the *physical tasks* in the business for real. To ensure that the function can be considered as software modules, ERP developers have different functions performed by the various modules. Internet and Microsoft Windows software packages showed a tremendous growth in complementary cooperation for enterprise resource planning tools. TechnologyOne now have an overview of the sector ERP will allow them to move quickly to financial data, etc, from one department to efficiency to new heights (Oliver, 2005).

Oliver and Van Dyke (2005) used a metaphor of the battlefield to explore how staff justifies the subsequent reaction to ERP. This case study applied ethnographic methods to create rich events for the acceptance of ERP systems at CQU. University staff representatives ERP solution created discord between expectations and implementation reality (Oliver, 2005). The authors emphasize the understanding of ERP implementation and the need to make difficult the complexity of these questions in terms of the reality of the participation of all employees. They pointed out that because of this complexity, i.e., through the ERP system must be understood as a learning process. The difficulties in planning and implementing ERP study highlights the importance of the publication of these cases, so more can understand the problems that can occur (Yusufa, 2004).

Fisher (2006) stated that risks are possible errors or the inability to meet the opposite direction on the goals of the organisation. The basic risks are delivery or lack of availability of reliable hardware infrastructure and the implementation process. TechnologyOne cannot provide enough support, and the ERP operations support after the reaction. TechnologyOne has no strategy for change in resistance to treatment and management oversight of the new methods. Management and supervision of the project can be considered as a simple application of information, but as changes in the method of treatment (Vilpola, 2008). Many well-educated workforce is not trained for the new system operations. Data errors cannot be loaded by a cut in the new system. The new system will be reducing performance malfunction and insufficient effort to data conversion (Oliver, 2005). STANCIU (2013) argued that possible reasons for failure are the continuous improvement of existing modules and the number of full attention on the ERP. Maintenance problems can occur in the conventional system of the bridge. TechnologyOne project may have an impact on society and the interim financial statements at the end. TechnologyOne project cannot be placed in time and ERP projects. Support the work of the Go-Live can produce changes in the new system and the needs of the learning curve on the capabilities of the runtime stretching (Oliver, 2005).

First, there are the risks associated with the complexity of the project. The scale of the project, the number of changes to be made (old system that we replace that need to retrieve the data, for example) or the number of parties involved (managers, users and experts in information systems) are all factors that can lead to project failure for TechnologyOne (Oliver, 2005). Kumar (2012) stated that the case can also speak of technological risk. TechnologyOne controls rarely a

good knowledge of the technology (the area of the integrator), this may cause CQU to choose a software package that does not meet their expectations or not suitable for the use that it wanted to make. TechnologyOne may not be necessarily relevant for the selection of software and should be based on the integrator, with the risk that it misunderstood the needs of the business (Oliver, 2005). Upon implantation, there may also have the risk that initial error, committed when entering basic spreads and infects all the processes, functions and induced effects, the other data (Keziere, 2009).

In case of double entry, there were a high number of errors and inconsistencies between different information systems. If an interface between different update was not done in real time. Loss of data may occur, due to a computer crash at the time of data transfer (Xu, 2011). Human error also occurred regularly (bad file transfer, duplication due to two successive transfers' unfortunate). In some large companies, controllers were hired specifically for the analysis and correction of inconsistencies between information systems.

Level of customisation in CQU, like any other IT application firm, faced much problems related to customisation of ERP. It should be to fill the gaps of difficult decision. TechnologyOne adjustment in software technology should be avoided or at least minimized in order to achieve the interests of IT, and to avoid future complications (Ondrej, 2014). *We do a lot of our various systems customised ...... but the last thing you want is much customisation, it makes your life a nightmare* (CQU Consulting Services version). *It was just our goal, the system of the CQU (a technology exchange) to replace existing and retains most of the business processes, as it is possible*. Although it is expected that the new system of CQU to increase efficiency, they are not interested to customize the process redesign more than necessary in the new package. This is not surprising; TechnologyOne has additional features that have been developed to complement the ERP cases. The following quote is an example of system related personnel. *To and from your own basis of reason to see your files on the Internet a few years' wages in a timely manner and the main supplier of the product, we see this role as an important strategic role in the situation, differentiation of the University Queensland Technology.* (CQU Services version)

In the past, the CQU have developed custom add-ons (extensions) package providers. However, TechnologyOne is not allowed to change the ERP series of CQU. In addition, whenever the update or providers have time has passed a new version, CQU had to go back and

re-check all user extensions that are more expensive defined. For the functionality they need, and minimize customisation, CQU started working with suppliers. Some custom modules is required, what worked in the CQU have done nothing to operate a custom module (improvement) of the CQU to develop supplier (Vilpola, 2008).

Kumar (2012) stated that sometimes projects do not achieve the desired objectives of quality (non-compliance with operational requirements of the organisation, failure software, inability to avoid bottlenecks). This can also have very serious consequences. For example, Sobeys has implemented SAP software in 2001. A problem in the implementation of ERP prevented it from performing the processing of its business at a cost of $ 90 million (Hakim, 2010). There are also uncertainties around cost projections operating once the ERP implementation, causing the risk that, due to higher than expected costs; the use of ERP is not profitable. For TechnologyOne, a change in sales, trade, the environment of company following a change in the economy, the market can make the project unsuitable or uneconomic (Rama, 2013).

Das (2004) noted that IT risks include a short shelf life because the system is not adaptable to the changing needs of the CQU (for example, do not offer comprehensive business functionality or multi-site and international functionality) or the technological requirements. CQU can mitigate this risk with a system that offers comprehensive features and is easy to configure or adapt to new requirements. The other risk is that the system will be demanding in terms of computing resources and require management of multiple cycles of limited IT resources. Powerful management tools can mitigate this risk. To avoid prolonged periods of development, often the bane of ERP solutions work, one must seek a comprehensive flexible and configurable system (Prasanta, 2013).

Oliver (2005) discussed that cost control is one of the key factors for successful ERP project. CQU has already crossed its budget limit and has spent more than 0.6 million dollars. Detailed analysis of the cost structure of the software is very important, the implementation of an ERP project is by far the largest item of expenditure, followed by the purchase of software, hardware and tools (such as state management database of system-based generator). Horizontal physical environment, architecture (microphones client / server), the operating system in the region, the need for integration, and many attractions may cause changes in the cost structure. The cost of purchasing the software from TechnologyOne will be increased by 20 – 35% of the

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total. The tariff plans are decided by hybrid methods. They include hardware configuration, the number of users, but also the module. It is difficult to get a true price transparency because price almost lost its meaning (Yajun, 2013).

Ondrej (2014) discussed that price of the software is the result of the actual technical and contractual negotiations. More and more publishers to accept a significant reduction in license fees, maintenance rate apply to published rates. Thus obtained, the basis for calculation of the maintenance can save a significant percentage of the amount at a point (Ondrej, 2014).

Conversion and data integrity is an important success factor for TechnologyOne in implementation of ERP systems. TechnologyOne has to consider that data must be extracted from the old system to change, and migrate to ERP applications (Vilpola, 2008). Data conversion process comprising the steps of: (a) the analysis of the data from the old system (B) to determine what data is converted, (c) conversion of the file to determine (d) image data age for the new system (e) extract the data from the old system; (f), to prepare the appropriate conversion program; (g) data cleaning, (h) for the benefit of unit testing actors and (i) the integration and acceptance of functional benefits stakeholders and system users (Iskanius, 2009).

TechnologyOne need business processes and internal processes to analyze data, so the data is assigned to the ERP-implementation of existing systems. TechnologyOne may face the problem of formatting participants to complete the functional and technical teams, mapping and data. Data amount is depending on the requirements of the evolution of the next module. Conversion tools migration data depends on the ERP application (Yusufa, 2004). TechnologyOne map data with data from previous alignment ERP applications and business processes are associated with specified systems based on user requirements (Oliver, 2005). Data cleansing is the process of converting data management, which is the success of TechnologyOne ERP implementation (Oliver, 2005). TechnologyOne actors should treat the business and technical communities. It is a continuous method, the problem resulting from acceptance testing and user integration. Questions may be due to loss of data to the new system or corrupted data (Keziere, 2009).

ERP changed the implementation of software systems or devices that allow the CQU to achieve a higher level of business processes through the power of a recombinant. In fact, in the implementation of the ERP, TechnologyOne may need to make key business processes and / or development of new processes for new business with the goals of the organisation support.

However, CQU is well designed and developed a culture that is accepting changing by ERP implementations. CQU change management process in IT is controlled a team of seven to ten employees to understand the system changes. The team is responsible for the analysis, redesign and implementation to carry out the composition of the specific administrative procedures for business or improve (Hakim, 2010, 204). The CQU Change Management Team has a strong will to support efforts to help users achieve new education and training in technical and formal accept. The result, change management, the team decided in education, training and professional development is important for users and resources (time and money) should be spent on education and training in a variety of ways (Rama, 2013).

In general, due to the lack of a clear presence in the management and planning of the process, TechnologyOne may express a common view. This is considered significant obstacle for the successful implementation of ERP. ERP project is approved by leaders and made it clear that they do not fully understand the magnitude of the resulting changes (Prasanta, 2013). TechnologyOne can also express the coordination of the planning process in managing key strategic priorities, such as the delivery of flexible learning and control quality of development was abandoned and senior. Several participants said that the first is difficult module; financial management module students understand the application, despite its lower priority (Yajun, 2013).

Recommendations

The experience of this study suggests that, to achieve an ERP system of this size CQU must carefully manage the employee to develop a positive attitude towards change. The advantages of the new system should be interpreted realistically, if they seem to be convincing to staff. This interpretation of costs and benefits must be well managed to understand. For CQU, the implementation of ERP is still a learning experience, rather than a deliberate plan of execution. Implementation of the new ERP system seems needs more staff, indicating that the process is complex, not simple. Obviously, the staff savings expected, reducing the cost that has not eventuated. Specific recommendations for each type of risk are:

- To resolve the Complexity Project, TechnologyOne and CQU can clear the objectives and they can simplify, using step by step approach, the complexities involved. The

project should be divided into different stages that must specify analysis of current situation, future outlook and errors rectification phenomenon.

- Level of Customisation can be solved through discussing the needs and integrating them with a model ERP system operating elsewhere in world. CQU can recommend the ERP version previously used and custom features separately that it wants to incorporate in the new system.

- Operational Risks can be reduced by managing operations directly and clear sense of authorities and responsibilities. Risk identification should be done at the level of all areas, which must go hand in hand with the "culture" of the permanent internal control throughout the organization.

- Costs can be controlled through an analysis of cost behaviour in project. CQU can facilitate managers to make more efficient decisions. TechnologyOne can perform regular analysis of the activities with the aim of taking timely action.

- For data conversion and integrity control, TechnologyOne should ensure that different teams (especially if they have a code multiple legacy systems). They need to share ideas simple rules, make regular communication with coordination miracle in data conversion.

- For the change management ERP systems, communications and other necessary activities, employee participation is an important component of a successful enterprise resource planning. Recognizing the technical training does not solve the business process changes, many staff and colleagues found that it is important and challenging. Real change management, including a wider range.

- Perceived lack of guidance and control may be avoided by the use of appropriate measures, the successful introduction of strategies and techniques to assess the status of ERP systems and change management for processing.

Conclusion

ERP systems are an absolutely necessary tool for large and medium organizations. The cost of implementing such systems is too high and it is a good investment in companies that move a reasonable annual income figures. Moreover, it applies better in companies with several plants, branches, etc., spread geographically, and maintains a caring and Supplier-Customer relationship.

The success of an ERP project is the ability of an organisation to change. From this point of view, the key to any problem of entrepreneur is not only why we need an ERP system and what choice is, and the actual capacity to develop ERP training. The implementation of an ERP solution is the change in the specific organisational systems, personnel and structure. It is a framework for CQU that changes lead to more scalable than expected part. By following this process, CQU have the tools to accurately measure the value of an investment in an ERP system to its commissioning function and to compare alternatives. CQU can also use this analysis as a basis for assessing the potential return on investment before it makes actual performance results after implementation.

Prior to the implementation of ERP systems, investment in hardware, software, information technology, personnel, and many other factors should be fairly detailed. The first cost associated with the system would be advisory and / or consulting required for a good evaluation. Businesses are looking to redesign and optimize operations ERP systems and this application can help achieve significant benefits.

REFERENCES

- AVRAM, C. D. (2010). ERP inside Large Organisations. *Informatica Economica*, *14*(4), 196-208.

- Čelar, S., Mudnić, E., Gotovac, S., Čelar, S., & Gotovac, E. M. S. (2011). Interrelation between ERP Modification and Modification Scheduling: Four SME Case Studies in Croatia. *Strojniški vestnik-Journal of Mechanical Engineering*,*57*(1), 27-30.

- Das Neves, D., Fenn, D., & Sulcas, P. (2004). Selection of enterprise resource planning (ERP) systems. *South African Journal for Business Management*, *35*.

- Fisher, M. D. (2006). *Staff perceptions of an enterprise resource planning system implementation: a case study of three Australian universities* (Doctoral dissertation, Faculty of Arts, Humanities and Education, Central Queensland University). available at: http://acquire.cqu.edu.au:8080/vital/access/manager/Repository/cqu:3241 [Accessed on August 23, 2014]

- Hakim A., Hakim H., (2010) A practical model on controlling the ERP implementation risks, Information Systems 35 (2010) 204–214

- Iskanius, P. (2009). Risk Management in ERP Project in the Context of SMEs. *Engineering Letters*, *17*(4), 266.

- Keziere K., (2009) Prepare To Demolish Application Silos, Information Management, pp. 23-26

- Kumar, A., Sharma, V. K., & Malik, P. (2012). ERP Involves the Seamless Integration in Educational Sector. *International Transactions in Applied Sciences*, *4*(2).

- Oliver, D. J., & Van Dyke, M. (2005). Looking back, looking in and looking on: treading over the ERP battleground. Pennsylvania: Idea Group Publishing.

- Ondrej Zach , Bjørn Erik Munkvold & Dag Håkon Olsen (2014) ERP system implementation in SMEs: exploring the influences of the SME context, Enterprise Information Systems, 8:2, 309-335

- Prasanta Kumar Dey , Ben Clegg & Walid Cheffi (2013) Risk management in enterprise resource planning implementation: a new risk assessment framework, Production Planning & Control: The Management of Operations, 24:1, 1-14

- Rama J, Corkindale D., Lu Wu M., (2013) Implementation critical success factors (CSFs) for ERP: Do they contribute to implementation success and post-implementation performance?, Int. Journal os Production Economics 144 (2013) 157 –1 74

- Sarfaraz, A., Jenab, K., & D'Souza, A. C. (2012). Evaluating ERP implementation choices on the basis of customisation using fuzzy AHP.*International Journal of Production Research*, *50*(23), 7057-7067.

- STANCIU, V., & TINCA, A. (2013, June). ERP Solutions between Success and Failure. In *Accounting and Management Information Systems conference-AMIS*.

- Vilpola, I. H. (2008). A method for improving ERP implementation success by the principles and process of user-centred design. *Enterprise Information Systems*, *2*(1), 47-76.

- Xu Li, (2011) Enterprise Systems: State-of-the-Art and Future Trends, IEEE Transactions On Industrial Informatics, VOL. 7, NO. 4, November 2011

- Yajun Zeng & Miroslaw J. Skibniewski (2013) Risk assessment for enterprise resource planning (ERP) system implementations: a fault tree analysis approach, Enterprise Information Systems, 7:3, 332-353

- Yusufa Y., Gunasekaranb A., Abthorpe S., (2004) Enterprise information systems project implementation: A case study of ERP in Rolls-Royce, Int. J. Production Economics 87 (2004) 251–266