The practicalities of transforming Abertay University's stand-alone systems into fully integrated and flexible systems

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1. Summary

This paper will discuss the critical decisions, challenges and issues associated with transforming the University's Corporate Information Systems (CIS) from stand-alone systems into a suite of agile, fully integrated and flexible systems.

The paper covers our practical experience with the pre-procurement phase of the transformation project, including stakeholder engagement and challenges and issues encountered with developing specifications and balancing business requirements with functional requirements. This practical experience is reflected upon, from a standpoint of not disengaging critical stakeholders –that is producing a final specification that is acceptable to all stakeholders.

2. Introduction

In today's economic climate many institutions are reviewing their existing administrative systems to keep costs down and maintain their agility to thrive through business change. Abertay University requires significant investment in its corporate information systems, in order to meet the increasing demands and expectations of senior managers for effective business operations and services to students and staff.

i. A number of shortcomings with our current systems have been identified, regarding data and particularly the lack of formal and consistent process of controlling the quality of the University data. These shortcomings were also outlined within a major programme of work that was undertaken recently on baselining the student journey (BSJ), which recommended "a major review of Corporate Information Systems (CIS)", as a solution for addressing the systems, processes and people issues stemming from the project.

ii. Numerous stand-alone systems are being maintained to meet the University's administrative business needs. Considerable effort is spent to keep these systems synchronised. Additionally, the numerous "silos" of data and lack of integration across administrative systems inhibit the University's ability to provide timely and accurate management reporting at the enterprise level.

iii. Furthermore, the underlying technology for many of the University's administrative systems is out-dated. Some of these systems are ten to seventeen years old. Aging systems are often difficult to modify as the on-going business needs of the users change over time. This also exposes the University to the risks of technical obsolescence and increased difficulty in retaining staff with appropriate knowledge of those systems.

The key objective of the Corporate Information Systems (CIS) Transformation Projects is to deploy a suite of agile, fully integrated and flexible business applications to meet the University's administrative business needs. The integrated flexible solution will provide enriched functionalities for business units, streamline the University's administrative business processes, eliminate

redundant data entry, improve data quality, reduce costs, and improve the efficiency and effectiveness of its business operations and services to students, staff and external stakeholders.

3. Literature review

The literature review for this paper was informed by the factors that are critical to the successful implementation of CIS transformation projects and, in particular, an Enterprise Resource Planning (ERP) project. The approach to identifying these critical success factors differs in the papers reviewed. Some researchers took a narrowly focused, but comprehensive approach (Nah et al., 2003), whilst the approach of some researchers was solely based on models of change (Boonstra, 2005; Melbye, 2011).

The outcomes of the research studies reviewed also differ in terms of the number of critical success factors identified for an ERP implementation. Botta-Genoulaz et al. (2005), on the basis of a case study, see a strong and committed leadership as the only necessary factor for a successful ERP implementation. Nah et al. (2003), in their analysis of a survey of Chief Information Officers (CIOs) from Fortune 1000 companies on the perceptions of the CIOs of the critical success factors in ERP implementation, found the five most critical factors identified by the CIOs were top management support, project champion, ERP teamwork and composition, project management, and change management programme and culture.

In a majority of the papers reviewed (Boonstra, 2005; Melbye, 2011; Nah et al., 2003; Botta-Genoulaz et al., 2005; Sarker and Lee, 2003; Ehie and Madsen, 2005; Motwani et al., 2005; Bingi et al., 1999), the success of ERP implementation is seen to be dependent on the strong, sustained commitment of top management. An in-depth review of all these papers suggest that there is convergence between the outcomes of all the research papers, as the critical success factors other than the strong and sustained commitment of top management flow from this singularly important factor. Therefore, it is not surprising that the number of critical success factors identified for an ERP implementation differ in the literature reviewed.

An outcome from the review of the literature is the importance of treating an ERP implementation as a change initiative, in order to realise the benefits of the ERP project for the organisation (Ehie and Madsen, 2005; Boonstra, 2005; Melbye, 2011). Melbye (2011) went further to argue that, for a successful implementation of ERP projects, the focus must not be too narrow and should be on all the important considerations of communications, training/workshops and process change. This view is further reinforced by Ehie and Madsen (2005) who said *"Organisations that realise full benefits of a technology are those that make necessary changes in their organisational structure, strategies and processes."* The models of change approach to identifying the critical success factors for an ERP implementation suggests that people, processes and systems should be treated in a harmonious manner and the successful implementation of such a change requires:

- Effective communication of the change
- Commitment to change
- Change to the culture of people

As part of meeting the above-stated requirements, the authors have undertaken extensive stakeholder analysis. In doing so, the authors have used similar approaches to those in Jepsen and Eskerod (2008), McElroy and Mills (2003), and Graham and Gabriel (1996). The approaches used by the authors include:

- Identification of key stakeholders
- Characterisation of the stakeholders in relation to their needed contributions, their expectations as regards the rewards for their contributions, and their power as regards the project.
- Decision about the strategy used to influence each stakeholder and resolve proactively any conflicts.

The significantly new aspect of the stakeholder analysis undertaken in the research work reported in this paper is that concerning the practicalities of the proactive resolution of conflicts, as this is seen as an important part of effectively communicating the change and gaining the commitment of the stakeholders.

In the course of this specific literature review, only one relevant paper was found on the subject of success factors of an ERP implementation (Fowler and Gilfillan, 2003). It is not surprising that Fowler and Gilfillan (2003) commented "The deployment of ERP in universities is a relatively new phenomenon." and this might account for the dearth of information in this area of information systems implementation within universities.

In conclusion, the literature review has identified a gap in what constitutes the critical success factors for ERP implementation in universities and this paper should provide value to those charged with managing the implementation of ERP projects in universities and in the wider organisational context.

4. Progress to date and challenges

A 'business case and investment appraisal' proposal for an integrated system was submitted to a sub-committee of the University Court in December 2014. The proposal was approved in principle, to proceed to the next stage, subject to: the identification of 'core' systems to be included in the single integrated system; and the development and inclusion of options for the integration of systems.

A CIS Requirements Analysis project has commenced to aid the capturing of detailed requirements for our information systems and produce a detailed cost-benefit analysis for the relevant sub-committee of Abertay University Court at its May 2015 meeting.

Concerns have been raised about the tight timeline for completing the CIS Requirements Analysis project. In addition, there is concern that the various LEAN business process re-engineering and other business process activities that are needed to drive and influence our CIS requirements analysis might not be fully established before the commencement of the CIS implementation.

5. Next steps

The next steps are:

- Conduct workshops to gather corporate information systems requirements from stakeholders.
- Produce specifications of business, functional and technical requirements.
- Conduct options appraisal and detailed cost-benefit analysis.
- Align the output of the recent LEAN business process re-engineering to the CIS requirements.

The practicalities associated with some of these next steps will be reflected upon in this paper.

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