

Understanding Benefits and Impediments of B2E E-Business Systems Adoption: Experiences of Two Large Australian Universities

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ABSTRACT. Organisations are now turning their attention to business-to-employee (B2E) e-business systems upon exploiting the potentials of business-to-business (B2B) and business-to-consumer (B2C) aspects of e-business. The business literature and IT vendors-owned publications both contain many stories highlighting the benefits that organisations are likely to receive as a result of embracing B2E e-business systems. However, little is reported in the scholarly academic literature about the adoption of such systems. More specifically, it is not clearly known how organisations experience benefits, what impediments they encounter, and how they resolve those impediments associated with B2E systems adoption. To address this gap in the literature, this paper presents the experiences of two large Australian universities in introducing two different types of B2E e-business systems, and reports on the findings about

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their views on benefits experienced and impediments encountered. The implications of the findings are then discussed. doi: 10.1300/J179v06n02_02
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INTRODUCTION

Business-to-Employee (B2E) is an e-business initiative which if successfully implemented assists organisations in delivering useful services, information, or products to their disperse employees (Turban et al., 2006). There is a growing consensus in the e-business literature that the adoption of B2E systems is likely to have the most beneficial impact on organisations. By providing easy access to relevant information, services, and products, B2E e-business systems help organisations in creating productive and satisfied workforce needed for today's fast pace environment (Dube, Bourhis, & Jacob, 2005). These systems also assist organisations in reducing administrative costs by streamlining employee-related process (Singh, 2002, 2005) and eliminating expenses related to paperwork, postage, printing, and travel (Turban et al., 2006). Furthermore, adoption of B2E e-business systems helps organisations achieve a competitive advantage by connecting their employees together (Hansen & Deimler, 2001; Queenie, 2002).

It is reported in the e-business literature that the use of various forms of IT-enabled systems supporting B2E e-business initiative is growing steadily. Merrill Lynch Capital Markets envisage employee portals which support the implementation of B2E e-business systems will be worth a US\$14 billion business outnumbering the growth rates of other enterprise applications markets (Brooks, 2001). According to Banks (2004), the number of organisations implementing B2E e-business systems using employee portals is also increasing in Australia. However, despite the increasing popularity of B2E e-business initiatives undertaken in large organisations, scholarly literature on this topic is still limited (Rahim, Sugianto, & Shameem, 2005). This is not surprising given that B2E e-business initiative is a new and emerging phenomenon.

Moreover, academic literature had traditionally been slow to follow up the fast-moving trends of e-business in general (Kim & Han, 2001). This view is also confirmed by Wiele, Williams, and Iwaarden (2001) when they reported that very little research activities on B2E e-business are being currently carried out by IT researchers. As a result, little systematic investigations have so far been undertaken to determine how organisations receive benefits from the introduction of B2E e-business systems and how they address the impediments encountered in implementing those systems.

The study reported in this paper seeks to address this research gap in the current e-business literature by exploring the B2E e-business adoption experiences of two large Australian universities that have undertaken B2E e-business initiative in recent years. One university has introduced an Employee Self-Service (ESS) portal which is accessed via the university-wide Intranet network. Another university has introduced a corporate portal which offers many essential services and relevant information to its employees. The benefits realised and hurdles experienced by these universities are compared to determine whether B2E e-business systems are delivering the expected benefits. The findings from the universities provide a mixed message about the employee and organisational benefits arising from the adoption of B2E systems. The findings further confirm the existence of a number of organisational barriers to the smooth adoption of these systems. The insights obtained from this study provide a better understanding of the benefits arising from B2E e-business systems and are of importance to HR and e-business managers who are responsible for formulating appropriate strategies for promoting B2E e-business initiatives in their own organisations and managing expectations of senior management and users alike about the benefits to be gained from those initiatives. From the research perspective, a sound knowledge of the benefits and impediments associated with introducing B2E e-business initiatives is useful to better understand the e-business adoption phenomenon. Furthermore, the findings also contribute in building a rich empirical foundation for B2E e-business research.

The rest of the paper is structured as follows. First, the related literature on the benefits received and impediments encountered in introducing B2E e-business initiative is briefly reviewed. Second, the research approach is briefly described. Third, the background of the participating case organisations is presented. Fourth, empirical evidence from the participating universities relating to the research concerns is presented. Fifth, the case study findings are then discussed in the light of the existing

literature. Finally, the contributions of the research are highlighted and areas of possible further investigations are mentioned.

LITERATURE REVIEW

Turban et al. (2006) refer to B2E e-business systems as intra-business management systems that support e-commerce activities between a business and its activities, between units within business and among employees in the same business. Similar to business-to-consumer (B2C) and business-to-business (B2B) e-business models, the B2E e-business model also has several benefits and implementation impediments.

Benefits of B2E e-Business Systems

According to Hansen and Deimler (2001), a comprehensive B2E e-business initiative has three key components: online business processes, online people management and online services to the workplace community. These components provide two broad categories of benefits: employee benefits and organisational benefits. Employee benefits are achieved when various forms of IT-enabled systems supporting the notion of B2E e-business (i.e., Intranet-based corporate portal, employee portals, ESS) allow dissemination of relevant information (e.g., product specifications, competitor information, factory schedules), staff bulletin or newsletter, training courses and other specific information (e.g., staff phone directories, staff benefits, vacation allowances, staff procedures) (Farhoomand & Lovelock, 2001; Wagner, Chung, & Baratz, 2002; Singh, 2002; Stoddart, 2001). B2E e-business initiatives when supported by appropriate technologies also improve access to business content and provide employees with organisational information from any geographic location. Employees thus become more efficient as they are able to use up-to-date information for making better responses to organisational issues.

Furthermore, time saved from searching relevant information enables employees to spend that time on other activities thereby increasing employee productivity (Turban et al., 2006; Singh, 2005). Additionally, easy access to information, services, and products which improve group communications and team-work collaboration also help in raising employee job satisfaction. The trade literature cites many short case studies e.g., B2E initiative of Delta Airlines (Ross, 2001) and Employee Benefits at Cummings Engine (Schwartz, 2000) in support of achieving

variety of employee benefits through the implementation of B2E e-business systems.

At an organisational level, B2E e-business initiatives provide a range of benefits including cost-reduction, better decisions, and improved business processes. Information offered through B2E e-business initiatives help organisations in reducing costs of printing, photocopying, and distribution (Singh, 2005). Teleconferences over the Intranet incorporating text, video, and audio are easily managed for companies that have branches in different locations and thus bringing a reduction in corporate travel expenses. In other words, many organisations are focusing on B2E solutions for reducing general and administrative costs (Dafoulas, Pateli, & Turega, 2002).

B2E e-business initiatives also improve organisational decisions by making it possible to establish virtual project teams which capitalise on the expertise of employees at different branches of the company (Farhoomand & Lovelock, 2001). Another benefit of B2E e-business initiative is the opportunity that organisations receive for improving business process between them and their employees (Huang, Jin, & Yang, 2004; Singh, 2005). Such improvements can be achieved by eliminating redundancies in employee-related business processes (Singh, 2005) as well as introducing innovative processes like e-training (Kendler, 2000). This view is supported by Dafoulas, Pateli, and Turega (2002) who argued that those organisations which wish to streamline their entire recruitment and employee selection process also rely upon B2E e-business solutions.

B2E e-Business Impediments

B2E e-business can be considered as an organisational innovation. Hence, like any other innovations, organisations implementing B2E e-business initiative are likely to encounter several challenges. The most frequently encountered challenges reported in the e-business literature include inadequate resources, lack of trust, low awareness, and change management difficulties. Each is briefly described in the following sections.

Resources required for new e-commerce-related projects are not only financial but an extensive amount of nonfinancial resources such as human, technical, and managerial (Singh, 2005). A lack of these resources may lead to mismanagement and prolong completion of B2E projects. B2E e-business initiatives can be expensive and the cost of implementing such initiatives include the costs of technology, training, integration

of systems and database, content management, high turnover of personnel and in some cases problems with incompatible technologies. Thus, organisations contemplating the introduction of B2E e-business initiatives are likely to face the challenge of securing resources from the senior management.

Trust has been identified as an important factor that affects online transactions, communication, and information exchanges. In the B2E e-business space, there exists a reluctance on the part of the senior management of organisations to place online the sensitive and often expensive personnel management functions for employee self-management due to a lack of trust (Anonymous, 2004). Farhoomand and Lovelock (2001, p. 347) advocate that "trust is a requirement, just like quality, for users to qualify a company to conduct business with." Without trust, it is difficult to secure full commitment of employees to e-services and processes offered through B2E systems. A host of trust-related issues such as security, privacy, and integrity need to be considered for the acceptance of B2E e-business initiatives by employees.

Low awareness about what an innovative IT-enabled e-business initiative can deliver is evident in many companies and imposes a challenge for its level of acceptance. Failure to understand the profile of employees, their IT use habits, their computer literacy levels, and how they use the Web sites for work may result in inefficient use, sometimes defeating the purpose of investment in B2E initiatives (Wagner, Chung, & Baratz, 2002).

B2E e-business initiatives discussed above describe the B2E e-business model as it is applied to organisation and people management. Similar to other new technology implementation in organisations B2E systems entail change and the issues of resistance and change management. However, it provides a number of benefits to employees and organisations and challenges the cultural assumption that how things happened in the past was right. B2E e-business model is a new initiative and little systematic information about how organisations receive benefits from the introduction of B2E systems and what impediments they frequently encounter is reported in the academic literature. B2E e-business initiatives generally takes place in a dynamic environment because of the complex interplay of organisational politics, diverse interests and varying levels of computer literacy of employees, and scattered geographical locations of workforce which add complexity to the introduction and eventual realisation of benefits from B2E e-business initiatives and organisations are adopting it slowly. So what are the benefits and

impediments with the adoption of this e-business model and why are organisations adopting it very conservatively?

RESEARCH APPROACH

To understand the B2E issues highlighted from literature, an exploratory case study approach was selected with two large universities that implemented an Intranet-based B2E system for interacting with their workforce and for internal management of the organisation. Case studies are particularly suitable for understanding phenomena within their organisational context (Yin, 1994). The case studies allowed investigation of specific instances of the adoption of B2E e-business systems in organisations which are large, comprising a large number of units and groups of employees including senior management, academics, and administrative staff. The higher education sector in which the case sites operate was chosen because B2E e-business initiatives are recently reported to have been undertaken by some leading Australian universities (Tojib, Sugianto, & Rahim, 2005).

Several in-depth interviews were sought from each case organisation. The interviewees on many occasions granted access to internal documents relating to the university background and profile of portals implementing e-business initiatives, which often helped the researchers to corroborate the information provided during interviews. The interview transcripts were prepared which were later sent to the interviewees for review. In addition, information was also collected from e-mail communications, archival records, and Web site analysis. Analysis of the case study is qualitative in nature which is based on a comparison of issues from the case study findings and literature review.

DESCRIPTION OF CASES

The participating case organisations are two large universities which are both located in a state capital city in Australia. Case A is relatively a new university that has several campuses locally. Although, this university does not operate campuses in overseas countries, it maintains links with many overseas educational institutions. All the campuses are linked to each other via various ICT facilities. On the other hand, Case B is a very old and renowned university that has attracted a large student population and runs educational programs in traditional business, IT, engineering disciplines as well as life sciences, communications, and

fashions. This university also maintains its presence in overseas countries. Case A has introduced an ESS portal from a renowned IT vendor. The ESS portal is accessed by all employees from their desktops through the university-wide Intranet network. On the other hand, Case B has introduced a B2E system which is more or less an e-organisational management system. It supports the work of the organisation and its employees via an Intranet integrated to the main University portal. Employees access the Intranet via this portal using their employee identification number and password. Different levels of academics and administrative staff have access to different information. The B2E system at this University sends e-mails to employees alerting them to new information, includes a search engine to enable quick searches, includes password access to databases for relevant information, provides links to government regulations and policies on education and research, allows employee access to project-related software and includes links to all information relevant to employee functions including an ESS. The B2E system also includes information on policies and strategies of the university, research and academic programs, news, calendar, timetables, minutes of important meetings, job advertisements, promotion criteria, training, software downloads, IT service request, library access, people information, salary slips, leave balances, leave applications and approvals, and other relevant information.

CASE STUDY FINDINGS

A New Metropolitan University

The principal benefit experienced by the university staff are the increased convenience for updating their relevant HR and banking information and the greater ease with which they are now able to view their pay-slips and lodge their leave applications. Greater convenience and ease of use together have thus contributed to the improvement of staff satisfaction with the university. The university has achieved two major benefits as a result of introducing the ESS portal: streamlined HR process and cost-reduction. In old days, the leave application process was cumbersome which has been greatly simplified as a result of introducing the ESS portal. This in turn has provided transparency to HR staff for processing leave applications. In addition, the university has also succeeded in reducing administrative overheads. For instance, before the adoption of ESS portal the university relied upon casual staff to

process manually HR and leave-related information. Upon the introduction of ESS, there is now a reduction in the number of casual staff and thus their wages are being saved. Furthermore, there is also a reduction in the number of university-wide full-time HR staff. Two HR positions were foregone and the productivity of the HR function as a whole has improved considerably because HR people now perform additional work without increasing staff numbers.

Four major hurdles were encountered by the university in introducing the ESS portal: change management, ESS integration difficulties, lack of IT expertise, and consultants' problems. As many components of the ESS portal only work with exchange, the university decided to move university staff to a common computing platform by using a university-wide exchange server for accessing ESS. It is a single active directory service that contains e-mail address of all employees. Previously, the university was running a dozen if not more different e-mail systems. The university therefore needed to consolidate all the diverse e-mail systems so that everything is integrated. However, introducing "outlook exchange" was not easy and the university had to overcome resistance from many staff who were not using the PC platform. To get people to move towards the common computing platform appeared to be an obstacle for the university. The university persuaded its staff to move to a common e-mail platform by suggesting that they would not be able to apply for leave through ESS, no pay-slip processing unless they move to ESS. Another problem was difficulties in providing all employees with a single logon facility to access ESS portal from their desktop PCs. The university did not want its staff to create an account into the ESS portal. As such, the university decided to use an ID box indication against active directory. The university implemented a way of creating accounts from the HR system. Basically, the HR system is considered the core system for staff, every night the HR unit gets an extract and then depending on that it creates a staff account. This was reasonably a complex bit of code and that took about two months to develop at that time. The university did not have relevant IT expertise available to support the introduction of ESS portal. Hence, it greatly relied upon ESS consultants for the successful introduction of the portal. However, the transfer of knowledge from ESS consultants to university's IT staff took considerable time. Moreover, a steep learning curve was experienced by the IT staff to learn more about the functionalities of ESS portal. In addition, the university also experienced problems with ESS consultants. Initially, the consulting company that provided the ESS development support to the university sent in a number of people who did

not have adequate B2E expertise. This problem was rectified; however, it took considerable time.

An Old Metropolitan University

The B2E system at this organisation includes ESS as one component of the whole organisational system made up of a suite of organisational functions. This enabled university employees with 24*7 access to information and database relevant to their work. Additionally, the university staff now receives e-mails alerting them about new information. As a result, employees are able to process information quicker and deliver timely responses, reports and serve their client efficiently. The B2E services include online training to staff, to which they can go back to it as many times as they need to enhance their skills to use the electronic processes proficiently. Other functional units of the B2E system at this university include the integrated academic management system, student enrolment system, result processing, research management, e-procurement, financial management, e-payroll, e-leave application and approval, e-training, integrated human resource system, e-advertisement of positions, e-information on promotions, new appointments, staff directories, position changes and other people-related information.

Placing information online also meant data cleaning and updating information which has in turn increased transparency and accuracy of information to the whole university community and all its stakeholders. The B2E system also enabled improved decision making, promoted networking for activities within the organisation such as research, teaching and learning, study abroad and other assignments. Integrated processes, easy access to information, and electronic communication has led to enhanced knowledge sharing and learning with cross-functional teams, cross-pollination of ideas and greater collaboration among staff from different disciplines, the business community and with other universities. Other benefits of B2E are improved productivity, reduced use of paper and thus reduction of all costs (purchase, filing, storage space, recycling) associated with paper, reduced phone call costs and time spent on phone conversations. Some savings have also accrued from reduced number of people as all processes are electronic. With the implementation of the B2E system which entails automated administrative processes University reduced its administrative staff by 12% in the years 2004 and 2005. The B2E system at this University has improved employee relationship by providing them easy access to information, improved methods for processing information, providing convenient online

training and encouraging staff participation in university activities. All employees are educated users, a certain level of qualification is required for all positions, and trusting the system is not an issue because it is with the employer and directly related to their work.

Barriers identified with the implementation of B2E e-business included increased costs of technology, change management, high employee turnover, and information overload. Increased costs of integrating the disparate systems at the University, changing the data format and re-engineering some processes had to be incurred to achieve seamless organisational processes. The desperate need to operationalise all processes electronically made the University pay a huge price, a lot of which was not anticipated. Although, being a large and well-established organisation it had the ability to pay for the costs of technology and implementation it spent more than envisaged. The change from paper-based systems to electronic processes was a whole new culture in the work methods of the University. This attracted some resistance and disruption to work. It also required quick and regular updates which had to be incorporated in the daily lives of the workers. Managing the change from paper-based administration to electronic management and changing the culture from paper-based communications to electronic way of doing things required a major effort. Another important challenge faced by the university with implementing B2E e-business initiative was a high turnover of skilled staff. Trained employees usually move on to other jobs and this affected regular information updates, required re-training staff, or hiring a new set of skilled staff who took some time getting oriented with the system and nature of work, affecting the university operations. With integrated processes and access to all information via the University portal sometimes lead to an information overload which the employees had difficulty in dealing with. Some indicated that they could not remember how to find information and forgot which directories they should refer to.

DISCUSSION

The portals used by the universities are considered a success because they improved the satisfaction of employees. In Case A, employee satisfaction was influenced owing to increased convenience in lodging leave applications and greater ease with which staff could view and update their HR and financial details. In another university (i.e., Case B), satisfaction of employees had improved owing to their ability to have a

quick access to relevant information. Employee satisfaction was also influenced by greater collaboration and learning opportunities provided through this portal.

However, although efficiency and productivity were positively affected by the introduction of the corporate portal in Case B, this did not occur in another university (i.e., Case A). No clear evidence has emerged to suggest that ESS portal has contributed to the enhancement of either efficiency or productivity of employees.

Both universities have experienced cost-reductions. In Case A, the adoption of ESS portal eliminated the need for casual staff to process staff leave information. The ESS portal also improved the productivity of the HR function of the university and two full-time HR positions were foregone which brought in further manpower savings for the university. Case B, however, achieved cost-reductions with by eliminating a large number of administrative staff, by avoiding the need of producing expensive printed materials for its workforce and with savings from fewer phone calls.

The participating universities also succeeded in streamlining some of their important business processes. For instance, the leave application lodgment and approval process was greatly simplified in Case A. Likewise, redundancies were removed from the administrative processes in Case B. In summary, it can be suggested that adoption of ESS portal in Case A appears to be focused on improved administrative efficiency and cost-reductions. This finding is consistent with the views of Ash and Burn (2003) who argued that early adopters of B2E e-business aimed at gaining efficiency improvement by introducing electronic HR systems. On the other hand, corporate portal adoption in Case B is oriented more towards gaining strategic advantage by providing improved internal services, reduced costs, and enhanced satisfaction.

A range of impediments were encountered by the participating universities in introducing the B2E e-business systems. However, there is a clear indication that both universities considered cost associated with adopting B2E systems to be prohibitive. However, considering the expected benefits the senior management of the universities moved ahead with the introduction of such systems. There is also evidence that although university employees are generally highly educated and had appreciation for such systems, there was still resistance from them to switch to the electronic management. In Case A, ESS was not supported on all computing platforms which prompted employee resistance. In Case B, considerable effort was required to change the culture from paper-based administrative processes and communications to an electronic way of doing things.

The selection and involvement of consultants was problematic and has caused considerable disappointment in Case A. Similar problems were encountered at the other university (Case B) as well with a high turnover of people within the consulting company and high costs of not getting the implementation completed in time. However, availability of greater IT expertise within the organisation was an advantage.

It is apparent from the above exploratory cases studies that B2E e-business model can be adopted as modules supporting employee functions as in Case A, or as a whole suite of organisational management system increasing employee participation and productivity while innovating all operational processes. The case studies also highlight that the benefits achieved from B2E are similar to the benefits of B2C and B2B in terms of reduced costs, supporting stakeholders with 24*7 information access, ubiquity, transparency, and online real-time processing with integrated systems. It also shows that B2E results in improved employee relationship management in the same way that B2C supports customer relationship management and B2B enhances partner relationship management. However, it is not clear from this research whether B2E gets the same importance as B2C and B2B in all organisations. From the analysis discussed already, it is also clear that B2E implementations are similar to other new technology implementations with steep costs curves, which highlight the need for managing change from the old way of doing things to new approach prompted by B2E, raise the need to retain skilled staff for knowledge management, and require effective information management with integrated processes.

The findings confirm Hansen and Daimler's opinion that a comprehensive B2E e-business initiative results in improved online processes, supports online management of employees and delivers online services to the workplace community.

CONCLUSION

This study has explored the experience of two large Australian universities in adopting B2E e-business systems. Although both universities considered B2E systems to be a great success, not all the benefits advocated by the B2E gurus were achieved by them. More specifically, there is clear evidence that the universities receive benefits from cost cutting but mixed findings were found with regard to benefits experienced by individuals using those B2E systems.

There is also an indication that successful adoption of B2E e-business systems is not without hurdles. A variety of impediments including the difficulties in justifying the costs of B2E e-business systems, change management, and problems with consultants do affect smooth introduction of B2E systems. Hence, organisations planning to adopt these systems should be aware that the journey to establish electronic business with employees requires considerable management support and promises significant organisational benefits.

The findings reported in this paper are important because, as the B2E discipline is very new and still immature, systematic evaluation of the vendor reported benefits of B2E systems are not yet widely available compared with those of the B2B and B2C e-business. This study thus makes a contribution to the IT discipline by helping to diffuse B2E e-business systems through highlighting their merits and potential barriers.

This study can be extended in several directions. First, additional multiple case studies selected from different industry sectors are required to explore in more detail the benefits and impediments reported in the literature and identified in this paper. More specifically, it is important to determine whether there is any influence of industry context on the attainment of benefits from the adoption of B2E systems. Second, further investigations are necessary to examine the relationship between factors that affect attainment of benefits from B2E systems. Third, multiple case studies should be followed by a survey involving a large number of organisations from different industry sectors to further strengthen the findings and support generalisation of the outcomes. User satisfaction and acceptance of B2E e-business system as compared with B2B and B2C will also be an interesting study.

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