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6. Factors Affecting Adoption of B2E E-Business Systems: A Case of the Australian Higher Education Industry

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Abstract

In recent years, there has been a surge in the number of organizations wanting to embrace IT systems that support the notion of business-to-employee (B2E) e-business. Trade magazines are now filled with many short essays and case reports highlighting the benefits of B2E e-business systems. However, little is reported in the scholarly academic literature about the adoption of B2E e-business systems. Thus, it is not clearly known what factors facilitate the decision of large organizations to adopt these systems. Given the fact that higher educational institutions maintain a large workforce, it is important to determine the conditions that affect their decisions to adopt B2E systems. This study reports on the employee portal adoption experience of two large Australian universities and identifies the key factors that influenced their decisions to adopt these systems. The implications of the findings are also discussed.

Keywords: E-business, B2E systems, Adoption, Higher education, Case study

Introduction

In recent years, business-to-employee (B2E) e-business has been receiving a growing attention in the business literature. Various forms of IT-enabled systems which embrace e-business approaches and internet technologies have emerged to provide a range of services to employees. According to Hansen and Deimler (2001), a comprehensive B2E e-business system has three key components: online business processes, online people management and online services to the workplace community. It provides employees with greater freedom with online self-service access to human resource matters. Organisations thus spend less time on internal administrative tasks and take advantage of reduced costs of fewer staff for the management administrative processes, paperwork, postage, printing and travel. B2E systems even enable managers to empower employees and help them make improved decisions (Hawking et al., 2003, Turban et al., 2006).

The use of various forms of B2E e-business systems is growing steadily. Merrill Lynch Capital Markets envisage employee portals to become a US\$14 billion business outnumbering the growth rates of other attractive enterprise applications markets (Brooks, 2001). According to Banks (2004), the number of organizations implementing B2E systems including portal solutions is also increasing in Australia. However, despite the wide publicity of B2E e-business systems in the trade literature, scholarly literature on this topic is still limited. This is not surprising given the fact that B2E e-business is a new and emerging phenomenon. Moreover, academic literature is traditionally slow to follow up the fast-moving trends of e-business in general (Kim & Han, 2001). As a result, little systematic investigations have been undertaken to identify the factors that influence the decision of organizations to adopt B2E systems. Consequently, limited understanding exists about the relationship between relevant factors and the adoption of B2E e-business systems. To address this gap in the literature, this study aims to explore the relationship between various factors

identified from the literature which are likely to affect the decision of organizations to adopt B2E e-business systems. This aim is addressed by critically examining the employee portal adoption experience of two large Australian universities. The findings from the universities are significant because they illuminate the influence of a set of success factors useful to the senior management of the potential adopter organizations intending to introduce B2E systems. The findings also contribute in building a rich empirical foundation for further B2E e-business research.

Related Literature

B2E e-business is a relatively new phenomenon and very little is reported about these systems in the e-business literature. Those few studies that have looked at B2E e-business systems are however highly fragmented and addressed primarily post-implementation aspect of these systems. For instance, Rahim (2006) and Rahim and Singh (2006) have reported the benefits of traditional web-enabled B2E systems for both employees and their organisations. A few authors have reported the impact of mobile B2E applications. In their study, Scornvacca et al. (2006) examined the organizational impact of a mobile B2E application in a New Zealand restaurant. In another study, Rangone (2006) looked at the characteristics and benefits offered by mobile B2E applications in some Italian companies. Another group of researchers have investigated satisfaction of employees with B2E systems. In their study, Huang et al (2003) examined various dimensions affecting satisfaction of employees with a particular B2E application in a Taiwanese company. However, none of these studies have ever evaluated any factors affecting adoption decisions of B2E systems. To the best of the author's knowledge, the only works reported in the e-business literature on the adoption of B2E systems were undertaken by Rahim et al (2005) and Sugianto et al. (2005). Sugianto et al. (2005) looked at some of the factors affecting the adoption of B2E e-business systems but did not provide any empirical validation. In their study, Rahim et al. (2005) examined a particular stance of B2E portal adoption in a large university but their work lacks a rigorous validation. Hence, there is a clear gap in the existing e-business literature about the need to develop and empirically validate a model on the adoption of B2E systems.

The brief discussion of the existing studies on B2E e-business systems (presented above) clearly indicates the presence of inadequate research attention to describe the adoption practices of B2E e-business systems. As such, two other important streams of e-business (i.e. business-to-business and business-to-consumer) were considered relevant to identify factors that may potentially affect adoption of B2E e-business systems in organisations. Moreover, innovation theories which are also drawn upon by the mainstream e-business literature were considered fundamental. A critical review of the e-business stream literature reveals the influence of a range of adoption factors which can be classified into four broad categories: (a) properties of the e-business application, (b) characteristics of the adopting organisation, (c) conditions prevailing in the environment of the organisation, and d) features of the consumers. The first factor group 'properties of e-business application' suggests that the more favourably a potential adopter organisation perceives the importance of a factor in this group, the more likely it is that the organisation would adopt an e-business application. Typical factors belonging to this group include relative advantage (Premkumar et al., 1997; Kurnia and Johnston, 2002), complexity (Premkumar et al., 1997; McGowan and Madey, 1998), compatibility (Premkumar et al., 1997), trialability (Kurnia and Johnston, 2002) and cost (Kuan and Chau, 2001). The second factor group 'characteristics of adopter organisation' indicates that, even though an e-business application may have the potential to offer substantial benefits, it is unlikely to be adopted if certain organisational conditions do

not prevail within the potential adopter organisations. Thus, the sophistication of organisations in terms of their degree of top management support (Premkumar et al., 1997), IT expertise (Heck and Ribbers, 1999; Chwelos et al., 2001), and a suitable organisational structure (McGowan and Madey, 1998) may affect the adoption of e-business systems. The third factor group 'conditions in the environment' suggests that the more the influence of the environmental forces on an organisation, the greater is the likelihood of an organisation intending to adopt an e-business application. Typical factors belonging to this group include industry competition (Premkumar et al., 1997), peer pressure (Sillince et al., 1998), dependence on trading partners (Premkumar et al., 1997), trust (Hart and Saunders, 1998), and power over partners (Hart and Saunders, 1998). The fourth factor 'features of the consumers' is particularly relevant to the B2C e-business applications in which certain characteristics of consumers such as demographics (Seleka and Uzoka, 2005), security risks (Seleka and Uzoka, 2005), and internet access (Seleka and Uzoka, 2005) may affect organisations adoption decisions as to how to position their online applications for individual customers. It must be emphasized that most of the factors (mentioned above) reported in the e-business literature were drawn from several popularly cited theoretical frameworks mentioned in the extant innovation literature. These frameworks include diffusion of innovation theory (Rogers, 1995), competitive behaviour analysis (Robertson and Gatignon, 1986), theory of institutional pressure (DiMaggio and Powell, 1983), resource dependence perspective (Pfeffer and Salancik, 1978), critical mass theory (Markus, 1990), and industry and competitive analysis (Porter and Miller, 1985).

B2E e-business systems however differ considerably from both B2B and B2C e-business systems. For instance, B2C systems are aimed at individual customers who are not company employees and hence an organisation's ability to earn trust of individual consumers and address their security concerns is a key factor affecting their decision to invest in such systems. These factors are unlikely to be relevant for the B2E systems because such systems are expected to be operating in a secured intranet/extranet environment. Furthermore, organisations tend to place more trust in their employees and will be more willing to post critical information for employee dissemination than is likely to be the case for consumers of B2C applications. Likewise, there exist considerable differences between B2E and B2B environments. Employees are not considered as business partners and hence factors like business partner readiness, supply chain rivalry, industry and government pressures are not relevant for the B2E context. This is not to say that all the factors affecting B2B and B2C e-business applications are irrelevant for explaining adoption decisions of B2E systems. On the contrary, it is argued that many of the organisational factors such as the need of management support and availability of IT expertise will still be of paramount importance in deciding to adopt B2E systems. Furthermore, as many of the B2E systems are supplied by external software vendors, their ability to provide support may also be an important factor. Undertaking B2E systems in support of a large workforce who often work from geographically dispersed locations is indeed a complex undertaking which requires considerable financial commitment. Hence, cost of B2E systems (which is important for B2B and B2C e-business systems alike) is a significant factor for B2E applications adoption.

Research Model

The proposed research model (shown in Figure 1) includes a set of six most frequently reported factors which are relevant in the context of B2E systems. These are: perceived organizational need for B2E e-business systems, management support for introducing B2E e-business systems, IT expertise available within organizations, complexity with B2E systems,

cost of introducing B2E systems, and vendor pressure. A brief justification for including these factors is provided below.

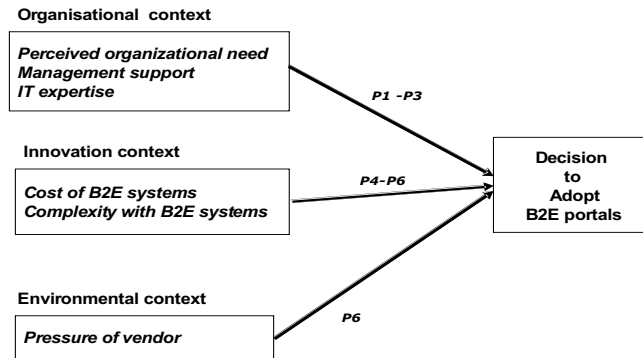


Figure 1: A conceptual model of B2E e-business systems adoption

It is long been established in the existing innovation and e-business literature that an organisation is more likely to adopt a new IT application when a genuine business needs exists that can be resolved by exploiting the technological novelty of the application. This view is consistent with the suggestions of e-business gurus who argue that organizations decide to invest in various forms of e-business technology-enabled systems when they are convinced on how the merits of the technology would be applied to an already identified business problem. A clearly articulated business need must be identified and assessed adequately to justify the adoption of any IT system in organizations. Large organizations often invest in IT systems when they encounter inefficiency problems associated with their business processes and/or want to enhance their competitive position in the industry segment in which they operate (Porter & Miller, 1985). In relation to B2E scenario, organizations would be more willing to embrace B2E e-business systems when they develop an awareness of better utilising their human assets. Organizations may like to introduce various forms of B2E systems to facilitate better communication between organizations and employees (Hansen & Deimler, 2001, Hawking et al., 2003), improve employee loyalty by providing them on-line services and enhance on-line collaboration among employees (Turban et al., 2006). The HR literature confirms that ESS applications a kind of B2E systems are often introduced when organizations intend to address their HR related business process inefficiencies. Hence, the following proposition is suggested:

P1: Perceived organizational need is positively related to B2E e-business systems adoption decisions

Management support refers to not only the articulation and symbolic championing of a new undertaking by the senior management but also the commitment of resources (Noda & Bower, 1996). Many studies in IT have shown that management support is absolutely necessary for successfully adopting an innovative application (Nonaka & Takeuchi, 1995, Powell & Deni-Micallef, 1997). In the context of B2E e-business, it is important to secure commitment from senior management because employees represent a key asset for the survival and progress of business. Management must recognise that availability of on-line resources through B2E systems has the ability to significantly improve the performance of

employees. It however requires considerable investment which cannot be obtained without strong management support. Furthermore, introducing a typical B2E system (such as e-HRM) require difficult decisions to be made by the senior management regarding the extent to which the new system should be outsourced to gain relevant expertise (Van den Bos and Methorst, 2004). In relation to B2E, knowledge on how to introduce new HR practice into existing employee related business process has been identified to be a major barrier (Dyson, 2001) for which intervention and strong commitment from the senior management is absolutely required. Moreover, training, which helps the smooth completion of B2E e-business systems on schedule involves financial commitment for which management commitment is further necessary. Hence, the following proposition is suggested:

P2: Management support is positively related to B2E e-business systems adoption decisions

A lack of technical knowledge has long been identified as an important factor that may negatively affect the introduction of any IT project (Cragg & King, 1993). Unlike many other IT applications, B2E e-business systems are more complex due to the varied needs of employees in large organizations. Depending on the role of employees, they may need to access different types of information and services which may require different level of security clearances. This makes integration of B2E systems with many other applications (that may possibly run on different platforms) difficult. Therefore, adequate IT expertise must be available before deciding to introduce B2E e-business systems. Considerable expertise is also needed for building a B2E e-business system from scratch. Moreover, when B2E e-business systems are acquired from external vendors, expertise must be available on how to tailor the product to suite the needs of business. Therefore, an organisation is likely to adopt B2E e-business systems when it has relevant IT expertise.

P3: The IT expertise of organizations is positively related to B2E e-business systems adoption decisions

Cost is an important factor for any IT application and is usually assumed to negatively affect the adoption of the application (Chan & Swatman, 1998). This view is supported by Benbya (2004) who argued cost effectiveness of corporate portals as a major factor affecting its adoption by organisations. In relation to B2E systems, costs include hardware costs, software license costs, software development costs, design costs, system integration costs, firewall, and maintenance. Such costs play even a greater role because commercially available B2E products are very expensive which quite often run into millions. This is supported by Gartner group which estimated that portals featuring full workplace integration would cost between US\$1 million to US\$3 million (Group, 1998). Therefore, the following proposition is developed:

P4: The perceived cost is negatively related to B2E e-business systems adoption decisions

Complexity generally refers to whether a technology is difficult to understand and use (Borton & Brancheau, 1994). In the context of B2E e-business systems, it is argued that complexity is likely to be greater than other forms of IT-systems because of the need to integrate such systems with disparate application systems that exist in organizations to satisfy the varied needs of employees. Moreover, the complex interplay of actions between various types of employees and the distribution of power among different functional units in organizations are also likely to increase the complexity of B2E e-business systems adoption. The perceived complexity may thus deter the introduction of B2E e-business systems in organizations. Hence, the following proposition is suggested:

P5: The perceived complexity is negatively related to B2E e-business systems adoption decisions

Today's organizations, of all sizes, operate in a highly dynamic business environment which is characterised by pressure arising from influential external bodies. The adoption of B2E e-business systems by rival organisations may encourage businesses to adopt these systems to remain competitive. Furthermore, IT vendors position B2E systems as a compelling way of integrating business processes that spans across multiple applications (Anonymous, 2001). Hence, driven largely by vendor hype and promises, organizations are also likely to introduce B2E e-business systems. As such, the following proposition is suggested:

P6: The perceived vendor pressure is positively related to B2E e-business systems adoption decisions.

Research Approach

Adoption of B2E systems is a contemporary phenomenon which needs to be examined in its natural settings. Moreover, the complex interplay of actions between academic and administrative staff and the distribution of power among different faculties and administrative units within a university environment are also likely to increase the complexity of B2E systems adoption. Hence, it is critical to capture the experiences of the relevant people and the context of their actions to understand B2E systems adoption practice. Case study approach is suitable for understanding phenomena within their organizational context (Yin, 2003) since it allows researchers to capture the knowledge of practitioners and use it to generate theory (Creswell, 2003). Moreover, B2E is an emerging technology and hence very little research has been reported to address its adoption practice. Consequently, clear theoretical guidelines are not still available. According to Benbasat (1987), case studies are appropriate when theories are at the formative stage.

As this research project is in preliminary stage, exploratory case studies were undertaken with two large Australian universities that implemented an IT-enabled B2E e-business system for managing their employees. Moreover, these two universities were also willing to share their rich experience with the researchers. The case studies allowed investigation of specific instances of the adoption of B2E systems in organizations which are large, comprise 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 reported to have recently been undertaken by some leading Australian universities (Tojib, 2003) and the adoption of B2E systems is highly relevant to them because most universities maintain multiple campuses which are spread across the country. Hence, these universities have a large workforce which is often required to travel among their campuses. Moreover, with the enterprise agreements that took place between university employee unions and university management, most staff now receive more flexible work practices and they often work from home. As a result, the university staff of Australian universities needs to remain in contact with their workplace regardless of their locations through B2E systems. Moreover, with the increasing withdrawal of financial support from the federal government the Australian universities are looking for ways to serve the needs of multiple campuses using staff who are willing to travel between campuses rather than maintaining staff dedicated to each campus. Hence, it is not surprising that both Banks and Tojib et al reported growing interest expressed by the Australian universities in introducing B2E systems.

Exploratory case studies were undertaken with two large Australian universities that implemented an IT-enabled B2E e-business system for managing their employees. Moreover, these two universities were also willing to share their rich experience with the researchers. The case studies allowed investigation of specific instances of the adoption of B2E systems in organizations which are large, comprise a large number of units and groups of employees including senior management, academics and administrative staff. A total of six in-depth interviews were sought from the members of the senior management team who were involved with the decision making process of B2E systems at the participating universities. As B2E systems represent a university-wide IT initiative all possible efforts were made to secure information from key informants. In case A, the head of the IT function, IT application director and the head of the flexible learning & teaching (FLT) program were involved with the approval which was received from the office of the deputy vice chancellor. Unfortunately, the vice chancellor had retired from the university at the time of conducting this research. Hence, information was collected from three senior executives as mentioned earlier. In case B however the decision to invest in ESS project was approved by the university council. The university secretary who headed this council had resigned and moved to another university while the faculty resources manager who was also a member of this council failed to participate in this research owing his time commitment to other critical teething problems faced by the university at the time of conducting this research. Hence, information concerning the adoption of the ESS project were collected from the following three senior managers as identified by the office of the faculty resources manager: IT manager, HR manager, and business managers. All these three senior executives were directly involved in the preparation of the ESS project proposal, defending that proposal at the university council, and its eventual implementation. The interviewees often granted access to some internal university reports relating to the background and profile of employee portals. This helped the researchers to corroborate the information provided during the interviews. The interviews were tape recorded which were subsequently transcribed and were sent to the interviewees for review. Analysis of the case study data 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 both of which are located in a state capital city, Australia. Case A is a renowned university that is ranked among the top eight Australian universities. It has attracted a large student population from over 100 countries, has several campuses and even maintains its presence in overseas countries. Its IT department consists of about 100 employees and has employed a wide range of IT enabled applications in support of major business processes supporting the core functionalities of the university. This university has been using an in-house developed employee portal which is accessible through the university wide intranet. Several dozen services are currently offered through the portal including e-mail, employee self-services, class booking, research grant administration, handbook printing, and online advertisement via marketplace among others. On the other hand, case B is relatively a new university. Its staff and student population is about half of Case A. This university has several local campuses and although it does not operate campuses in overseas countries it still maintains links with over many overseas educational institutions. This university has been using SAP Employee Self Services (ESS) portal since late 2002 which allows university staff to update their own HR related data and submit leave applications from their desktop computers.

Case Study Findings

Case A (Metropolitan University One): A discussion with the participating executives confirmed that the portal project was conceived as a direct result of the existence of a strong need for the university to provide on-line services to staff and students alike in support of the flexible learning and teaching environment. Without such an expressed need, it would have been impossible for the IT department to push the idea of establishing a staff portal for the university. According to the Head of the IT function:

“There was an established need within the university to provide on-line services to staff and students through the Internet.”

The existence of a strong management support for the adoption of staff portal was also evident. The senior management understood and appreciated the role of portal in implementing the flexible learning and teaching environment within the university, and hence offered full support for the project both in terms of providing requisite resources and academic credibility. This is reflected in the following remarks of the head of the IT function:

“The senior management was the driving force of the project. They actually provided the project with the academic credibility and the value; they could see the academic value of what we were doing and they then became closely associated with the project and their involvement was absolutely critical.”

The university certainly did not have ready expertise available to introduce staff portals. However, it had some bright IT staff members who were innovative and supportive to the needs of implementing staff portals. These members had the right mind set, understood the meaning of portals (as very little was known about portal technologies at that time), and had the ability to train themselves about the open source technologies to be used in building staff portals. These members trained themselves in Perl programming language and also attended several workshops organised by the university. The training sessions helped them in exploiting the available set of open source tools based on the Perl programming language and created a working prototype which was demonstrated to the senior management. The prototype convinced the senior management about the ability of the in-house IT staff in implementing staff portals. Therefore, the unavailability of in-house IT expertise at the initial stage was not a major factor to influence the decision of the senior management for introducing staff portal.

The university did not invest heavily in the staff portal project and therefore did not consider the project to be an expensive undertaking. The portal was built within the existing university budget. Necessary human resources in terms of IT application developers were pulled from other projects; they were brought together to form a team. Furthermore, as the team used free open source code for developing the portal little cost was incurred for acquiring necessary software. Hence, the actual cost of development was perceived to be very low. Therefore, cost of the project was not considered to be a major factor affecting the decision of the senior management to introduce staff portals. According to the Head of the IT function:

“Yes, the portal was developed within existing budget. I had the kind of resources/budget for various areas and I decided how to actually get a start together and activate it.”

The staff portal project was not regarded as a complex project even though the IT staff had no prior experience in building portals. To reduce complexity, the FLT group adopted an incremental developmental process for constructing the portal. At the initial stage, a prototype was developed which was demonstrated to the senior management and many other

staff chosen from several functional areas of the university. Based on their feedback, the portal was further enhanced. The first pilot trial of the portal took place in March, 2000. Based on the feedback received from the participants of the trial, several aspects (most notably interface and performance) of the portal were further improved. Eventually, the portal was officially launched in July, 2000. The FLT group is still enhancing the functionalities offered by the portal. According to the manager of the FLT team:

The university did not experience any pressure from the portal vendors to introduce staff portals. The head of the IT function and the IT applications manager both confirmed this view. According to the IT applications manager:

“At that time, the portal solutions offered by the vendors were not mature and there was no pressure from them on us to introduce their products”.

Case B (Metropolitan University Two): The initiative to adopt SAP/ESS portal was conceived internally in early 2002 by the HR unit of the university which was facing two major problems. First, there was a considerable delay in processing leave applications of university staff. The HR unit usually receives about twenty five thousand leave applications annually and it was taking an average of two months for them to approve a sick leave. Another problem was the difficulties in providing university staff with their up-to-date HR and leave related information. Quite often, the HR unit had to rely on casual staff to enter HR and leave related data. To address these problems, the head of the HR unit consulted business development manager and IT manager of the university about the possibility of introducing SAP/ESS portal as a solution. Eventually in late 2002, a business case was prepared based on a SWOT analysis and a proposal was presented to the university council. The members of the council understood the value of the ESS project and approved it. It is thus suggested that the ESS portal project was undertaken in response to a clearly perceived need of the university.

In-depth discussions with the participating HR, business development, and IT managers and a review of the related documents confirm that the ESS portal project received strong support from the university management at two stages. The managers worked together and jointly presented a convincing proposal to the university council which comprises Deans and Faculty Resource Managers and is headed by the University Secretary. The council members were convinced about the value of the ESS project when those three managers successfully highlighted the cost-savings potential of ESS. The council thus approved funding required for the ESS project. More specifically, the commitment of the council members was secured by receiving funding covering the costs of the ESS portal, firewalls, middleware, necessary hardware facilities, and ongoing management consultants and part time staffing. According to the IT manager:

“At that point, our IT unit was extremely short staffed. I said to the council members that we cannot support ESS project, we were putting in something which is kind of integrated to the university’s operation and I must be given the funds or I am not going to take the portal. The university management understood my requirement and supported the ESS project by providing funding for additional staff.”

Management support was also secured at a later stage when a pilot run of the ESS portal was conducted. During the pilot trial, the HR unit identified a range of difficulties because not all types of computing platforms were supported by the ESS portal. Only those staff having a PC on their desktop were supported by ESS and the university staff at that time were using a range of computing platforms. The university council expressed support for the ESS project by asking all its staff to move to the PC environment. Thus, the senior management of the

university understood and appreciated the value of ESS portal and offered full support for the project in terms of providing both hard and soft resources and management recognition.

The university did not have relevant IT expertise available to support the introduction of ESS portal. However, as the senior management of the university was aware of the significance of the portal, they did not consider the lack of IT expertise to be a factor that would discourage them from investing in ESS. The senior management approved the IT unit of the university to bring in suitable consultants who would facilitate a transfer of knowledge and skill sets to their IT staff. The IT staff of the university thus worked hand-in-hand with consultants to install ESS portal and configure it correctly to suite the requirements of the HR unit. This view is expressed by the IT manager as follows:

“Basically, the ESS was new to us. We did not know the ESS product very well and didn’t know how it works. However, the lack of IT expertise at that time was not a barrier for us because the university allowed us to bring consultants and it’s like a knowledge transfer exercise.”

The ESS project was considered to be an expensive undertaking. Total cost of the project ran into millions taking into consideration of hardware, firewall, middleware, ESS portal licence, and consultants. The consultants who were brought in to help the IT staff in installing and configuring ESS charged enormous fees which often ran into several thousands for each consultant per day. However, considering an annual savings of about A\$600,000 per year reported in the business case, the senior management did not consider cost to be a major factor to influence their decision to approve the ESS project. This view is confirmed when the head of the HR unit made the following remarks:

The university considered the ESS portal to be a complex project which required difficult customisation for which no skill sets were available in-house. Moreover, the IT staff realised that they had to develop and put many patches to ESS portal which further added complexity because of the increasing difficulty to manage ESS. This view is supported when the IT manager made the following remarks:

“Although, the basic technical part of ESS was not too complicated but still overall the ESS project was complex. We had many problems. Customising ESS was difficult. Moreover, we had to put many patches to ESS portal that added to complexity because management of ESS became difficult. However, the complexity of the portal did not deter us from going ahead with ESS implementation because we were confident that we could handle this level of project complexity.”

However, despite the complexity involved with the ESS portal project, the HR and IT staff both were confident in their ability to handle complex projects. Hence, project complexity was not considered to be a major factor to affect the decision of the university to introduce ESS portals. No evidence has emerged to suggest the existence of pressure from portal vendors on the university’s decision to introduce ESS. The head of the HR unit and IT manager both considered the introduction of ESS portal to be an internal initiative and dismissed any influence of the vendor on them.

Discussion

Data analysis reveals that out of six key factors shown in the research model (Figure 1), only two factors (i.e. perceived need and management support) were reported to have a considerable influence on the universities’ decisions to adopt portals for employees. In both universities, portals were introduced in response to a clearly articulated organisational

problem. In case A, employee portal was intended to support its strategic vision of providing a flexible teaching and learning environment to its staff. The university neither looked at the staff portal as a means to receive direct visible economic gains nor introduced the portal in response to frustrations expressed by unsatisfied employees who had difficulties in locating university resources from off-campus. Fundamentally, the initiative was directed at addressing the strategic vision of the university to promote itself as a distinguished educational institution by creating a flexible learning and teaching environment. On the other hand, in case B, the ESS portal was considered as a solution to improve efficiency of the HR process. The HR unit was taking an unacceptable time period to process leave applications and was unable to provide timely up-to-date HR related information to employees. Hence, the senior management of Case B recognised an urgent need to bring changes in its existing HR process using an appropriate ESS solution. Therefore, it can be suggested that the existence of an explicit business need encouraged both universities to actively seek a portal solution. The experience of case B is consistent with the views of Wright and Dyson (2000) and Paauwe et al. (2005) who argued that HR function has long been locked into administrative activities which can be largely addressed by suitable web-based IT systems.

The influence of management support in adopting portals was also evident. The senior management of both universities not only offered necessary funding for hardware, software, and staffing, but also provided academic recognition to the project. In case A, the senior management served as the driving force for the employee portal project. In case B, although the ESS portal project was not the brain child of the senior management but they understood and appreciated its value for the university when a sound business case was presented jointly by the HR and IT managers. The senior management provided their support by asking the HR manager to report back to them and brief them about the outcomes of the ESS pilot trial. During the briefing, the senior management of the university also enforced a policy of switching to a university wide common exchange directory services which enabled staff to access ESS from any PC-based desktops.

Clear evidence has emerged that suggests that the portal vendors did not exert any persuasive influence on the universities to introduce portal solutions. In case A, the participants acknowledged that due to the immaturity of the commercially available products at that time vendors could not press hard on them to acquire their solutions. In case B, although the vendor may have an interest in the university to take up their ESS solution, they certainly did not exert any influence on them in adopting that solution. Both universities lacked relevant IT expertise at the time of making a decision to introduce portals. However, IT expertise unavailability within organisations did not appear to have a strong influence on the universities' decision to introduce portals. In case A, IT staff had no familiarity with portals. However, the university identified a number of bright and innovative staff who had the right mind set and were willing to accept the challenge of training themselves when no mature portals were commercially available. In case B, the IT staff certainly was not familiar with SAP ESS. They did not know how it operates and relied upon the consultants to install and customise the product. However, despite this reliance on consultants the IT staff worked hand-in-hand with them and a genuine exchange of knowledge took place.

An interesting observation is the lack of any association between the remaining two factors (i.e. cost and perceived complexity) and the participating universities' decision to adopt B2E portals. Despite a clear variation in the status of these two factors, the decision to adopt portals still remained unaffected. For example, in case A, the portal was developed in-house using free open source code and hence the university did not consider cost to be a major factor that would discourage them from investing in developing staff portals. On the other

hand, the ESS portal in case B was regarded to be an expensive undertaking because its cost ran into millions. However, the high cost of ESS did not appear to have a negative influence on this university's decision to invest in ESS. This is because the expected benefits convinced the senior management about the utility of the ESS portal. Hence, regardless of the amount of cost involved in portal projects, both universities made a conscious decision to adopt portals. Similar to cost, the perceived complexity associated with portal projects also did not appear to have any influence on the universities' decision to introduce portals despite a variation in its status was clearly observed. In case A, the staff portal was not considered to be a complex project. The university had a number of bright and innovative staff who followed a gradual incremental approach for developing portal. Prototypes were developed to solicit user feedback. On the other hand, ESS portal in case B was considered to be a complex project. It required complex customisation and many patches were added which made the management of ESS difficult. However, despite the high level of perceived complexity, the university still went ahead with the decision to introduce ESS.

Conclusion

This study has explored the experience of two large Australian universities in adopting B2E e-business systems and examined the influences of a set of six factors identified from the literature on their decision to invest in those systems. The evidence emerged from the universities suggest that various factors have different effects on organizations' decision to adopt B2E e-business systems. Strong influence was found for management support and perceived organizational need for the adoption of B2E e-business systems which quite often is not highlighted by portal vendors. In contrast, no evidence was found to suggest an influence of cost, IT expertise, perceived complexity, and vendor pressure on organizations' decision for the adoption of B2E systems. The findings of this study are important because, as the B2E discipline is very new and still immature, useful guidelines and success factors are not yet widely available compared to those of the B2B and B2C aspects of e-business. Furthermore, as the risk of B2E e-business systems failure represents a significant financial loss for organizations, an important task of IT researchers is to contribute to the knowledge to support the business community to successfully adopt and diffuse these systems. This study contributes to this aim by investigating the factors that potentially affect the decisions of organizations to successfully adopt B2E e-business systems.

There are several weaknesses of the study reported in this paper which should be addressed in future research in order to extend the preliminary model. First, although interviews were successfully arranged with the members of the team who had direct involvement with the decision making processes of B2E systems adopted, two key informants (namely the DVC of Case A and University Secretary of Case B) could not be contacted since they had left the university at the time of conducting this study. Therefore, an opportunity was missed to identify some additional insights (or even factors) from the perspective of senior management. Consequently, the influence of any political factor played out by the senior management could not be examined. Second, only two case studies were used. More cases selected from different industry sectors are required to explore in more detail the relationship between factors and the decision of organizations to adopt B2E e-business systems. This should be followed by a survey to further strengthen the findings. Additional studies are also required to determine whether cultural factors have a significant influence.

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