

# Understanding Adoption and Impact of B2E E-Business Systems: Lessons Learned from the Experience of an Australian University

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## Abstract

*Business-to-employee (B2E) systems are e-business applications that use an intrabusiness network allowing organisations to provide products/services to their employees. These systems have an impact on employee satisfaction and organisational performance. Business literature highlights the benefits that organisations receive from embracing B2E systems. Academic literature has however paid scant attention to the understanding of impact of these systems. Hence, it is not known how and what factors affect the attainment of benefits from B2E systems. This paper analyses the experience of an Australian university in introducing an ESS portal and highlights some lessons. The implications of the findings are discussed.*

*Keywords: E-business, B2E systems, B2E benefits, ESS, case study, Australia*

## 1. Introduction

Business-to-Employee (B2E) systems represent an e-business initiative aimed at employees which uses an intrabusiness network allowing organisations to provide useful services, information, or products to their disperse employees [1]. According to the Killen Report [2], two broad categories of B2E systems are found in organisations: a) core HR systems supporting payroll, employee benefits, health information, notification of training and education opportunities, corporate announcement dissemination, among others, and b) extended B2E systems which support such activities as employee travel reservations, expenses reimbursement, credit union services, and online insurance policy management.

There is a growing consensus in the e-business literature that the adoption of B2E e-business systems is likely to have a major impact on organisations because these systems fundamentally improve satisfaction of employees with organisations. By providing easy access to relevant information, services, and products, B2E e-business systems help organisations in creating satisfied workforce that is expected to be more loyal to organisations [3, 4]. These systems also have an effect on organisational performance as they help organisations in reducing their administrative costs. Administrative costs are reduced by streamlining employee related process [5, 6] and eliminating expenses related to paperwork, postage, printing and travel [2, 7]. Furthermore, adoption of B2E e-business systems helps organisations in outperforming competitors by connecting their employees together [8, 9].

IT Vendors claim that a growing number of organisations have either already adopted B2E e-business systems or expressed a strong interest in adopting these systems. The claims of the IT vendors are consistent with the views expressed in the Killen Report [2] which predicts that by 2005, 77% of the Global 2000 will have adopted digital B2E

solutions. In North America, Merrill Lynch Capital Markets envisage employee portals to become a US\$14 billion business outnumbering the growth rates of other attractive enterprise applications markets [10]. In Australia, Banks [11] reported that the number of organisations implementing various forms of portals supporting B2E e-business initiative is increasing in Australia. Yet, despite this general recognition of the increasing popularity of B2E e-business systems, insufficient attention has been paid in the scholarly literature to understand how organisations receive benefits from the adoption of these systems [6, 12]. This is not surprising given the fact that very little research activities on B2E e-business are currently being carried out by the IT researchers [13]. Moreover, academic literature had traditionally been slow to follow up the fast-moving trends of e-business in general [14]. Consequently, little is known about what motivates organisations to invest in B2E e-business systems, how they experience benefits, and what factors affect the attainment of benefits from those systems.

To address this gap in the literature, this paper presents the experience of a large Australian university in adopting an Employee Self-Service (ESS) portal which according to the Killen Report [2] represents an instance of the first category of B2E e-business system. The ESS portal which automates HR related processes and provides HR information tailored to the needs of individual employees is currently accessed by the university staff via their intranet network. The impact of the ESS portal on employee satisfaction and the performance of the HR function of the university are also examined. The findings confirm that the ESS portal adoption contributes to the enhancement of employee satisfaction and helps in improving organisational performance. A set of factors are also identified which were found to influence employee satisfaction and organisational performance. The insights obtained from this study thus assist in advancing 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 to promote B2E e-business initiatives in their own organisations. From the research perspective, a sound knowledge of the adoption context and benefits 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 adoption motives and impact of B2E e-business systems on employee satisfaction and organisational performance are briefly reviewed. Next, the research approach is explained. Then, a profile of the participating university is presented. Following that, empirical findings relating to B2E systems adoption context and their impact are described and discussed in the light of the existing literature. Finally, the contributions of the research are highlighted and areas of possible further investigations are mentioned.

## **2. Related Literature**

### *Business motives for B2E e-business systems adoption*

Although a rich body of IT trade literature exists about the benefits arising from the adoption of B2E systems, no systematic investigations have so far been reported in the academic literature that examine the motivations of organisations to invest in B2E

systems. Even IT trade literature on this matter is still limited. Those few writers who have touched this issue suggest that organisational motives for adopting B2E e-business systems are primarily economic in nature. For example, McDowall [3] argue that the underlying objectives of adopting B2E systems are of increasing the value of enterprise by maximising employee productivity and enhancing the productivity of the enterprise. This view is in agreement with Dafoulas et al. [15] who argue that many organisations focus on B2E solutions to reduce administrative costs. Some organisations however introduce B2E systems for advancing their competitive position in their respective industry segments. For example, the role of e-business systems in advancing the competitive position of the company is recognised by Daimler Chrysler auto company which has introduced a B2E system to enable its workforce use intranet to access over a million pages of information in the company’s knowledge base and a range of services including insurance plans, travel packages, and vehicle reservations among others [16].

*Impact of B2E e-business systems*

A rich body of IT trade literature is available that describes the benefits organisations are likely to receive as a result of adopting various forms of B2E e-business systems. A review of the many case study reports and short essays published in the existing literature suggest that the benefits of B2E e-business systems can be grouped into two broad categories: employee benefits and organisational benefits. Each category encompasses several specific types of benefits. A summary of these benefits is shown in Table1.

**Table 1. Types of benefits arising from B2E systems**

Broad Categories of Benefits	Specific Types of Benefits	Sources
Employee benefits	Efficiency	Hall [17], Stoddart [18]; Singh [5], Mello [19], Firestone [20]
	Productivity	Mello [19], Turban et al. [7]
	Collaboration	Hall [17], Lissak and Bailey [21], Firestone [20]
	Satisfaction	Lissak and Bailey [21], Hawking et al. [22]
Organisational benefits	Loyalty	McDowall [3], Huang et al. [23]
	Cost reduction	Dafoulas et al. [15], Firestone [20], Hawking et al. [22]
	Improved organisational decisions	Farhoomand and Lovelock [24]
	Improved business processes	Kendler [25], McDowall [3], Singh [6]

A total of five specific types of employee benefits are identified: efficiency, productivity, collaboration, satisfaction, and loyalty. By far, efficiency is the most frequently cited benefit that can be gained from using B2E systems. An improvement in employee efficiency is based on three central arguments found in the literature. One, B2E e-business systems enable employees to access promptly relevant and up-to-date information from any geographic locations. Employees obtain easy access to product information, staff bulletin or newsletter, training courses, HR information, among others [5, 18, 24, 26]. Employees become more efficient as they use up-to-date

information for making better responses to organisational and personal issues. Two, these systems can aggregate information relevant to employees' individual roles thus reducing their search time to look for relevant information. According to Lissak and Bailey [21], people in large organisations spend between one-half and two hours per day just looking for the relevant information for their work. By tailoring access to relevant information B2E systems eliminate the need of employees to spend time searching through internal repositories or the web for the information they need in order to carry out for their jobs [17, 20]. Finally, by automating routine tasks such as answering benefits questions, filing expense reports, handling payroll, B2E systems reduce data entry errors thus improving employee efficiency [19].

Furthermore, time saved from searching relevant information enables employees to spend that time on other activities thereby increasing employee productivity [7]. Productivity gains probably pay off even more for managers than employees because B2E systems free up managers who can then spend more time with customers and other strategic concerns by reducing the amount of time they spend on performance appraisals, compensation plans, and other administrative tasks [19].

One of the most important benefits of using B2E systems is increased collaboration within companies [20]. Some B2E systems assist employees in identifying colleagues working in similar areas and putting them in touch with one another, promoting information sharing and collaboration [17]. B2E systems also offer collaboration tools which contribute to increased innovation in product development. According to Lissak and Bailey [21], a global company in which employees have counterparts all over the world, is offering collaboration tools through its B2E portals which allow its projects to progress more quickly and effectively. PeopleSoft, a software company with 9000 employees in 36 countries, runs its own collaborative software through enterprise portal encouraging employee collaboration by accessing virtually any types of business application or information.

When employees find that their organisations are providing them with systems which simplify their work by providing them with better information accessibility, facilitate their decision making and enhance collaboration which could not have taken place without such systems in the past, their satisfaction is raised considerably [21]. This view is supported by Hawking et al. [22] who reported that the use of ESS portal at an Australian public sector organizations led to increased employee satisfaction.

Employees tend to stay at a job for salary, for good management, for education, for exciting work, and for tools that make their lives better [21]. Thus, by giving employees tools that make their lives and work easier, more accessible, and more fulfilling, companies stand a far better chance of retaining the best and brightest people. This view is also shared by McDowall [3] who argue that attention to details, catering within limits for the personal requirement of employees help to foster a better relationship and retain employee loyalty to the extent that is possible. The U.S. Army, for example, is offering eligible enlisted soldiers an innovative e-learning opportunity via a global portal which allows to complete postsecondary degree programs online from anywhere in the world. Access to this education opportunity has caused 16% of eArmy participants to reenlist in 2001 in order to be eligible for the program. In another study, Huang et al. [23] argue that for companies that ally themselves with partner firms, the B2E benefit systems can greatly enable employees to get significant discount on products and services that they would generally not be able to obtain elsewhere. These

systems thus allow employees to provide more with less, meet the needs of a diverse employee group, attract and retain a committed workforce.

In addition, B2E e-business systems also provide three broad benefits to organisations: cost reduction, improved organisational decisions, improved business processes. For companies that still distribute information on paper, B2E systems promise enormous savings because information offered through B2E e-business systems help organisations in reducing costs of printing, photocopying and distribution [20]. According to Hawking et al [22], an Australian public sector organisation that has recently introduced an ESS portal is enjoying significant cost savings with the introduction of online payslips. Moreover, 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.

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 [24].

Another benefit of B2E e-business initiative is the opportunity that organisations receive for improving business process between them and their employees. Such improvements can be achieved by eliminating redundancies in employee related business processes [6], adding controls over business processes to the system [3] and introducing innovative processes like e-training [25]. This view is supported by Dafoulas et al. [15] who argued that those organisations which wish to streamline their entire recruitment and employee selection process also rely upon B2E e-business solutions.

The above description of the various types of benefits from using B2E e-business systems identified from the literature however does not offer any insights about the factors that affect the attainment of these benefits. It is argued that without a clear understanding of the factors influencing the benefits arising from B2E e-business systems, IT and business managers both will be confronted with the difficulties in formulating appropriate policies to ensure that such systems deliver much advocated benefits in their organizations.

### **3. Research Approach**

As this research project is in preliminary stage, an in-depth exploratory case study approach was considered appropriate to address the aim of this research. This is because B2E is a new e-business initiative and, as such, very little systematic information about how organisations receive benefits from the introduction of B2E systems is reported in the scholarly literature. This line of argument is supported by case study gurus Zikmund [27] and Gillham [28] who argued that qualitative case study approach is suitable to explore a problem situation where little is known about the situation. Furthermore, it is argued that B2E e-business initiative is more likely to take place in a dynamic environment because of the complex interplay of a diverse range of organisational factors which may further add to the complexity to the adoption and eventual realisation of benefits from B2E e-business systems. Hence, it is critical to capture the experiences of the relevant people and the context of their actions to understand the benefits arising from implementing B2E e-business systems. Case

studies are particularly suitable for understanding phenomena within their organisational context [29].

The higher education sector in which the case organisation operates was chosen because B2E e-business systems are reported to have recently been undertaken by some leading Australian universities [30]. The selection of the participating university is guided by the illustrative strategy principle [31] because the researcher wanted to illustrate the effects of factors on benefits which could only be observed in an organisation which considers the adoption of such systems to be a great success.

Several interviews were sought from three senior managers: HR manager, business development manager, and ITS manager. These interviewees also granted access to some non-sensitive internal documents relating to the university background and profile of ESS portal. In addition, information was also collected from email communications, archival records, and web site analysis. These in turn helped the researcher to corroborate the information gathered from the interviews.

Each interview lasted for about an hour, was tape recorded, and subsequently transcribed. Interview transcripts were later sent to the interviewees for review and were revised based on their responses. The revised interview transcripts were analysed using a coding scheme that was prepared based on interview protocol. 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. However, interview transcripts were also interpreted to find any emerging themes and relationships.

#### **4. Description of Case**

The participating case organisation is a large university located in a state capital city, Australia. This university was established about 40 years ago, currently employs about 3000 staff, and has nearly 30, 000 students who are enrolled in a range of courses in such disciplines as engineering, IT, business, arts, and health sciences. These courses are offered in several local campuses which are all linked to each other via various ICT facilities. Although, the university does not operate campuses in overseas countries, it still maintains links with many overseas educational institutions. The university has been using an Employee Self Services (ESS) portal acquired from a renowned IT vendor since 2002. The ESS portal is accessed by all employees from their desktops through the university-wide intranet network.

#### **5. Case Study Findings**

##### *Adoption of ESS portal*

The initiative to adopt an ESS portal was conceived by the HR department in early 2002. At that time, the HR department was facing an acute inefficiency problem relation to approving staff leave applications. An enormous delay in approving staff leave applications was taking place due to the manual preparation of printed leave forms filled-out by the university staff. The HR department was receiving about 25,000 leave applications annually and was taking an average of two months to approve each staff leave application. This was totally unacceptable from both university staff and HR department perspectives. The university staff were further required to complete forms to change their personnel data and financial details which also took considerable time

for the HR department to update. Together, these were causing enormous frustration among staff. According to the HR manager:

*“...We pushed the ESS portal because we were facing a real problem in updating employee related information.”*

Another problem related to the manual preparation of leave applications is that the university was incurring substantial costs for making payments to many casual staff who were hired by the HR department to enter leave details from pre-printed forms into the old in-house developed employee record system. The HR department thus wanted to streamline the HR processes to improve employee satisfaction by providing better and prompt services. Thus, the HR manager in consultation with other business managers and IT manager of the university discussed the possibility of acquiring an ESS portal for drastically reducing paperwork. This sentiment is echoed by the HR manager as follows:

*“ESS is an attempt to allow our staff to input data whatever they needed, rather than paperwork that happened then in printed forms that finally reached the HR office for processing. The real aim of introducing ESS was to provide our staff with a very simple and easy access to their own HR data, they can update what is needed, and submit a leave application. Hence, ESS is basically targeted at cutting out hell lot of paperwork.”*

#### *Impact of ESS on Employee Satisfaction*

The adoption of the ESS portal had an impact on employee satisfaction. However, satisfaction of employees was influenced by three important factors: single logon facility, ease of updating HR details, and prompt access to pay-slip, leave, and HR information.

To access the ESS portal, the university staff are not required to logon again once they have already gained access to the university intranet using a password. The ESS portal is seamlessly integrated with the university intranet network and hence it can verify whether an employee is a genuine user based on his/her logon and password details. The single logon feature which the university established for the ESS avoided creating employee annoyance by not performing duplicate logon activities which in turn improved the satisfaction of employees.

Ease of updating relevant HR and banking details through ESS was identified as another important factor that also contributed to the satisfaction of employees. In the past, employees used to fill-up a pre-printed form and send it to the HR department for updating their HR record which took more than 2 weeks. However, ESS has empowered employees to initiate changes in their HR records and thus helped in developing a sense of ownership of their own HR data.

Finally, prompt access to view HR data and pay-slips and the ability to lodge leave application quickly was considered to be a major factor that contributed to the enhancement of employee satisfaction. This view is confirmed when the business development manager made the following remarks:

*“ESS is a big success for us. Our staff use it regularly. They now find it more convenient to lodge leave applications. Whereas in old days, our staff were reluctant to update their relevant HR related data because of paperwork.”*

### *Impact of ESS on the Performance of HR Function*

Performance of the HR function was found to have influenced by four factors: improvements in employee related HR processes, outsourcing data entry tasks from the HR department, close cooperation between consultants and the ESS project team, and continuous management support for the ESS project. Each is briefly described below.

The simplification and subsequent integration of leave lodgment process and a host of other employee-related HR processes occurred during the introduction of the ESS portal in the university. Rules were built into ESS and emails are now sent directly to the approving staff alerting them about the leave applications submitted by their subordinate staff which require their approval. The approving staff has now access to the leave history of the individuals who had lodged applications and after viewing their leave details the approving staff may now grant approval electronically via ESS. Once approval is given through ESS, the portal then issues an e-mail to the concerned university staff notifying them of the status of their applications. This was not possible in the old days. Thus, improvements in the HR processes directly affected the satisfaction level of university employees.

In the old days, data entry from printed leave application forms and HR/financial details update documents was performed by the casual staff hired by the HR department. With the adoption of ESS, this data entry task is no longer performed by the HR department rather it was pushed to the university staff who were given the responsibility to enter their own data relating to leave, HR, and financial details. The outsourcing of mundane data entry task had two major implications. First, the university staff developed a feeling that the university had empowered them to update their own data and thus a sense of ownership of data by the staff developed. Second, the HR department now does not require the involvement of casual staff to manually enter data into ESS. This has resulted in considerable cost savings for the HR department. 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. According to the HR manager:

*“The HR unit has forgone two of the five positions that was mentioned in the business case proposal. We have retained the remaining three positions because of the many new initiatives that were introduced by the HR department which brought in additional work. In other words, we did not increase our staff numbers because we now perform additional tasks.”*

Close cooperation between the ESS project team and business consultants hired from the IT vendor also appeared to have an impact on the success of ESS which in turn affected performance of the HR department. The ESS project team did not know much about the functionalities of ESS product and this knowledge gap was filled in by the consultants who provided expertise in both technical areas (e.g. accessing portals from the PC-based windows environment) and business processes (e.g. simplifying HR and leave related processes). The successful knowledge transfer which took place through close cooperation between the project team and the consultants in turn enabled seamless integration between ESS and other applications of the university. This contributed to establishing a good image of the HR function of the university.

Involvement of the business consultants to integrate ESS with the university-wide intranet network was expensive. The consultants were charging at an average rate of

A\$2000/day. Senior management of the university understood the significance of the ESS project and provided full support by agreeing to pay the high fees of the consultants. 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 department 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. According to the head of the HR unit:

*“After the pilot, I went back to the university council in April, 2003 and reported on the outcomes of the pilot project. A range of issues came out of the appraisal process that had to be dealt with by us. For example, we had the issues where we had some staff who did not want to move from their existing computer platform to the PC environment. But the university management reiterated their support for the ESS project by insisting all staff to have a PC and move on to the sort of common computing system to access ESS.”*

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. In other words, continuous management support which helped in making the ESS project a success was a major contributor for establishing a reputation of the HR function in the university and encouraged the HR department to offer better services to the entire staff community.

## **6. Discussion**

The empirical evidence, presented in the previous section, suggests that the adoption of ESS portal at the university is directed at efficiency improvement. The portal was considered as a solution to reduce: a) administrative costs associated with manual preparation of leave applications, and b) leave processing time. The senior management of the university did not consider ESS to have strategic significance. The portal was not introduced as a solution to discourage staff turnover at the university. Hence, no innovative services (e.g. employee benefits) were included in the portal. The university did not establish a full-fledged employee portal which offers ESS service along with other attractive services to retain its brightest staff. This position received confirmation as the ESS portal was not promoted by the university as a useful B2E solution to attract new staff and retain existing staff. Therefore, unlike the automotive industry in which DaimlerChrysler [16] introduced B2E solution to advance its competitive position by connecting its people through an employee portal, the ESS portal in this university was not seen in that light. It is therefore important that further studies examine this aspect across other industry contexts.

The findings of this study that the adoption of ESS portal by the university increases employee satisfaction is consistent with the observations of Hawking et al. [22] and Lissak and Bailey [21]. However, unlike the study of Hawking et al. [22], this study has identified three factors (e.g. ease of updating, prompt access, and single logon facility) which were found to have contributed to the improvement of employee satisfaction. Ease of updating and prompt access to relevant HR information are however recognised by Huang et al [23] but the effect of using a single logon facility which also influences employee satisfaction has not been reported in the literature.

The three factors reported above, which were found to have influence on employee satisfaction with ESS portals, however need to be evaluated in relation to other types of B2E e-business systems. Hence, it is suggested that further studies be directed to look at the following specific propositions which were developed based on the findings:

- H1: Employee satisfaction is positively related with the existence of a single logon facility offered by a B2E system
- H2: Employee satisfaction is positively related with the degree of prompt access to relevant information offered by a B2E system
- H3: Employee satisfaction is positively related with the degree of ease with which employees can access information through a B2E system

This study has also found evidence in support of ESS to have an impact on the university performance. Consistent with the views expressed in the literature, this study confirms ESS portal to have contributed to the improvement in the overall organisational efficiency by reducing enormous administrative costs. Administrative costs reduction was achieved by eliminating paperwork and avoiding the need of hiring casual staff because data entry is now successfully outsourced to university staff. The ability of the HR department in using ESS to outsource data entry tasks is an important observation which did not receive attention in the literature. Another interesting finding is that in addition to bringing a cost saving by eliminating paperwork, the ESS portal has also reduced the number of full-time HR positions. This finding has an implication because organizations contemplating the introduction of B2E systems supporting self-service functions should expect resistance from the HR people whose job will certainly be threatened by the adoption of such systems. This study has also highlighted the important role of cooperation between ESS project team and consultants as well as continuous support offered by the university management which certainly has facilitated in improving organizational effectiveness and enhancing the image of the HR function to the rest of the university staff community. The role of senior management in facilitating implementation success has long been recognized in the IS/IT literature. Thus, the findings of this study reinforce existing notion about the significance of senior management support in relation to the success of B2E e-business systems.

However, as these findings are drawn from a single case, further investigations are still required to examine the influence of these factors on organizational image and performance caused by the adoption of B2E e-business systems. More specifically, future studies should look at the following propositions which were constructed based on the findings:

- H4: Organisational performance is positively related with the degree of improvements in business processes that take place through a B2E system
- H5: Organisational performance is positively related with the outsourcing of data entry tasks facilitated by a B2E system
- H6: Organisational image is positively related with the degree of support the senior management offers to a B2E system project
- H7: Organisational image is positively related with the degree of cooperation between consultants and B2E systems implementation team

## 7. Conclusion

This paper has presented and analysed the experience of a large Australian university in adopting an ESS portal, a popular type of B2E e-business system. The findings indicate that the adoption of ESS portal has succeeded in improving the satisfaction of employees who are now better able to update their HR/financial details and lodge leave applications. Single logon facility, prompt access to HR details, and greater ease of leave application lodgement through ESS were found to be the determinants that affected employee satisfaction with organisation. The adoption of ESS portal was also found to have an impact on the university because it invited considerable cost savings. Cost reduction was in turn influenced by the streamlining of HR-related processes, outsourcing HR/financial and leave related data entry tasks to employees, and close cooperation between business consultants and the ESS project team.

The findings reported in this paper are useful to HR and IT managers of those organisations which are contemplating the adoption of B2E systems in the near future. This is because as the B2E discipline is very new little systematic evaluations of the impact of B2E systems are widely available in the scholarly literature. The findings further indicate that the adoption of B2E systems does not automatically result in desired benefits; a number of conditions need to be established in organisation to facilitate the attainment of the promised benefits from those systems. This is an important lesson which quite often does not receive attention in the business literature.

The findings provide a starting point for further research. The author has plans to extend this work by developing a model on benefits of B2E e-business systems and test that model statistically using data collected through a comprehensive survey. Other IT/IS researchers may also extend this work in several directions. First, additional multiple case studies selected from different industry sectors are required to explore in more detail the benefits. 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 e-business systems. Second, multiple case studies should be followed by a survey involving a large number of organisations from different industry sectors to further strengthen the findings by testing the suggested propositions and support generalisation of the outcomes. Finally, there is a need to improve the development of an instrument to measure employee satisfaction with B2E systems which should take into account of the factors identified in this paper.

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