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ENTERPRISE SYSTEMS BENEFITS FOR DISTRIBUTION COMPANIES

Empirical
study

Keywords

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M15, M41

Abstract

Many companies' motivation to implement an enterprise system (ES) is the improvement of the core process. For the distribution companies, the adoption of information technologies can open new selling channels. In this article we aim to synthesize the possible benefits of the ESs. In order to do this, we will analyse the benefits reported by a set of distribution companies after adopting ESs. We will address the benefits from the point of view of the ES's vendors. We will use as a research methodology the case study. One of the contributions of our paper will be the development of a theoretical framework for the analysis of the benefits.

1. Introduction

The cost of information technologies in general and the ESs in particular is very big. Thus, we assume that the companies expect benefits to offset the investment. In this article we will analyse the benefits declared by a group of companies. According to Shang and Seddon (2003), ESs are integrated, enterprise-wide, packaged software applications that impound deep knowledge of business practices accumulated from vendor implementations in many organizations. In general, it is considered that the enterprise systems incorporate the best practices that exist in a domain. Previous studies report that one motivation when selecting an enterprise system is the fit between the system and the company. So, we considered reasonable to analyse the benefits obtained by companies in a specific activity domain. Therefore, we selected the wholesale trade and distribution domain. Dealing generally with a big number of products, the globalization and facing rapid development of new selling channels (such as the Internet and Social media), this domain is particularly interesting for the implementation of the ESs.

The remainder of the paper is organized as it follows: first, we present a literature review and we introduce a few theoretical frameworks for the analysis of the benefits; next, we briefly introduce the characteristics of the wholesale trade and distribution domain; the presentation of the research methodology follows; the paper ends with the discussion of the results and our conclusions.

2. The benefits of ESs

Previous papers have classified the benefits of the companies incorporating ESs using different criteria, as presented in Table 1.

Two factors that affect the benefits identified from ESs implementation and employment are the stage when the benefits are assessed and the motivation for adopting the system (Esteves, 2009). Thus, some studies split the benefits according to the implementation stage, into intermediate ERP benefits and overall ERP benefits (Gattiker and Goodhue, 2005). A connection between the motivation for the ESs adoption and the benefits perceived is outlined by other studies, too (Velcu, 2007). This connection would enable the measurement of the achievement of the desired goals of ESs (Chand et al., 2005).

Many previous studies didn't find a positive relationship between the investment in IT and the performance of the company (Poston and Grabski, 2000), as the performance is determined by many other factors, or found mixed results (Hendricks et al., 2006). Yet, Hunton et al. (2003) report a decrease in performance for the non-adopters, which shows that the companies should adopt ESs in order to stay competitive (O'Leary, 2004). Floyd

and Wooldridge (1990) show that the effect of IT investment on performance is modestly positive or neutral, while when IT is strategically misaligned, its impact on performance is negative. An ES should be selected if it corresponds to the company's strategy.

A central factor in the implementation of an ES is the redesign of the internal processes of the organization to simplify the operations for faster decision-making (Bingi et al., 1999; Summer, 2000; Somers and Nelson, 2004). An implementation transforms the organization. Previous studies report efficiency benefits in the post-implementation years (Velcu, 2005). More benefits after additional experience are reported by Shang and Seddon (2003) as well.

Seddon et al. (1999) argue that it is pointless to talk about the benefits of IT systems without referring to them from the point of view of a specific group of stakeholders. Automating the business processes can generate benefits in the relationship of the company with the customers, as when a company is using an ES it realizes that it can use it to conduct the processes which involve the stakeholders (Chand et al., 2005). ES use enables the companies to transform their processes to provide value-added services to stakeholders. Improved service time in accounting tasks and improved access to information may lead to improved customer service (Velcu, 2007). In other words, from the balanced scorecard perspective, internal benefits generate customer benefits and financial benefits.

Sometimes, identifying the benefits generated by the ESs adoption may be difficult, especially in the case of the intangible benefits (Law and Ngai, 2007). Also, categorizing the benefits is difficult.

3. The characteristics of the wholesale trade and distribution domain

The wholesale trade and distribution companies sell merchandise to retailers. These companies sell any type of goods. They can sell many types of products or a limited range of products, coming from only one producer. In U.S., for instance, this industry offers one out of 20 jobs. The competition they face is very big and the margins they use are generally low. They depend on selling big quantities of merchandise. Most of the companies employ a small number of persons. These companies may offer other services to their customers, such as financing the purchases or technical support.

These companies track billions of orders and maintain incredible amounts of data. Given the characteristics of the industry, the managers are using the data to add value to customers, grow revenue, and identify opportunities for improvement that deliver bottom-line growth (NAW, 2014). The use of the information technologies was offering a competitive advantage

ten years ago. Now, it is a necessity to stay competitive and it changed the way distributors are doing business. Thus, distributors are continuously investing in technology. Among the benefits obtained from this investment, they mention sharing information within the company, improving customer satisfaction, process efficiency, cost control, profitability growth. IT investment (in the form of internet and Web applications, mobility solutions, CRM, social media applications and/or business analytics) is considered by the biggest number of distributors.

The selling strategies of the wholesale trade and distribution companies vary greatly. Nowadays, these companies focus on e-commerce.

4. Research methodology

Our first research hypothesis article was:

H1. Companies in different activity domains tend to notice different benefits from the implementation of ESs.

We wanted to see how we can classify the benefits of the wholesale and distribution companies. In order to do this, we downloaded the success stories provided by SAP customers at the link: <http://www.inecom.com.sg/success-stories/wholesale-trade-distribution>. All the implementations were made by a SAP Gold Partner, Inecom. In total, eight success stories for this activity domain were disclosed. Our analysis was of a qualitative type: we read the stories, identified the benefits and categorised them according to the five theoretical frameworks presented in Table 1. For each success story we collected: industry, key challenges, project objectives, motivation for choosing the ES, previous difficulties, key benefits. All the companies are in the post-implementation phase.

One of the aims of our study was to test the theoretical frameworks developed in previous works in the specific context of this activity domain. In this case, our second research hypothesis was:

H2. The theoretical frameworks can be developed in order to capture the characteristics of all the activity domains.

5. Results of the study

The number of benefits reported by each company is presented in Table 2.

In total, we identified 57 benefits. The benefits were further codified and categorized. The benefits identified are summarized in Table 3.

The most mentioned benefit was the increase in productivity and better processes (six out of eight companies), followed by better reports and accuracy. We notice that each of the benefits: debtors' reduction, improved image, increased sales volume, restrictions regarding the data integration and supply chain efficiency were

mentioned only once. These benefits were generated by the company's motivation to adopt the ES. For instance, the company mentioning the supply chain efficiency as a benefit adopted the system for a tighter and seamless integration with the partners' systems. The increased sales volume was mentioned by a company which purchased the system because it wanted to offer its distributors new opportunities to place an order. As the company was not very big, it couldn't change its margins. Thus, in order to stay competitive, it needed to create another advantage. After analysing the database, we noticed that no company mentioned the increase in performance as a benefit. Even though all the companies in our sample mentioned as motivation to buy the system Inecom's professionalism and three of them purchased a new system because the old vendor exited their market, only two of them considered the support of the vendor as a benefit.

6. Discussion and conclusions

Our first hypothesis was: Companies in different activity domains tend to notice different benefits from the implementation of ESs. Three categories of benefits were addressed mostly by previous authors: performance, internal processes redesign, changes in the relationship with the stakeholders. In our study, which was conducted only for wholesale trade and distribution companies, the most mentioned benefits were increase in productivity, better processes, better reports and accuracy. The performance wasn't mentioned by any company. The customers were the only category of stakeholders mentioned. Yet, we consider that the better reports and the accuracy are mentioned as some of the most important benefits because of the characteristics of this industry. So, our first hypothesis is tested.

Regarding the second hypothesis of our study (The theoretical frameworks can be developed in order to capture the characteristics of all the activity domains), in our analysis, we tried to map the benefits identified with the categories mentioned in Table 1. The number of benefits in each category is presented in Table 4.

In our opinion, the best representation of the benefits is offered by the classification suggested by Soja (2005). Yet, we think that the first category – economic (which refers to the company's economic condition, including financial resources and costs) should be renamed as performance. In our opinion, the term performance is more comprehensive, dealing also with the part of revenues and consequently with the part of profit.

Another change that we suggest refers to the theoretical framework suggested by Boulianne, 2007; Duh et al., 2006; Hoque and James, 2000; Ittner and Larcker, 1998. Many developments were made to the Balanced Scorecard during the last

years. Thus, in 2001, Hockerts (cited by Biecker et al., 2001) suggested that companies should prepare the Sustainability Balanced Scorecard, which includes a fifth dimension, Society. We consider that this dimension should be included in the classification of the benefits obtained from an ES's implementation, too.

So, we consider that our second hypothesis was tested.

One of the contributions of our study is that we analysed the benefits from the point of view of one activity domain. Another contribution was that the study used five different theoretical frameworks for the classification of the benefits. A limitation of the paper was that we used only eight companies in our study.

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Reference list:

- [1] Bieker, T., Dyllick, T., Gminder, C. U., Hockerts, K. (2001): “Towards a Sustainability Balanced Scorecard. Linking Environmental and Social Sustainability to Business Strategy”, Research Working Paper, *Institute for economy and Environment University of St. Gallen, INSEAD*
- [2] Bingi, P., Sharma, M.K., Godla, J.K. (1999): “Critical Issues Affecting an ERP Implementation”, *Information Systems Management*, Vol. 16, Issue 3, pp.7-15
- [3] Boulianne, E. (2007): “The Weighting Effect of Balanced Scorecard Dimensions on Performance Evaluation”, *30th Annual Congress European Accounting Association, 25-27 April 2007*, pp.219
- [4] Chand, D., Hachey, G., Hunton, J., Owoso, V., Vasudevan, S. (2005): “A balanced scorecard based framework for assessing the strategic impacts of ERP systems”, *Computers in Industry*, Vol. 56, pp.558-572
- [5] Deloitte Consulting (1998): “*ERP's Second Wave*,” New York, Deloitte Consulting
- [6] Duh, R.R., Chow, C.W., Hueiling, C. (2006) “Strategy, IT applications for planning and control, and firm performance: The impact of impediments to IT implementation”, *Information & Management*, Vol. 43, pp.939-949
- [7] Esteves, J. (2009): “A benefits realisation road-map framework for ERP usage in small and medium-sized enterprise,” *Journal of Enterprise Information Management*, vol. 22, no. 1/2, pp. 25-35
- [8] Floyd, S.W., Wooldridge, B. (1990): “Path Analysis of the Relationship between Competitive Strategy, Information Technology, and Financial Performance,” *Journal of Management Information Systems*, Vol. 7, No. 1, pp. 47-64
- [9] Gattiker, T.F., Goodhue, D.L. (2005): “What happens after ERP implementation: understanding the impact of interdependence and differentiation on plant-level outcomes,” *MIS Quarterly*, 29(3), pp. 559–585
- [10] Gefen, D., Ragowsky, A. (2005): “A multi-level approach to measuring the benefits of the ERP system in manufacturing firms,” *Information Systems Management*; Winter 2005; 22, 1
- [11] Hendricks, K.B., Singhal, V.R., Stratman, J.K. (2006): “The impact of enterprise systems on corporate performance: A study of ERP, SCM, and CRM system implementations”, *Journal of Operations Management*, 25, pp. 65-82
- [12] Hoque, Z., James, W. (2000): “Linking Balanced Scorecard Measures to Size and Market Factors: Impact on Organizational Performance”, *Journal of Management Accounting Research*, Vol. 12, pp.1-17
- [13] Hunton, J., Lippincott, B., Reck, J.L. (2003): “Enterprise resource planning systems: comparing firm performance of adopters and nonadopters,” *International Journal of Accounting Information Systems*, vol. 4, issue 3, September, pp. 165-184
- [14] Ittner, C.D., Larcker, D.F. (1998): “Innovations in Performance Measurement: Trends and research Implications”, *Journal of Management Accounting Research*, Vol. 10, pp.205-238
- [15] Law, C., Ngai, E. (2007): “ERP systems adoption: an exploratory study of the organizational factors and impacts of ERP success,” *Information & Management*, 44, pp. 418-432
- [16] NAW (2014): 2014 McGladrey Distribution Monitor Report, available on-line at: http://www.naw.org/tmp/2014_distribution_monitor_report.pdf (accessed 22nd September, 2014)
- [17] O'Leary, D.E. (2004): “Enterprise Resource Planning (ERP) Systems: An Empirical Analysis of Benefits,” *Journal of Emerging Technologies in Accounting*, vol. 1, pp. 63-72
- [18] Poston, R., Grabski, S. (2000): “The impact of enterprise resource planning systems on firm performance.” In *Proceedings of International Conference on Information Systems*, 479-493, Brisbane, Australia, December 10-13

- [19] Seddon, P., Staples, S., Patnayakuni, R.,Bowtell, M. (1999): “Dimensions of Information Systems Success,” *Communications of AIS*, 2
- [20] Shang, S.,Seddon, P. (2003): “A Comprehensive Framework for Assessing and Managing the Benefits of Enterprise Systems: The Business Manager’s Perspective,” in *Second-Wave Enterprise Resource Management Systems. Implementation and Effectiveness*, edited by Shanks, G., Seddon, P.,Willcocks, L., Cambridge University Press
- [21] Soja, P. (2005): “The impact of ERP implementation on the enterprise – An empirical study.” In W. Abramowicz (Ed.), *Proceedings of 8th International Conference on Business Information Systems*, pp. 389 – 402,Poznań, Poland
- [22] Somers, T.M., Nelson, K.G. (2004): “A taxonomy of players and activities across the ERP project life cycle,” *Information & Management*, vol. 41: 257-278
- [23] Sumner, M. (2000): “Risk factors in enterprise-wide ERP projects”, *Journal of Information Technology*, Vol. 15, pp. 317-327
- [24] Velcu, O. (2005): “Impact of the Quality of ERP Implementations on Business Value”, *Electronic Journal of Information Systems Evaluation*, Vol. 8, No. 3, pp.229-238, available online at www.ejise.com
- [25] Velcu, O. (2007): “Exploring the effects of ERP systems on organizational performance – Evidence from Finnish companies”, *Journal of Industrial Management and Data Systems*, Vol. 107, No.9, pp. 1316-1334.

Appendices

Table No 1.

Categories of benefits reported by previous studies

Study	Categories of benefits
Soja, 2005	<i>Economic, technical, organizational, and social benefits</i>
Gefen and Ragowsky, 2005	<i>Overall benefit, organizational profitability, market competition, cost reduction</i>
Boulianne, 2007; Duh et al., 2006; Hoque and James, 2000; Ittner and Larcker, 1998	<i>Analyse the benefits through the Balanced Scorecard perspective: internal processes dimension, customer dimension, learning and growth dimension, financial dimension</i>
Deloitte Consulting, 1998	<i>Tangible and intangible benefits</i>
Shang and Seddon, 2003	<i>Operational, managerial, strategic, IT infrastructure, organizational</i>

Note.Source: compilation of the author

Table No. 2.

Number of benefits identified by each company

Company	Number of benefits
1	5
2	9
3	4
4	13
5	4
6	5
7	6
8	11
Total	57

Note.Source: compilation of the authors

Table No. 3.

Summary of benefits reported

Benefit	1	2	3	4	5	6	7	8	T
1 Better reports	x	x		x	x			x	5
2 Time reduction	x					x		x	3
3 Increase in productivity	x		x	x	x		x	x	6
4 Better control (cost, inventories, staff, processes)		x			x		x	x	4
5 Debtors' reduction		x							1
6 Better processes	x	x		x		x	x	x	6
7 Improved image		x							1
8 Better customers' satisfaction		x	x						2
9 Increased sales volume			x						1
10 Support of the vendor				x	x				2
11 Restrictions regarding the data integration				x					1
12 Real time information		x		x		x		x	4
13 Accuracy	x			x	x	x		x	5
14 Supply chain efficiency						x			1

Note.Source: compilation of the authors

Table No. 4.

Number of benefits in each category

Author	No of benefits
Soja, 2005	<i>Economic – 18</i>
	<i>Technical – 12</i>
	<i>Organizational – 22</i>
	<i>Social – 5</i>
Gefen and Ragowsky, 2005	<i>Overall – 39</i>
	<i>Organizational profitability – 0</i>
	<i>Market competition – 6</i>
	<i>Cost reduction – 8</i>
Boulianne, 2007; Duh et al., 2006; Hoque and James, 2000; Ittner and Larcker, 1998	<i>Internal processes – 40</i>
	<i>Customer – 6</i>

	<i>Learning and growth – 1</i>
	<i>Financial – 10</i>
<i>Deloitte Consulting, 1998</i>	<i>Tangible – 49</i>
	<i>Intangible – 8</i>
<i>Shang and Seddon, 2003</i>	<i>Operational – 35</i>
	<i>Managerial – 17</i>
	<i>Strategic – 2</i>
	<i>IT infrastructure – 1</i>
	<i>Organizational – 2</i>

*Note.*Source: compilation of the authors

