

# GET TOGETHER

## *A Case of ERP Implementation and its Transfer to Class*

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Abstract: Regardless of how well designed and functioning the Enterprise Resource Planning (ERP) system is, the dimensioning factor for ERP utilization will be the users themselves. In this paper, we report from a case study of a medium-sized manufacturing company that took an alternative approach to their ERP procurement and implementation. Through involving multiple process owners in a series of workshops with the scope of specifying the as-is and to-be process of the business, the company focused on getting the users involved from the start. A selection of the findings in this case has been used as inspiration for a course-module for teaching ERP, and this paper reports from the case and the transfer of experience into class.

## 1 INTRODUCTION

Enterprise Resource Planning (ERP) projects are illustrious for going over budget, under scope and over time (Davenport, 1998; Upton & Staats, 2008). Gartner Group (Ganley, 2008) report that in 85% of all the implementations, the projects failed to deliver on time, scope and budget.

The reason for this high degree of failure can be found in the complex nature of the projects. Through involving both changes on the business process- as well as the information technology (IT) side, the projects are associated with a high risk of failure (Aladwani, 2001; Sammon & Adam, 2010; Hakim & Hakim, 2010).

To alleviate this high risk of failure, researchers, consultants and professional analysts alike have studied what they refer to as “critical success factors” of ERP implementations. The number of research articles within this tradition have, however, suffered from being overly normative and at many times devoid of empirical foundation (Hong & Kim, 2002; Kumar et al, 2003).

Regardless of this, the “common ground” when it comes to CSFs for ERP implementations include explicit top management support, flexibility in

additional funding, and user involvement (Ganley, 2008).

Following up on the last of these CSFs (user involvement), we have conducted a case study of a Swedish medium-sized manufacturing company. After conducting the case study, we transferred the results into the design of a course module for teaching ERP. This course module was implemented into the curriculum from November 2008.

Several researchers have spent a considerable amount of time and effort in integrating ERP into the curriculum of higher education (David et al, 2003; Hawking et al, 2002; Hayen & Andera, 2005; Magnusson et al, 2009; Nelson, 2002; Roseman et al, 2001; Wixom, 2004). This article aims to contribute to this tradition.

The purpose of this paper is to report some of the findings of the case, together with the design of the course module.

## 2 METHOD

The case was selected for the company’s successful ERP procurement and implementation. This level of success was based on their own assessment.

The company (Hestra Inredning AB, Hestra) is a medium-sized, family-owned manufactory company. Being formed in 1900, it is one of Scandinavia's leading actors within the shop-fitting sector.

The case study involved a short pre-study where respondents in the form of one consultant and one representative of the company were approached to give introductory information and potential access to the company.

After this, on-site interviews with five representatives of the company followed. The interviews were semi-structured and took approximately one hour to conduct. The interviews were sound-recorded and fragments that were regarded to be of particular interest to the researchers were transcribed.

Following this, a short description of how the company went about with their procurement and implementation was constructed, and this description was sent back to the respondents for feedback. After taking the feedback into account and altering the description, the researchers continued to transform the case into a methodology for teaching ERP. This resulted in a course module that was implemented for the first time in 2008.

### 3 THE CASE OF HESTRA

In the fall of 2005, the Chief Financial Officer of Hestra was at wits end in regards to what the company should do with their current ERP system. The current system (Intentia (Lawson) Movex) had been installed in 1998, and had since proved to be difficult to manage and in dire need of an upgrade. After a brief analysis of what the costs of the necessary upgrade would be, an alternative plan was set into effect.

The company's idea was to investigate the pre-requisites for the procurement of a new ERP system. After initial discussions with a local consulting firm, the idea arose that any steps towards a new ERP system would require a thorough analysis of the current operations.

Hestra was currently organized in a process oriented manner. For Hestra, this entailed having organized their operations into production-related and supporting processes, and with individual co-workers assigned roles of process-owners.

The process-oriented approach was initiated as an effect of demands from the customer side, where Hestra had to comply with environmental standards in order to maintain their Tier 1 status. This involved adhering to process standards such as ISO9000 and

ISO14000, which put a strong emphasis on the link between documentation and the current (factual) process configuration.

Even though Hestra had been working for quite some time in a process-oriented manner, there was a lack of overall business understanding. The process owners were well adept and fully in tune with their individual processes, yet after a short evaluation in December 2005, it quickly became apparent that the hand-off between the different processes was not explicitly known.

#### 3.1 Mapping the Processes

In June 2006, the sub-process owners were brought together to specify the *as-is* and the *to-be* processes. The idea behind this was that a large portion of the benefits of the ERP implementation would become visible in the hand-offs between the different sub-processes, and not only through making the sub-processes themselves more efficient.

Hence, a series of workshops were held where the sub-process owners were asked to describe their processes to the rest of the owners. This was intended to awaken discussion in regards to how the process was configured and what possible issues could be found in the current configuration.

In retrospect, the sub-process owners all saw this as somewhat of a break-through for operations. Previously, they had been highly adept in their own process, yet at the same time they were unaware of what the implications of hybrid routines and improvisation would be for the activities further down the stream.

This series of workshops resulted in a higher joint understanding and common ground in regards to what the business process really was at Hestra. All the participants in the workshops were given a heightened understanding of how value was created at Hestra. At the same time, they reported a higher level of involvement in the daily operations, along with a strong will to work for constant process improvement.

The explicit results of the workshops were process maps of the five key processes for Hestra. This collection of process maps was then handed over to three previously selected ERP system vendors (Lawson, Microsoft and Jeeves) as the main part of the requirements specification.

#### 3.2 Procurement and Implementation

The instructions for the ERP vendors was that they should show how their product would be able to

support the five identified processes according to the specified configuration. This was done in the form of a series of workshops where the vendors demonstrated their products directly in the processes.

Out of the short-listed vendors, only one was seen as complying with the requirements specified by Hestra. This was due to that the bulk of vendors stuck to a traditional functional description of what the ERP system could do, and did not amply respond to the process oriented requirement specification.

By early fall of 2006, an agreement was reached between Hestra and one of the ERP vendors. Since the sub-process owners had been so involved in the requirements specification, the next step was to assign them the roles of power-users in the new system.

This involved increasing the product specific knowledge of the sub-process owners so that they would be able to assist in the roll-out of the new system. The training was conducted between February and June 2007, and one of the outcomes of this was a unique set of training material and user instructions for Hestra.

Since the sub-process owners were well adept with both the processes and the system, they were asked to take over the creation of user instructions. This was seen as an important step to avoid any lock-in and dependency of external consultants.

The ERP system was put into operations in December 2007, after a continuous and automatic conversion of the necessary posts and master data. This entailed that the new system was run in the background, with the same data as the original system. Through working with two parallel systems, the go-live was not a traditional go-live with all the associated risks, but rather a shut-down of the old system and a continued operations in the new. This resulted in the switch being almost completely free from the traditional problems and risks.

### 3.3 Transferring the Experience into an Educational Setting

After going through the case of Hestra, a group of consultants and lecturers started to exchange ideas about if and how some of the experiences made could be transferred over to an educational setting.

It quickly became apparent that the lessons learned from Hestra could be transferred into courses involving elements of ERP training. After careful consideration, the group arrived at the following list of assumptions for integrating the

lessons learned from Hestra into a course module for ERP education:

- A process-oriented approach could be used to shift the pedagogical focus from technical exercises to an increased understanding of the business and the integrated nature of ERP systems
- The users should have an overall process to work with, and be put in charge of sub-processes
- The users should explain what their sub-process is to other users working on the same overall process but with adjacent sub-processes
- The users should explain how their sub-process utilizes the functionality of the system
- The users should be engaged to discuss the potential shortcomings and risks associated with using the ERP system as process support

In 2008, a course module was designed and implemented into an existing course on ERP systems at the University of Gothenburg in Sweden. The lessons learned from this experience were reported by Magnusson et al (2009) and involved both technical and pedagogical aspects that needed improvement. Overall, the result of the first attempt at implementing the module into the curriculum was regarded to be a success (Magnusson et al, 2009).

Following up on this success, a new attempt was made in the fall of 2009. In this course (“Applied Enterprise Systems”) the students were divided into groups of 5-8 students and attributed roles following the illustration below. They were then given a set of exercises that involved them running both the entire order-to-cash cycle by themselves, and, focusing more in detail on their particular sub-process and the functionality utilized for running this sub-process.

After an introduction to the system (this was the first time the majority of the student body came in contact with this particular system), the students were given access to a Software-as-a-service environment where the ERP system was implemented.

The first exercise that the students completed was a full order-to-cash cycle with the case of a business opportunity appearing at a trade fair. They then managed the customer, placed the order and made sure that the order was delivered and an invoice sent to the customer. This involved several different user roles, whereby the first instance of the system had the role of “CEO”, so that the students had full access to the functionality.

The second exercise involved the students being assigned particular roles (marketing assistant, et cetera), where they had to go deeper into the

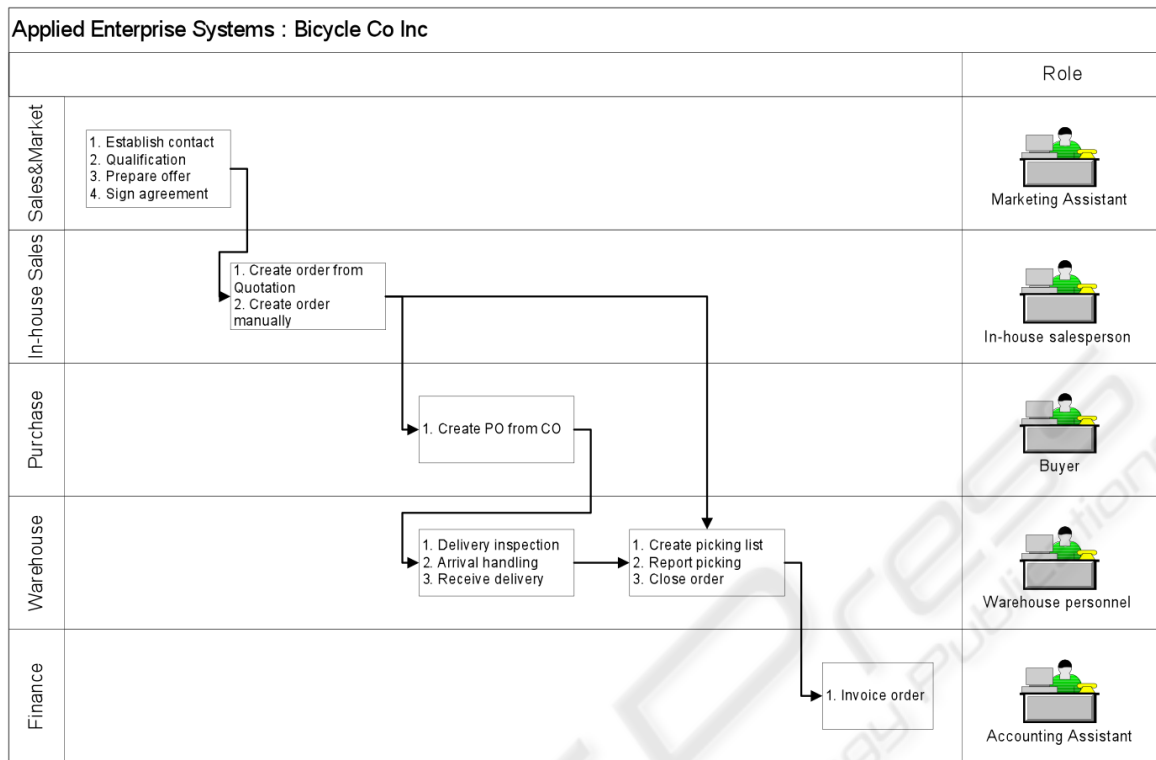


Figure 1: Processes, functions and roles.

particular functionality that their role had access to. In tandem with this, they were given access to a process-portal where the complete process that their particular role was part of became visible for them.

Throughout the exercise, the students had full access to the user instructions and system documentation, and consultants were on site to answer any questions that might arise.

After these two exercises, a debriefing was scheduled. Working with lessons learned from the previous attempt, the lecturers decided to conduct the de-briefing without involving the students in running the system on stage. Instead, one consultant took charge of running the entire process, and a lecturer was in charge of engaging the class in a discussion.

This discussion was considered valuable through the different questions that were raised. The students were given an increased understanding of how both a company and an ERP system works. With this debriefing conducted in the last week of class, it was considered to be a usable method for going through all the learning objectives of the course.

#### 4 DISCUSSION

As shown in the case of Hestra, an early involvement of the users into the ERP procurement and implementation process was considered to be a major success-factor for the company. Taking the experience from Hestra as a starting point for the design and implementation of a course-module on ERP, the group of lecturers and consultants worked with a set of assumptions. In Table 1, the lessons learned related to each of these assumptions is presented.

As a side note, the implications of taking a starting point in a case of ERP procurement and implementation that differs from the main stream has several implications. On the one hand, it could be seen as ethically questionable, since the students are introduced to a style of procurement and implementation that differs from much of what is currently the de-facto standard. Since the students are not adept with ERP procurement and implementation, they are not in a position where they can question the approach. At the same time there is a lack of research showing that this approach is advisable for organizations.

Table 1: Assumptions and Lessons-learned.

| Assumptions  | Lessons-learned   |
|--|---|
| A process-oriented approach could be used to shift the pedagogical focus from technical exercises to an increased understanding of the business and the integrated nature of ERP systems | The process-oriented approach aids the students in attaining a higher level of knowledge on the links between the business and ERP system. The experience is initially highly difficult for the students, if they lack practical business understanding.  |
| The users should have an overall process to work with, and be put in charge of sub-processes   | The overall process needs to be communicated in a manner that allows the students to navigate and explore the process themselves. Process mapping tools such as Visio and work-flow tools provide one means for achieving this. This process should have the overall as well as all sub-processes fully specified, with user instructions integrated so that the students have to start with the process and then move towards the functionality. |
| The users should explain what their sub-process is to other users working on the same overall process but with adjacent sub-processes  | This proved to be asking too much of the students, and during the second implementation of the course-module this was avoided. Instead a consultant was set to in front of the group run through the process and sub-processes and allow the students and faculty to ask questions. This proved to be a better approach for reaching the learning objectives of the course-module.  |
| The users should explain how their sub-process utilizes the functionality of the system  | See above.  |
| The users should be engaged to discuss the potential shortcomings and risks associated with using the ERP system as process support  | This proved to be a great means for achieving the overall learning objectives of the course on ERP systems. A number of interesting and thought-provoking questions arose during the debriefing that aided the students in acquiring a more thorough understanding of the limitations and potential of ERP systems.   |

On the other hand, it could be considered a means of showing the students that there are multiple means of approaching the difficulties associated with ERP procurement and implementation. Provided that there is time for a discussion in regards to the singularity of this approach, related to an overall ERP discussion and that the students are given the possibility of reflecting about the process, this is not considered to be a substantial draw-back of the approach.

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## REFERENCES

- Aladwani, A.M. (2001). "Change management strategies for successful ERP implementation". *Business Process Management Journal*, 7(3): 266-75
- Davenport, T.M. (1998). "Putting the enterprise into the enterprise system". *Harvard Business Review*
- David, J.S., Maccracken, H. & Reckers, P.M.J. (2003). "Integrating technology and business process analysis into introductory accounting courses". *Issues in accounting education*, 18(4):417-425
- Ganley, D. (2008). Address give key factors for successful ERP implementations. Gartner Group.
- Hakim, A. & Hakim, H. (2010). "A practical model on controlling the ERP implementation risks". *Information Systems*, 35(2):204-214
- Hawking, P., Foster, S. & Bassett, P. (2002). "An Applied Approach to Teaching HR Concepts Using an ERP System". *Proceedings of InSITE – "Where Parallels Intersect"*, InformingScience, pp. 699-704.

- Hayen, R.A. & Andera, F.A. (2005). "Investigation of the integration of SAP enterprise software in business curricula". *Issues in Information Systems*, VI(1):107-113.
- Hong, K.-K., & Kim, Y.-G. (2002). "The critical success factors for ERP implementation". *Information & Management*, 40(1): 25-40
- Kumar, V., Maheshwari, B. & Kumar, U. (2003). "An investigation of critical management issues in ERP implementation: empirical evidence from Canadian organizations". *Technovation*, 23(10): 793-807
- Magnusson, J., ENquist, H., Oskarsson, B. & Gidlund, A. (2009). "Process methodology in ERP-related education: A case from Swedish higher education". *BIS 2009 Conference post-proceedings*.
- Nelson, R. (2002). "AMCIS 2002 Workshops and Panels V: Teaching ERP and Business Processes Using SAP Software". *Communications of the AIS* 9:392-402.
- Rosemann, M, Scott, J. & Watson, E. (2001). "Collaborative ERP Education: Experiences from a First Pilot". *Proceedings of AMCIS 2001*, pp. 2055-2060.
- Sammon, D. & Adam, F. (2010). "Project Preparedness and the emergence of implementation problems in ERP projects". *Information & Management*, 47(1):1-8
- Upton, D.M. & Staats, B.R. (2008). Radically simple IT. *Harvard Business Review*
- Wixom, B. (2004). "Business Intelligence Software for the Classroom: Microstrategy Resources on the Teradata University Network". *Communications of the AIS*. 14: 234-246.