Evaluating The Training Requirements Of ERPII Implementations

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Abstract
Underinvestment in training during ERPII implementations is having a significant impact upon benefits realisation. There is a lack of research covering the training requirements of customer facing organisations implementing ERPII. Literature shows that training attracts the smallest proportion of the implementation budget. However, the current research highlights the critical role training plays in these systems and that pre- and post-implementation training should not be underestimated for the full benefits of the system to be realised. This paper presents nine CSFs required for ERPII implementation in customer facing organisations and outlines recommendations for tackling each. A case study was undertaken to identify resource allocation during the implementation lifecycle and training guidelines were prepared following in-depth interviews with client and supplier consultant practitioners.

Keywords: ERPII implementation, End-user Training, Post-implementation Training, Knowledge Workers
EVALUATING THE TRAINING REQUIREMENTS OF ERPII IMPLEMENTATIONS

Abstract

Underinvestment in training during ERPII implementations is having a significant impact upon benefits realisation. There is a lack of research covering the training requirements of customer facing organisations implementing ERPII. Literature shows that training attracts the smallest proportion of the implementation budget. However, the current research highlights the critical role training plays in these systems and that pre- and post-implementation training should not be underestimated for the full benefits of the system to be realised. This paper presents nine CSFs required for ERPII implementation in customer facing organisations and outlines recommendations for tackling each. A case study was undertaken to identify resource allocation during the implementation lifecycle and training guidelines were prepared following in-depth interviews with client and supplier consultant practitioners.

1.0 Introduction

Enterprise Resource Planning (ERP) is a software system that operates through a centralised relational database and, as such, is capable of integrating business processes within organisations (Ross & Vitale, 2000). This type of system offers end-users the ability to use organisational information for both pro-active and re-active interaction with the customer (Pan & Lee, 2003). ERPII, which is the next generation of enterprise systems, aligns organisational processes with the external environment, helping organisations to undertake extended enterprise initiatives (Bond et al., 2000). The use of ERPII to improve customer satisfaction has had a direct effect in achieving greater financial gain (Tsamantanis & Kogetsidis, 2006).

In today’s knowledge driven economy, customer facing organisations (CFOs) are relying more heavily on ERPII systems in order to manage growing customer expectations. Establishing the most effective customer facing processes has been cited as a CSF in achieving benefits realisation (Al-Mashari & Al-Mudimigh, 2003; Ward et al., 2005). Whilst the phasing of these customer facing CSFs has been addressed (Norton et al., 2011), understanding the role of training in delivering benefits realisation has not.
Initial research estimated that for a successful ERP implementation, 15% of the overall budget should be invested in training (Vincent et al., 2001; Volwer, 1999). However, more recently it has been recognised that there is widespread underestimation of the necessary level of training required to implement an ERP system successfully (Umble et al., 2003). More recently, King and Burgess (2008) suggest the need for more research in ERP training programmes which incorporate customer relationship management initiatives.

2.0 Research design and methodology

2.1 Case Study

ERP implementations are complex; they embrace change at many levels and different aspects are affected which all need monitoring simultaneously (Benbasat et al., 1987; Yin, 1989). A detailed single case study is best suited this research, which is a longstanding method for undertaking IS research (Franz & Robey, 1984). This type of analysis allows for the conversion of observations of complex issues and assists greatly in addressing qualitative issues (Bonoma, 1985).

A case study was undertaken within a CFO which successfully implemented ERPII. The organisation was a large UK Local Authority serving a population of 477,770, with a staffing capacity of 6,000. The ERPII system was seen as a strategic tool to support a customer focused vision and £170m was invested into this project. The main aim of this system was to improve efficiency and customer service (Marshall, 2008). The case study involved the primary researcher undertaking a five-month placement as training officer within the project team and conducting an in-depth interview with the head of training two years post implementation. In addition, to fully understand the training requirements of the implementation process, interviews were undertaken with senior consultant practitioners from seven ERPII supplier organisations. Each practitioner interviewed had over 20 years experience working within the field of ERP implementation, having tackled over 500 implementations between them.

The six sources of evidence listed by Yin (1994) were incorporated into the research methodology which formed participant observations (Easterby-Smith et al., 1993).
Observational research enables descriptive research of the behavioural patterns of the implementation, in its natural environment (Hunt et al., 1982). The method of conducting research within an organisation has been successfully used in previous ERP implementation research wherein the author undertook the role of the “neutral observer” (Akkermans & Van Helden, 2002 p37).

2.2 Interview analysis of consultant practitioners

Structured interviews were undertaken in order to understand which of the resource allocations contributed towards the realisation of benefits initially outlined. Validation of the observations made regarding training-related issues during the work placement was undertaken by means of face-to-face interviews (Hodgson, 1987). The seven stages of interview design described by Kvale (1996) were incorporated for reliability. The questionnaire prepared for the head of training was structured around specific issues identified during the work placement. A funnel approach was used (Bickart, 1993), whereby a general open (non-bias) question regarding each specific issue was followed by a leading question if the respondent had not raised the point at the outset. Special attention was paid to the terminology (Couper, 1996; Edmondson, 1996; O’Brien, 1984) to avoid ambiguity (Abramson & Ostrom, 1994; Bollinger, 2001; Stout, 1994). Key factors were identified following the interviews with the seven experienced consultant practitioners from ERPII supplier organisations.

2.3 Critical success factor analysis

Some of the earliest research in the field of information systems (IS) adopted a CSF methodology (Rockart, 1979; Rockart & Flannery, 1983), and it is now a standardised methodology for this type of research. Studies have reviewed and ranked CSFs identified for ERP implementations (Finney & Corbett, 2007; Somers & Nelson, 2001).

The Benefits Realisation Capability model of Ashurst et al. (2008) was used to locate training issues at appropriate stages of the implementation lifecycle. The training observations were examined in context of their location within the lifecycle.
2.4 Data analysis

Comparing client project team consultants’ perspectives with supplier consultants’ perspectives has been shown to be an effective methodology for this type of research (Markus et al., 2000). In total, eight respondents participated in this research; the head of training within the project team and seven consultants from ERPII supplier organisations. The factors classified as being critical were those that were strongly supported by at least 7 of the 8 respondents.

Heat map analysis was undertaken to highlight critical issues. A qualitative analysis was undertaken on each identified training CSF as Meredith (1998) outlines that there is little benefit in adopting statistical analysis to single case study research.

3.0 Results and discussion

Our results highlight nine CSFs which apply to the training aspects of a successful ERPII implementation and are explained in the form of recommendations and guidelines. Our findings identified that these CSFs can be categorised into two distinct areas: end-user training and post-implementation training. The first is allocated within the planning, delivery and review stages of the implementation, whilst the latter is allocated to the exploitation stage of the implementation (Figure 1).

<table>
<thead>
<tr>
<th>End-user training</th>
<th>Post-implementation training</th>
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<tr>
<td>Develop a holistic training strategy</td>
<td>Prepare the benefits of the system</td>
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<td>Incorporate customer management training</td>
<td>Ensure knowledge transfer among the team</td>
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<td>Provision of training delivery</td>
<td>Transfer knowledge to the workers</td>
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<td>Underpin skills based training</td>
<td>Intrinsically disseminate knowledge</td>
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<td>Carry out training course evaluations</td>
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<td>Planning</td>
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<td>Delivery</td>
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Figure 1. Training requirements for ERPII and their allocation throughout the implementation lifecycle.

3.1 Training requirements in the planning phase

A key element of delivering the training for any IS implementation is preparing the end-user training and evaluating the post-training requirements (Compeau et al.,
Increasing the motivation of trainees is critical and research has shown that several simple steps can help; ensuring an appropriate overall training design, preparing job related training and by making training course attendance non-compulsory (Aziz & Ahmad, 2011). Delivering a holistic training strategy was found to be critical in the current research. In terms of the end user being able to perform their roles, the head of training (Respondent one) commented that “developing a holistic training strategy was very important”. This view was reinforced by each of the consultant practitioners. Indeed, the General Manager of one of the supplier organisations (Respondent 2) commented that “we try to get involved in that because if the customer gets that wrong and the project failed, it will still be our fault”.

Recommendation 1: A holistic training strategy should be developed, incorporating the views of both the client and supplier; ensuring resources are adequately allocated throughout the implementation lifecycle.

End-user training has been shown to have a direct influence on system usefulness (Igbaria et al., 1995) and it has been recommended that end users participate in the training process (Verville & Bernadas, 2005). The case study organisation integrated an element of customer management training into the training material for each functional department to ensure that the end users learned how to use the system in performing their roles. This was ensured through acceptance testing by the trainers, who were all Council staff since they have a cultural understanding of the organisation. Respondent one commented that “Trainers were involved in user acceptance testing. The trainers were all council staff…the trainers worked alongside the subject matter experts” and that “The subject matter experts dealt directly with IBM in Belgium, so they sent the materials over, and IBM converted it into the e-learning and we had to pay for that service. This is why it was so expensive... We had training materials, then we did dry runs. So they delivered a dry run, with some experts to identify any improvements they needed to make”. From the supplier consultants’ perspective, incorporating customer management training ensures the end users learn how to use the system to perform their roles. This was described by the Sales Director of one of the supplier organisations (Respondent 3), who commented that “education and training are about delivering specifics to [the Client]. The education is about showing different ways [the Client] can do things, but the bespoke
training is then based on an intermediate step of extensive consultancy, to agree exactly how [the Client is] going to use the software”. To ensure that an element of customer management is incorporated into the general training, the Head of Sales and Marketing of one of the supplier organisations (Respondent 4) pointed out that “we would learn about the business, in terms of business process mapping and then we would map their business processes to our software. That would then identify how the system would need to be set up, and it would also identify what training was required, and then the training is purely bespoke. So every training is different to every customer”.

Recommendation 2: An element of customer management should be incorporated into training material for each functional department to ensure the end users can easily use the system to perform their role.

3.3 Training requirements in the delivery phase

Literature shows that ensuring all users in an ERP implementation receive training is critical (Somers & Nelson, 2001), as is undertaking an extensive amount of employee education and training (Clegg et al., 1997; Ho et al., 2004; Umble et al., 2003). From the observations made during the project team placement, it was evident that the training activities were well coordinated and the timing of the training was very well organised to accommodate the end-user training which was delivered just prior to the go-live date. The case study organisation prepared an outline of training milestones mapping out every aspect of the training requirements. This included an indicator of exactly when the key issues of training curriculum, training needs analysis and training material were to be signed off for each release. A training window was scheduled for each release and timing was critical as the trainers needed enough time to prepare for the next release. Respondent one commented: “The go-live dates were key. We had no say over this at all. We delivered the training no later than eight weeks prior to a release, so it was fresh in their memories”. From the supplier consultants’ perspective the timing of the training is very important. Indeed, the Team Leader of Global IS Solutions of one of the supplier organisations (Respondent 5) commented that “Training is usually in the last two weeks prior to go live and to be quite honest, the later the better”. In addition, respondent three pointed out that “it
needs to be close enough to the go-live for them to remember what they were shown” whilst the Founding Director of one of the supplier organisations (Respondent 6) raised the point that there must be “enough time for them to practice”. Well planned training, delivering the right information to the right trainee at the right time is key.

Recommendation 3: End-user training should be as close to the go-live date as possible so that they remember what they were shown, whilst being flexible enough to allow for mop-up training courses.

3.4 Training requirements in the review phase

One glove does not fit all in IS training and preparing training materials for the specific requirements of functional groups in performing their roles improves training receptivity (Chow et al., 2008). Overcoming information overload by end users is essential and this can be done by: revolving training needs around wider positive organisational actions, improving management and leadership training by introducing coaching and mentoring, ensuring the training is in the interests of the end users and encouraging early reporting of issues that arise (Mill, 2010). The case study organisation singled out core users from standard users so that they could be supported with additional, more detailed training. This was to ensure that the core users could deliver the benefits in their new job roles and pass on this knowledge. These individuals were designated key project users and several became champions of a particular area. Respondent one commented: “We were training for the role mapping that had been undertaken. We were really targeting who needed to be trained”. From the supplier consultants’ perspective, at this point in the implementation lifecycle it is essential that core users are singled out and supported with additional training. Respondent three outlined that “[Core users] all have different jobs to do and they require education in different aspects of the system”. The Project Team Manager of one of the supplier organisations (Respondent 7) emphasised this point by commenting that “it tends to come down to key project users… we identify champions of a particular area, so they’re the ones who get all of the training, all of the key training in that area”. Undertaking skills based training is necessary to ensure that core users can deliver the benefits in their new job roles.
Recommendation 4: staff members should be segregated into core users and standard users. Training for core users must be in line with the role mapping for their specific roles ensuring that they can deliver the benefits in their new job roles.

Compeau et al. (1995) acknowledged evaluating end-user training as a CSF for delivering IS. One important way to evaluate the progress of the training has been found to be undertaking performance evaluations (Ho et al., 2004). In addition, using measurable reference points within the training is critical to understand the effectiveness of the training delivered (Devaraj & Babu, 2004). The case study organisation addressed the issue of evaluating training, respondent one commented that “we used Kirkpatrick, this is level 1 to 4, level 1 is the evaluation, what we call the smiley faces sheet, level 2 takes place within the training, so it’s where they do exercises to check understanding”. Using Kirkpatrick’s definition of effectiveness (Kirkpatrick, 1994), the case study organisation was able to schedule refresher courses where necessary, as key issues were highlighted from the post-training questionnaires delivered to all 6,000 end users immediately after their training. From the supplier consultants’ perspective, training evaluations are beneficial to them as they can serve a second purpose of self-appraisal. The Founding Director of one supplier organisation (Respondent 8) poignantly highlighted this issue, commenting that “a supplier is actually judged on that training course by the evaluation”. Undertaking training course evaluations is important not only for delivering training improvements, but also for ensuring the supplier has a quality standard procedure in place to ensure they deliver highest quality of training provision.

Recommendation 5: Training course evaluations should be undertaken to verify whether refresher courses are necessary. In addition, feedback can indicate if the consultants themselves need more training and ultimately improve their own future training courses.

3.6 Training requirements in the exploitation phase

During the implementation it is essential to train the end user about the concept of ERP for the full benefits of the system to be realised (Yu, 2005). Having a project champion has been widely cited as being a CSF in ERP implementations (Willcocks
and Sykes 2000; Nah, Lau et al. 2001; Somers and Nelson 2001; Finney and Corbett 2007; King and Burgess 2008), and empirical research by Akkermans and Van Helden (2002) shows that a critical role they play is in performing effective internal marketing. During the exploitation phase, once the system is up and running there is a high risk of system atrophy occurring, which is when the organisation does not maximise the opportunities of the system and many features are left unused or ignored. Transition champions are known to be critical in promoting the benefits of the system. The case study organisation recruited transition champions and these individuals were internal staff so that the values of the organisation could be upheld. They were recruited on a voluntary basis, but the recruitment criteria required key qualities: leadership, power, influence and posture. Regarding the transition champions, respondent one commented that “it was absolutely critical for the transition champions to promote the benefits to the end users”. This view was echoed by the supplier consultants, and respondent three commented that “you often don’t identify, early doors, who that transition champion is, because it might not come from their job titles… some people just see the big picture”. In addition, respondent eight stressed that the transition champions “have to be internal staff”.

Recommendation 6: Transition champions should be appointed in order to promote the benefits of the system post implementation.

The technical skills of the trainer influence training performance (Devaraj & Babu, 2004). Woo (2007) suggests that outsourced training is a more appropriate means for delivering training in a vast and complex area such as ERP implementations as qualified professional trainers are more capable of designing and delivering courses for the employees. In this instance, the case study organisation did not outsource the training, instead choosing to train internal members of staff to deliver the training. Respondent one commented: “Our Council staff worked alongside IBM on the ERP development, this is where the transfer happened, and this was passed to the trainers. That’s where the knowledge transfer happened”. Ensuring knowledge transfer is a very important issue facing the supplier; respondent three commented that the client has “to take ownership of the system, lock, stock and barrel and train-the-trainer is essential to that”. Ensuring the client can initiate their own future training requirements is a big part of the knowledge transfer requirement of ERPII system.
Regarding this issue, respondent eight commented that they will “try to use the organisation’s staff as the trainers, rather than bring professional trainers who are going to do this, because that helps the buy-in”. The client and supplier should equally be committed to ensuring knowledge transfer. However, the necessity for organisations integrating ERPII to achieve this was summed by the views of respondent two, who commented that “The difference is we [the supplier] get to go home, they [the client] get left with the system”. Achieving knowledge transfer is critical (Brown & Vessey, 2003; Wang et al., 2007), and this relates to the critical finding of Akkermans and Van Helden (2006) who observed that achieving an exemplary level of vendor support revolves around upgrading training support.

Recommendation 7: Knowledge transfer from the vendor should be ensured. This can be achieved initially through a train-the-trainer approach, whereby the supplier trains selected staff from the client organisation. Transfer of knowledge from the supplier should continue post go-live.

IS undoubtedly add additional pressures to end users operating these systems and research suggests that work related stress for IS facilitators has reached epidemic proportions (Love et al., 2007). Rodgers and Negash (2007) highlight that knowledge transfer is increased by developing knowledge workers (high-knowledge individuals or experienced users). This can only be achieved if there is a long-term commitment by both the client and the supplier. Shah et al. (2007) suggest that the main issue for the knowledge workers is to articulate their knowledge requirements, since from this the planning team can prioritise and take appropriate actions. The case study organisation formulated a corporate training strategy to address post-go-live training requirements, to ensure the end users were fully supported and treated as knowledge workers. From the supplier consultants’ perspective it is critical to treat end users in this way to ensure future benefits are delivered from the new ERPII system. This view was highlighted by respondent two who commented that creating knowledge workers is critical to avoid “system atrophies, that’s why they atrophy, because you don’t do this”.


Recommendation 8: To deliver long-term benefits, organisations must ensure staff members are adequately trained post-implementation, treating end users as knowledge workers.

Once the system is up and running, processes must be in place to ensure that information on how to use the system is not only widely available but that trained staff members are on hand to bring new employees quickly up to speed. In achieving this, the use of super users has been found to be a critical factor in ERP implementations (Muscatello et al., 2003). Davis, Kettinger et al. (2009) also identify that introducing ‘IT savvy’ users or ‘super users’ increases the overall satisfaction level of the implementation. The appointment of super users is a task which requires significant attention, as super users are an effective solution to disseminating knowledge to end users. The case study organisation created a network of 52 super users for continually supporting the end users and delivering training to new members of staff. Respondent one commented that “The super users played a really critical role”. These super users were kept in place post implementation to ensure system features delivered the benefits outlined and to recommend system improvements for future upgrades and customisations. In terms of identifying the symptoms of system atrophy, respondent two commented that “you find that Fred learnt it and he left and he told Bert, well he told Bert a percentage of what he knew and Bert left and he told Alf and Alf only knows a percentage of what Bert knew, then he told Betty and so on… so super users are important and keeping super users current is also a difficult thing to do. We always tell customers to keep super users active”. It is clear to see why at this point of the implementation the supplier advocated the use of super users to internally disseminate knowledge. As highlighted by respondent eight, “When a system goes live you need the support of the people who are running that system and the only way you can provide that support, which we call floor walking…are super users”.

Recommendation 9: Organisations implementing ERPII should set up an internal support network of super users as existing staff may have tendencies to re-introduce old working practices from old legacy systems and new staff members may not be trained by the previous operatives. These individuals should see this as a long-term job.
4.0 Conclusion

It has been suggested that many firms have knowledge capabilities but are wasting their knowledge driven opportunities (LaPlaca, 2009). The lack of adequate training has been identified as a key reason for inefficiency in system usage (Henriksen & Andersen, 2008).

Historically, ERP training has revolved around ensuring operatives can perform their individual tasks (Kang & Santhanam, 2003). However, for ERPII system facilitators, training must enable them to use the information held on the system to perform their customer facing activities.

References


