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Richard Kapupu

Bell mobility, richard.kapupu@bell.ca

Muriel Mignerat

Telfer School of Management, University of Ottawa, mignerat@telfer.uottawa.ca

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P10. Change Management Strategies in ERP Implementations: A Case Study

Richard Kapupu
Bell mobility
richard.kapupu@bell.ca

Muriel Mignerat
Telfer School of Management, University of Ottawa
Mignerat@telfer.uottawa.ca

Abstract

While considered as the backbone of organizations, Enterprise Resource Planning (ERP) systems tend to face resistance from potential users. Managing such resistance is imperative to the success of the implementation project. After surveying the literature landscape on change management strategies in ERP software system implementations, we employ Aladwani's conceptual model to codify the activities followed by a public organization in the implementation of its SAP ERP system. We found that the change management activities the organization employed neatly fit the think-feel-do framework proposed by Aladwani's model. We also present contextual factors that may explain this fit, thus adding to the scant empirical data on the application and potential robustness of this model.

Keywords

Enterprise Resource Planning (ERP) systems, Change Management, Case study, Aladwani's model

1. Introduction

Enterprise Resource Planning (ERP) systems are software tools that span the enterprise and are used to manage enterprise data (Sumner, 2005). ERP systems help organizations manage their supply chain, inventory, customer orders, production planning, shipping, accounting, human resources and other business functions in an integrated way that makes enterprise data visible across these functional areas (Aladwani, 2001). As of 2010, the top three vendors of ERP software were: SAP, with the majority of the market share, Oracle and Microsoft (Panorama, 2011).

Three popular approaches to implementing ERP system in an organization are; 1) *vanilla*, where all the modules come from the same vendor, 2) *best-of-breeds*, where the modules come from different vendors, and 3) *vertical* or *custom-approach*, where the entire ERP software system is developed in-house (Sumner, 2005). Each has its advantages and disadvantages. Notwithstanding the many advantages, however, ERP systems are inherently complex and often very difficult and costly to implement successfully (Edwards and Humphries, 2005).

Many ERP implementation projects face stiff resistance from workers for a number of reasons. Some workers fear losing their jobs as a result of automation of tasks by the system, others fear changes in or a complete loss of control over information or processes they currently enjoy, and others are simply apprehensive of the changes they have to make during and after the ERP implementation (Upadhyay et al, 2011; Harrison and Boonstra, 2009). Several studies show that ERP systems tend to impose certain ways of doing business under the guise of “best practices” which may be a complete shift from the status quo. Because humans are naturally creatures of habit, these changes elicit apprehension (Upadhyay et al, 2011; Harrison and Boonstra, 2009; Vogel and Kimbell, 2005).

In 2004, AB Corporation¹, a publicly funded corporation in Canada, successfully completed the implementation of an SAP ERP system costing \$40 million in a bid to integrate processes after consolidating 12 disparate branches. The implementation took three years and was under budget by \$775 000. In spite of this success, the project faced resistance from both employees and the general public. Whilst the resistance from the public was generated by concerns surrounding the use of public funds in this project, resistance from internal employees emanated from the changes in processes the enterprise-wide system was going to bring about. In addition to reviewing the research on change management strategies in ERP implementations, this research project identifies and codifies the change management strategies that AB Corporation used during the implementation of its SAP ERP system against Aladwani’s (2001) conceptual model of successful change management strategies in ERP implementations. This adds to the scanty empirical data on the application and potential robustness of this model.

2. Overview of Change Management Strategies in ERP Implementation Projects

Several studies in ERP implementation list the following as key success factors: change management, involvement of top management, project management, business case and training (Finney and Corbett, 2007; Nah et al, 2001; Somers and Nelson, 2004; Upadhyay et al, 2011). The ranking differs from study to study but there is a general consensus on the content. Somers and Nelson (2004) show that change management is a particularly important factor in the adoption, adaptation and acceptance phases of ERP system implementations. Shields (2001) shows that change management activities are either ignored or short-changed because much of the work involving them occurs toward the end of an implementation project, when time and budget are running out and the project is usually behind schedule.

In the social sciences, how entities and people respond to change is a well-researched subject (Harris, 2006). In the IT world, however, the term change management is widely used but less understood (Fulla, 2007). In a study to provide an update annotated bibliography of ERP publications, Esteves (2007) also observed that a number of studies listed change management as a critical success factor but hardly attempted to provide a concise definition of the term. Nonetheless, a number of definitions for change management can be found in the ERP literature. Harris (2006) defines change management as the strategies and activities that support individuals, teams and organizations through challenges associated with change. Specific to ERP

¹ The real name of the organization has been changed for privacy concerns.

implementations, Harris (2006) views change management as the efforts to promote the successful transition from an old system to a new enterprise system. Fulla (2007) defines change management as the act of managing modifications to an organization's culture, hierarchy, and/or business processes in order to achieve desired outcomes from an ERP system deployment.

Shields (2001) identifies five categories of activities that can be carried out to help manage the changes that occur in a rapid ERP implementation. These are: 1) assessment of the readiness of users for the changes that occur as a result of the implementation, 2) involvement of stakeholders by documenting their inputs and experiences, 3) communication, 4) documentation of the implementation project and 5) training of stakeholders. Kemp and Low (2008) suggest that change management activities for a new information system should focus on changes in technology, business processes, organization and culture. To that end, these activities should focus on creating an environment conducive to the implementation of such changes change.

Klein et al (2001) propose a model for change management which puts the spotlight on the role that top management support plays in influencing the availability of resources for implementing such innovation. Von der Weth and Starker (2010) also put emphasis on the human aspect during the implementation of enterprise systems and propose a model of change management strategies that incorporates motivation and psychological factors. This model is summarized as the motivation-emotion-support-strategy (MESS). Similarly, Edwards and Humphries (2005) highlight the importance of taking into account the change management of people and technology in an ERP implementation. After analyzing the failure of an implemented ERP system to deliver expected benefits to an organization, they conclude that the most important problems were attitudinal than functional. However, they do not propose any specific model.

In developing his model, Aladwani (2001) observed that ERP system implementations face user resistance similar to the way marketers of new products face resistance from their potential customers. However, marketers have been far more successful in overcoming such resistance. This is why Aladwani (2001) incorporates marketing strategies for change management in ERP implementations in his conceptual model. The model consists of three distinct phases; 1) **knowledge formulation**, summarized as an attempt to identify relevant stakeholders, understand their importance and influence in the project, 2) **strategy implementation**, central to the model and summed up as a *think – feel – do* framework and 3) **status evaluation**. The focus next will be on the components of the strategy implementation phase, the central tenet of the model.

The three aspects of the **think – feel – do** framework correspond to three components of a user's attitude, namely, cognitive (think), affective (feel) and conative (do). The various activities of the model are illustrated in Figure 1 below. Cognitive has to do with the ideas a person has about an objective and such ideas can be best influenced through communication. This is similar to what marketers do when they bombard potential customers with the benefits of their new products, often in comparisons to others, only in this context, through a detailed business case highlighting what the ERP system will deliver to the organization and to individual employees.

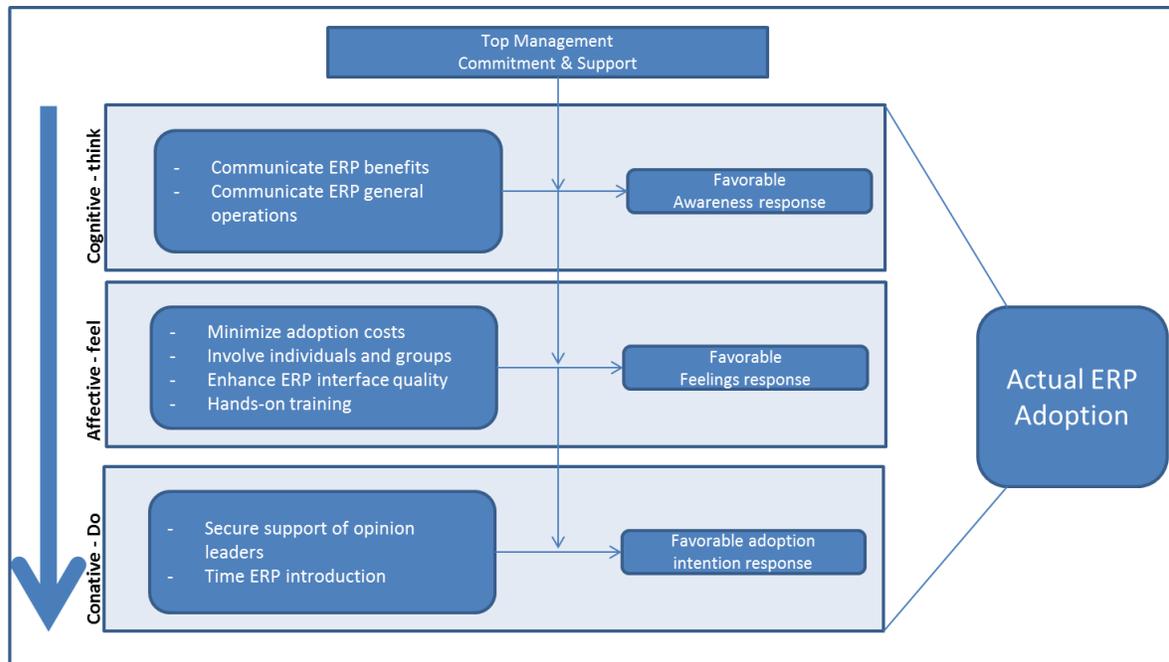


Figure 1: Model of Successful ERP Adoption showing specific activities that constitute change management strategies (Aladwani, 2001)

The affective component involves all the attempts to influence the emotions of stakeholders towards the ERP system. Here again, Aladwani (2001) borrows from marketing, drawing on Porter's (1985) model advocating for a low cost strategy to ERP adoption. Positive feelings can also be engendered by communicating qualities and skills users will gain from the ERP system. These include the perceptions of mastering the unwieldy user interface inherent with most ERP software systems.

The conative component refers to users' intention to adopt the implemented ERP system. The best approach advocated by Aladwani (2001) involves getting the endorsement and ongoing support of opinion leaders within the organization, regardless of their rank. This means ensuring the support of the leaders of influential groups identified in the knowledge formulation phase of the model.

At the time of our research, we were not able to identify specific studies in the literature that tested Aladwani's (2001) conceptual model. As such, in applying the model to a case study, we provide empirical data on its application and potential robustness, especially given its roots in pervasive yet successful marketing strategies. We add to the body of studies that evaluate conceptual models and provide the author with valuable feedback.

3. Case Study

AB Corporation is a significant public organization in Canada with over 17 000 employees serving over 1 million clients in one city alone. In November 2001, approval was granted to proceed with the implementation of an SAP ERP software system budgeted at just under \$40

million. The 3-year implementation program was intended to deliver a series of related projects focusing on building business solutions to integrate financial, human resource and work management information considered as the backbone of the corporation into a single repository for simplified management, operational support and decision making.

As part of the ERP implementation process, AB Corporation established a Business Transformation Office (BTO) with a mandate to bring about the change management discipline to support the scope and scale of changes required. Specifically, the BTO had to establish and maintain strong relationships with business sponsors and process owners to ensure that the intended benefits of the program were realized. Furthermore, the BTO had to assist the various project teams to develop an accurate business and process model and to ensure organizational readiness for each phase of the implementation. The ERP implementation program and specifically the establishment of the BTO with a change management focus identified AB Corporation as an ideal candidate to test the applicability and potential robustness of Aladwani's (2001) conceptual model.

4. Research Methodology

A research case study approach was followed. A case study examines a phenomenon in its natural setting, employing multiple methods of data collection to gather information from one or a more entities – people, groups, or organizations (Benbasat et al, 1987; de Weerd-Nederhod, 2001). Yin (2009) identifies the following sources of data as best attuned to a case research;

- Documentation—Written material ranging from memoranda to newspaper clippings to formal reports;
- Archival records—Organization charts; service, personnel or financial records;
- Interviews—These may be open-ended or focused;
- Direct observation—Absorbing and noting details, actions, or subtleties of the field environment; and
- Physical artifacts—Devices, outputs, tools.

The researchers initially used data about the ERP implementation program at AB Corporation, which was publicly available on the corporation's website at the time. Then as a supplement, several interviews were conducted with the then program director charged with implementation of the program. The interviews were semi-structured in that they included both directed and open-ended questions. The directed questions were aimed at assessing the extent to which change management strategies were employed in the ERP implementation at AB Corporation, whereas the open-ended questions aimed to solicit contextual information on the implementation program that was specific to AB Corporation during the program.

The interviews were then transcribed word for word using an open source software application². The resulting text files were then sent to the program manager we interviewed for verification before proceeding with analysis. Furthermore, through the program manager, the researchers obtained detailed project planning documents and project status reports, including a detailed post-project report.

² Express Scribe Free Transcription available on <http://www.nch.com.au/scribe/index.html>

Armed with this trove of data, we employed two approaches to qualitative data analysis advanced by Hsieh & Shannon (2005). The first approach is conventional content analysis whereby the researcher parses the collected data clustering bits of information that have similar keywords and meanings without any prejudgments as to their relation with the research topic. This approach is similar to Burnand's (1991) proposed open coding system for analyzing interview transcripts. From this content analysis, we were able to identify some of the external forces that were bearing down on AB Corporation, making it advisable to deploy a solution in the form of the SAP ERP software system. These external forces along with the internal responses AB Corporation sought from the software system are illustrated in Figure 2 using a modified version of Porter's (1985) Five Force analysis diagram.

The second analytical approach we employed is called directed content analysis, which is suited to research topics where theory already exists and the goal is either to confirm or disprove the said theory (Hsieh & Shannon, 2005). Here we parsed the interview transcripts and project documents using Aladwani's (2001) conceptual model illustrated in Figure 1 in order to identify and categorize the change management activities that AB Corporation applied in their SAP ERP implementation. This model is regarded as the first to advance specific activities that constitute change management strategies in ERP implementations (Aladwani, 2001). Our goal is to generate empirical data on the applicability of this model after failing to identify specific studies on this model. The results from this directed content analysis are summarized in Figure 3 and discussed in the next section.

5. Findings

Figure 2 below illustrates some of the identified external forces at play when AB Corporation embarked on its SAP ERP implementation program. It also identifies the capabilities that the SAP ERP system was going to provide AB Corporation thus ensure continued service delivery as a public corporation.

In its business case, the major justification by AB Corporation for the SAP ERP system was that the technology would provide staff with the ability to measure, maintain and be accountable for the delivery of quality services consistently across the organization. Furthermore, the business case identified a list of strategic benefits that supported the need for an integrated business model, as well as operational benefits in the three functional units that were being integrated: HR, Public Works and Real Property Services. AB Corporation divided these operational benefits into realizable and non-realizable cost savings. Realizable cost savings included cutting down on FTEs³ and salary expenditures while non-realizable savings emanated from access to integrated information across all business functions. Having access to and being able to analyze this integrated information would open new opportunities for growth in terms of services offered while improved quality and productivity would result from putting physical and human resource assets to best use.

³ FTE – full time equivalent, a measure of involvement of a worker in a task or project

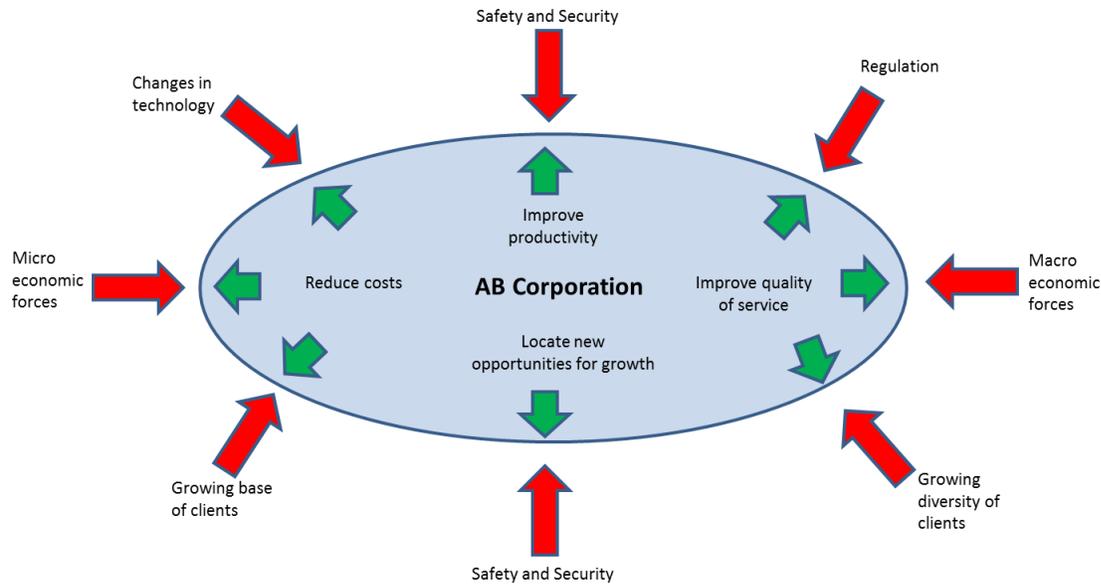


Figure 2 The external forces AB Corporation had to contend with and the internal capabilities the SAP ERP system implementation would enable, an adaptation (derived from Porter, 1985).

We found that an important mandate of the Business Transformation Office (BTO) was to ensure that AB Corporation was ready for each phase of the implementation program. In analyzing the activities undertaken to this effect in the light of Aladwani's (2001) conceptual model, we found that these activities easily fit into the *think – feel – do* framework. Figure 3 reproduces Aladwani's (2001) model substituting for the activities the BTO engaged in to bring about a change management discipline to the process of SAP ERP implementation.

5.1. Cognitive - Think

These are activities designed to keep employees informed and raise awareness about the coming changes or systems. The importance of communicating the change vision for AB Corporation can best be illustrated by Alas (2007) and Kotter's (2012, ch. 6) observations that communication in a typical organization sensitizes workers about the change, gets them on board, and improves job satisfaction during change. If AB Corporation did not invest as much effort in the communication of their change vision as they did, the goal of the implementation project would easily have been drowned by the rest of the communication in the corporation, especially because of the public nature of AB Corporation.

In the interviews, the program manager talked of being out in the yard early in the morning handing out coffees to workers and informing them about the upcoming changes and how they would impact the workers; *"I am going to be changing your paycheck. You're not going to like it, but this is the way it's going to happen."*

Training was another important way messages about the new system were disseminated. Training was first targeted at employees who extracted reports from the system, thus interacted directly with it. These employees were seen as having the capability and knowledge to determine what the new system could offer. The project team started with presentations to high level

management teams to inform them about the coming system and how it would work. These presentations were then followed by classroom training, and one-on-one sessions were held for those requiring additional information about the new system or had been identified as opinion leaders among employees of AB Corporations (Kotter, 1995).

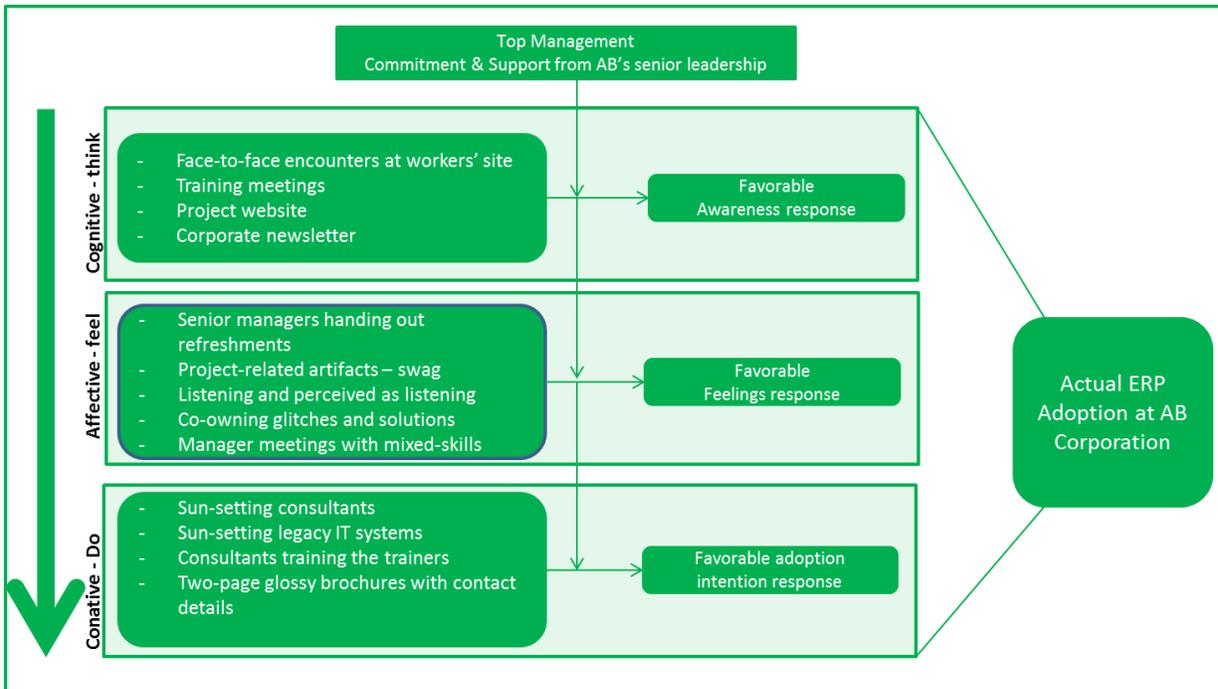


Figure 3 Fitting Aladwani’s conceptual Model with AB Corporation’s activities: The Match

The BTO also designed a website that was specific to the SAP ERP implementation program through which they disseminated information about the implementation progress and announced what was still in the pipeline. They also designed and distributed a corporate newsletter regularly throughout the organization for the sake of those not inclined to keep up-to-date via the web.

5.2 Affective - Feel

Affective activities are designed to influence the emotions of employees about the new system, with the goal of eliciting positive feelings and thus reducing resistance towards it (Richesin, 2011; Todnem, 2005). The interview with the program manager indicated that the project team repeatedly took the initiative to be physically out in the fields with employees, even during odd working hours for managers, to whip up positive emotions for the new system. Managers handed out artifacts such as pens and t-shirts with the program name printed on them and most of them were also on-site serving pizzas and other refreshments, especially on go-live dates.

The program manager admitted that she did not have all the answers to questions asked about the implementation program, but it was the willingness to listen and be seen to be listening that won the day. She deliberately extended invitations to workers to come and work with her so that she could understand their concerns about the coming system even better.

While glitches in a new system could erode credibility for a project team, AB Corporation used them as an instrument to build positive feelings towards the new SAP ERP system, by calling on workers to participate in helping solve them. They made references to how Microsoft encourages users to provide feedback on errors in their applications. Similarly, this approach created a sense of ownership on the workers' part who felt that they were involved in stabilizing the system.

When having update meetings with other business unit managers, the project team invited managers from a mix of units to attend, not just one unit at a time. It was found that managers who had already developed positive feelings about the system positively influenced the others.

5.3. Conative - Do

The conative category focuses on the activities designed for employees to engage in to enhance their willingness to adopt the new system. In comparison to the other two categories, there seemed to be greater attention paid to this set of activities. Being a public corporation, much publicity had already been given in the press on AB Corporation's investment in acquiring and deploying the new system. To ensure that this investment generated the expected returns, AB Corporation again invested a lot of resources into extensive training to equip employees with the necessary skills and knowledge for adopting the new system. While outside consultants were the main trainers, these acted as trainers of trainers. Subsequently, it was workers within each department who had been trained who then trained their colleagues on the new system.

AB Corporation followed the sun-setting approach to decommissioning the legacy systems by very firmly getting workers off the old ones and onto the new system. The program manager referred to this tactic as "*blocking off all exits.*" The sun-setting approach was also used with the consultants who were charged with transferring knowledge to AB Corporation employees. These consultants were paired up with managers who would eventually take on the role of advocates of the new system for full implementation. As the date of dis-engagement of the consultants approached, the relevant managers were polled to ensure that they felt comfortable standing on their own; and where they expressed uneasiness, the program manager extended the engagement of the consultant until such time that the manager felt sufficiently empowered. Consultants' fees made up more than 20% of the budget, but this was seen as critical in helping the organization adapt to the new system as quickly and as efficiently as possible.

Similar to the artifacts alluded to earlier the project team also presented and distributed user guides – glossy two-page brochures – for use by workers as they interacted with the new system. These user guides contained enough details on how to navigate the system, and also contact details of personnel in each department, in case there was need for help

6. Discussion

This research builds upon Aladwani's (2001) integrated model of change management strategies for successful implementation and shows that this approach to conceptualizing change management is indeed very promising. A lot of the existing research on change management in IT implementations consists of best practices, or specific areas (eg role of HR) and the validation of an integrated framework that can encompass all of them is key in order to help researchers build upon existing research and managers successfully manage change.

Recent research on factors determining ERP projects success or failure still emphasize the importance of change management (Burgess, Kerr and Houghton, 2013; Stancia and Tinca, 2013). Stancia and Tinca (2013) show that a standard change method, that would include best practices, needs to be promoted by companies implementing an ERP and this method has to be included in trainings for leaders. We propose that Aladwani's framework would be relevant there because, as shown with our use of Porter's framework, it can also be used to link the company's situation with strategy and the general context, which are of utmost interest to managers (Burgess, Kerr and Houghton, 2013).

7. Conclusion

The context of AB Corporation, as illustrated in Figure 2, helps explain why the SAP ERP system was acquired and deployed. It further explains why AB Corporation followed the rapid implementation on a tight schedule with stringent deadlines. Aware of the inherent resistance that comes with the implementation of enterprise-wide software systems, AB Corporation took measures to minimize this resistance and ensure that the implementation of their SAP ERP system was quick and smooth.

As summarized in Figure 3, Aladwani's (2001) conceptual model of successful ERP adoption was successfully used to codify the strategies AB Corporation employed to minimize employee resistance. We were also able to identify the rationale for AB Corporation investing heavily in the conative set of activities in their change management strategies, without diminishing the importance of the cognitive and affective set of activities. As such, we have provided a case study in which Aladwani's (2001) model finds application with virtually no modifications.

7.1. Further Research

Unaware of any other studies that employ Aladwani's (2001) conceptual model at the time of this research, we do not rule out the potential for our own bias for this model, given the ease with which it fitted in with our case study. As such, it would be useful to have more similar case studies of both private and public sector organizations as a way of contributing further to the literature on change management strategies specific to ERP system implementations.

Another obvious limitation of this research project stems from the limited number of sources that were interviewed for data collection. We believe that significant insight could have been gained if employees from the functional units, who were on the receiving end of the change management activities, had been included in the sample and interviewed. This would have

allowed a more in-depth evaluation of the effectiveness of the change management strategies that were used in the project.

Furthermore, a number of years have passed since the ERP implementation at AB Corporation. As such, further research is necessary to assess the extent to which users have adapted to the ERP system and ascertain the factors that have been instrumental towards that end.

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