



Change management strategies for successful ERP implementation

Adel M. Aladwani

*Department of QM and IS, College of Administrative Sciences,
Kuwait University, Edailyah, Kuwait*

Keywords *Resource management, Organizational change, Employee attitudes, Resistance*

Abstract *When implementing an enterprise resource planning (ERP) system, top management commonly faces an unwanted attitude from potential users – for one reason or another, they resist the implementation process. Top management should, therefore, proactively deal with this problem instead of reactively confronting it. In this paper, I describe an integrated, process-oriented approach for facing the complex social problem of workers' resistance to ERP.*

Introduction

The enterprise resource planning (ERP) system is an integrated set of programs that provides support for core organizational activities such as manufacturing and logistics, finance and accounting, sales and marketing, and human resources. An ERP system helps the different parts of the organization share data and knowledge, reduce costs, and improve management of business processes.

In spite of their benefits, many ERP systems fail (Stratman and Roth, 1999). Many ERP systems face implementation difficulties because of workers' resistance. Al-Mashari and Zairi (2000) assert that effective implementation of ERP requires establishing five core competencies, among which is the use of change management strategies to promote the infusion of ERP in the workplace. Although some studies tried to address this problem by identifying change management strategies that facilitate the success of ERP implementation, many ERP systems still face resistance, and ultimately, failure.

Another stream of research that also deals with the introduction of new products (or ideas) puts forth a different story. Despite the large number of new products and services that they introduce every year, marketers can still achieve high rates of success (Bogart, 1984). Why? I believe the answer rests in the strategies and techniques employed by marketing professionals.

The goal of the present paper is to demonstrate how marketing and ERP implementation ideas and strategies together could help overcome workers' resistance to ERP.

ERP implementation strategies

A quick review of ERP research revealed different strategies for implementing ERP successfully. One can classify these strategies into organizational, technical, and people strategies. Organizational strategies for promoting ERP

implementation success include change strategy development and deployment, change management techniques, project management, organizational structure and resources, managerial style and ideology, communication and coordination, and IS function characteristics (e.g. Al-Mashari and Zairi, 2000; Gable and Stewart, 1999; Sarker and Sarker, 2000). Some of the technical strategies that have been proposed to determine ERP success include technical aspects of ERP installation, ERP complexity, adequacy of in-house technical expertise, and time and cost of implementation (e.g. Al-Mashari and Zairi, 2000; Amoako-Gyampah, 1999; Russo *et al.*, 1999; Sarker and Sarker, 2000). Examples of people strategies include staff and management attitudes, involvement, and training (e.g. Amoako-Gyampah, 1999; Gable and Stewart, 1999; Russo *et al.*, 1999; Computerworld, 1998).

Past ERP implementation research may be described as factor research, which involves identifying the factors or variables that are critical for implementing ERP successfully. Although factor research is valuable for advancing our understanding of ERP implementation success, it adopts a rather static view, which limits its adequacy in explaining the dynamics of the implementation process. Thus, factor research alone is not adequate for explaining how the transition from resistance to success has happened. Unlike factor research, process research helps us understand how ERP implementation efforts have happened; it therefore gives a moving picture about how we got from time 1 to time 2. To benefit from the two perspectives, in this study, I will adopt an integrated view to ERP implementation.

Marketing strategies

There are many important streams of research in marketing, two of which are strategic marketing and consumer behavior. The strategic marketing view usually suggests several general steps to be followed by an organization to secure its long-term survival (e.g. Aaker, 1992). These phases can be abbreviated as follows:

- an organization identifies objectives and develops strategies to achieve them;
- an organization implements the identified strategies; and
- an organization evaluates if it has achieved what it wanted to achieve.

In the first step, an organization, after identifying its objectives, examines its potential markets through customer analysis in order to develop the appropriate marketing strategies. Customer analysis involves studying customers' needs, motives, segments, etc. (Guiltingan and Paul, 1988). Porter (1985) proposed three generic marketing strategies to reach potential customers: differentiation, cost leadership, and focus. The last of the three strategies, focus, has two variants, differentiation focus and cost focus. Aaker (1992) identified many tactics for differentiation (including quality and technical superiority, brand awareness, etc.) and for low cost (including features control, labor reduction, government

subsidies, etc.). In the second step, marketers implement certain of the strategies that fit well with market circumstances. The second phase is the action phase, which requires carefully crafted policies and decisions from top management (Aaker, 1992). The last step involves evaluating the effectiveness of implemented strategies. This requires adequate feedback so that problems can be identified, analyzed, and dealt with.

Another stream of marketing research focuses on consumer behavior. The consumer behavior view of marketing is the study of the internal and external factors that affect consumers' buying decisions, such as perceptions, attitudes, culture, reference groups, etc. In an attempt to understand consumers' attitudes, some marketers use a three-stage model, which consists of cognitive, affective, and conative components (Guitinan and Paul, 1988). The cognitive component deals with the ideas a person has about an object. The affective component deals with a person's feelings toward an object. The conative component deals with a person's behavioral intentions with respect to an object. In order to convince a buyer to adopt a product, marketers employ strategies that affect each of the three stages (Wilkie, 1990).

ERP implementation and marketing: a contrast

A close look at the two perspectives on hand (ERP and marketing) reveals a number of general differences and similarities. On the one hand, the two perspectives differ in several ways. First, the perceived net outcome of the exchange process is usually positive under the marketing perspective since a consumer buys a product to fulfil a particular need. However, the perceived net outcome of ERP implementation could be viewed by some employees as negative if they perceive the ERP system as a threat to their jobs. Second, unlike the marketing literature, the ERP implementation literature is still evolving and has not built a systematic theoretical base to overcome resistance to ERP implementation.

On the other hand, there are many basic similarities between the two perspectives. First and foremost, both perspectives reflect an exchange process between two parties. Second, both perspectives have the same essential elements of the exchange process. In marketing, these elements are sellers, buyers, and products; and in the ERP view these are the ERP implementers, potential users of the ERP system, and the ERP system. Finally, both perspectives suffer from the problem of resistance to change.

From the above contrast, one can clearly see that the similarity between the two perspectives is stronger than the disparity. Therefore, the ERP field can benefit from the experiences of the marketing people in overcoming consumer (user) resistance to new products (ERP systems).

Sources of user resistance

The sources and types of user resistance to a new technology, such as ERP, are many. An interesting framework that classifies the types of user resistance to innovations like ERP implementation by source of resistance is that of Sheth

(1981). The framework shows that there are two fundamental sources of resistance to innovations like an ERP: perceived risk and habit. Perceived risk refers to one's perception of the risk associated with the decision to adopt the innovation, i.e. the decision to accept an ERP system. Habit refers to current practices that one is routinely doing. In order to reduce employees' resistance to ERP implementation, top management of the organization must analyze these sources of resistance and must employ the appropriate set of strategies to counter them.

Change management strategies for ERP implementation

Improvement strategies, such as ERP implementation, commonly involve change. Hence, responsiveness to internal customers is critical for an organization to avoid the difficulties associated with this change (Al-Mashari and Zairi, 2000; Aladwani, 1999; Aladwani, 1998). To assist top management with the complex organizational problem of workers' resistance to ERP implementation, I suggest an integrated, process-oriented conceptual framework consisting of three phases (Figure 1): knowledge formulation, strategy implementation, and status evaluation.

Knowledge formulation phase

The first step in effectively managing change introduced by IT is to identify and evaluate the attitudes of individual users and influential groups (Aladwani, 1998). This analysis should address such questions as:

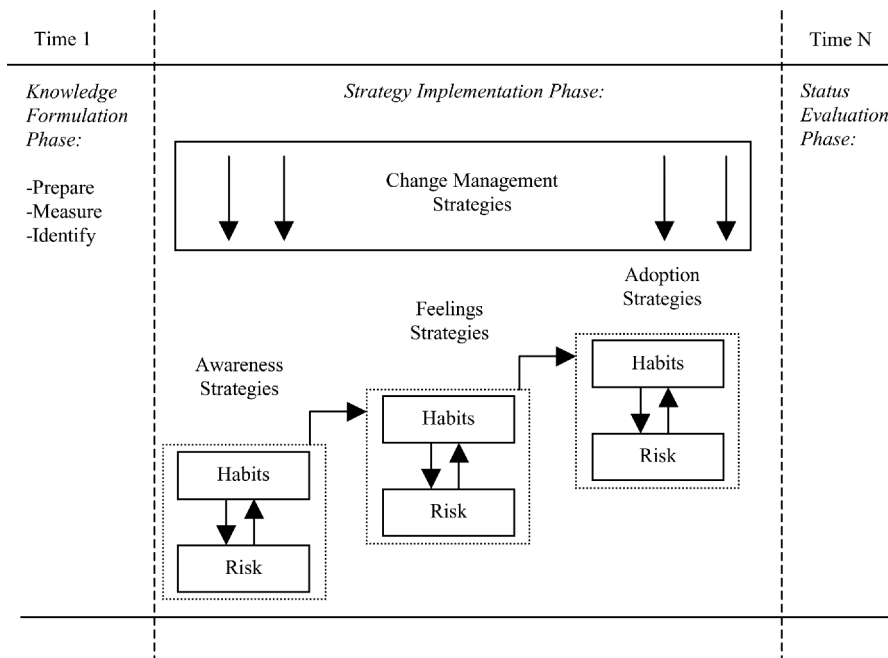


Figure 1. A suggested framework for managing change associated with ERP

- Who are the resisting individuals and/or groups?
- What are their needs?
- What beliefs and values do they have?
- What are their interests?

The answers to these fundamental questions may offer a good starting point in determining the sources of employees' resistance to the ERP system.

According to Hultman (1979), employee-raised facts, beliefs, and values are good indicators of what may cause their resistance to change. This could well be applied to the context of implementing an ERP system. For example, some users may raise issues about their computer illiteracy, or may say that they have spent many years doing an excellent job without help from an ERP system. Other users may develop beliefs that their jobs will be threatened by the new system, or that they will not know how to do the job within the scope of such a system. Yet another group of users may stress values such as the importance of existing power and authority structures, which may be jeopardized by the new ERP system.

Strategy implementation phase

Management can use the knowledge regarding potential users from the previous stage to set up strategies that can best overcome users' resistance to the ERP system, and to convince as many users as possible to adopt it (Aladwani, 1998). If this is the case, it is more appropriate to find an action sheet for implementing the selected strategies. The three-level adoption process (think-feel-do) provides a good framework for describing this phase.

In an attempt to change the attitudes of potential users of ERP, management must first try to affect the cognitive component of users' attitudes. A major strategy for achieving this goal is communication. One effective communication strategy is to inform potential users of the benefits of ERP. The marketing people usually communicate the benefits of a product, rather than its attributes, to customers, in order to draw their attention and heighten their realization (Williams, 1982). Top management, in the same way, can create more effective awareness for the ERP system by communicating its benefits to the workers. In many cases, ERP implementation failed because of lack of communication (Al-Mashari and Zairi, 2000). Knowledge about what the system can deliver to the organization and its workers can build anticipation for the system. Nevertheless, one must watch out for unrealistic workers' expectations, which may deepen the resistance problem, thus causing its failure from the outset. Moreover, the success of future introduction initiatives depends on building a cumulative base of credibility by management.

Another communication strategy is to give a general description of how the implemented ERP system will work. In the marketing context, Lazarus (1988) notes that marketers use this strategy to ensure a receptive attitude from users of a new product. Customers are usually reluctant to buy a product if they do

not know, at least in general terms, how it operates. Likewise, ERP users are expected to be reluctant to welcome the new system if they do not know how it works. Teaching each of the various user groups how the ERP system works is important in creating awareness (Stratman and Roth, 1999). Thus, from the outset, management should explain to potential users how the ERP system is going to work. For example, management should clarify the general inputs and outputs of the system, determine departments that will provide the data, and define the computer knowledge needed to operate the system, etc. In all cases, it is of paramount importance that the support staff responsible for executing these communication strategies possess adequate political skills (Aladwani, 1999) so that the awareness stage ends up in accordance with the plan.

The second step in the strategy implementation phase is to influence the affective component of users' attitudes. The first strategy that can be used by management is cost minimization. The marketing intellectual, Porter (1985), proposes the low-cost strategy as one that can be used by marketers to help an organization survive in a competitive environment. This strategy has a useful implication for ERP. If management wants the new system to be adopted by the users, then users' adoption costs should be kept to a minimum. Further, if change agents convince ERP users that their net outcome of the adoption process will be positive, then they will develop strong feelings toward accepting and adopting the new system (Amoako-Gyampah, 1999).

The cost minimization strategy should be developed in such a way that it affects both individual workers and influential groups. On the individual level, the ERP system has to minimize the perceived cost for each employee in order to create a positive adoption attitude. For example, if the worker realizes that the ERP system is an opportunity for enhancing his or her job, thus making it more appealing with minimal additional costs, then (s)he most likely will develop an interest in the ERP system. Similarly, influential groups within the organization are also looking at the cost aspect of the implementation effort. For instance, Markus (1983) presented a case where a new system was developed and one of its consequences was the change of the balance of power in an organization. Thus, the system failed.

Another strategy that could help affect the adoption attitude of potential users is differentiation. Aaker (1992) highlights the quality option as one important basis for product differentiation. In the ERP context, the users' perceived high quality of the ERP system would surely have a positive impact on their attitudes toward that system. Some ERP systems have an unwieldy user interface, which can cause problems (Computerworld, 1998). Generally, system users do not scientifically measure quality attributes of the system, rather each user constructs his or her convenient perception about the system depending on his or her real (or socially constructed) experience.

Additionally, hands-on training is another important driver of ERP implementation success (Russo *et al.*, 1999; Stratman and Roth, 1999). Training offers a good opportunity to help users adjust to the change that has been introduced by the ERP system, and helps build positive attitudes toward the

system. Further, training provides hands-on experience for the users: they appreciate the quality attributes of the system and its potential benefits.

The last part in the strategy implementation phase is the conative stage. Getting the endorsement and support of well-known individuals and opinion leaders is the first strategy that can be used. Marketers use this strategy to invoke group pressure because the individual feels the need to be accepted by the group (Williams, 1982). Applying this strategy in the context of ERP would entail ensuring the support of the leaders of the influential groups. To succeed in mobilizing opinion leaders, management has to capitalize on its efforts in the second stage when it tried to build users' intention to adopt the ERP system by minimizing the adoption costs of the groups. Also, convincing group leaders to effectively participate in the implementation process and make them feel that they are key players (because they are making key decisions) will ensure their valuable commitment. Because of their commitment, leaders of the groups will try to convince their colleagues that the ERP system is to their benefit.

Another strategy is carefully timing the introduction of the new system. From a marketing point of view, Williams (1982) discusses how introducing a product to a marketplace at the wrong time would result in a disaster for the organization. Further, he states that attitude is one of the critical factors that must be taken into account when timing the introduction of a product. How would this help in an ERP context?

The above described strategy gives top management a clear rule that the introduction of an ERP system should not be introduced until a positive attitude (i.e. an intention to adopt) is built and sustained among potential users. For example, do not introduce an ERP when a critical mass of your employees feels threatened by the system or feels forced (neither convinced nor encouraged) to accept the new system. Solving these problems before introducing the ERP would help set the stage for success.

Last but not least, top management commitment is critical for the success of the whole ERP implementation process (Gable and Stewart, 1999; Stratman and Roth, 1999). Change requires a strategic vision to ensure its long-term success (Aladwani, 1999). In a recent survey by Zairi and Sinclair (1995), leadership was ranked the number one facilitator of large transformation efforts (such as the one introduced by an ERP). ERP implementation can only be accomplished when senior management is totally committed to the initiative. Management commitment and support is the ultimate strategy that will secure the necessary conditions for successfully introducing the change brought by ERP into the organization.

Status evaluation phase

The process of monitoring and evaluating change management strategies for ERP implementation is the last component of the suggested framework. Besides having a performance measurement system to ensure that the desired business outcomes were achieved (Al-Mashari and Zairi, 2000), I believe it is as important to have a performance system to monitor the progress of ERP change management efforts. It is imperative that top management makes sure

workers' anxiety and resistance to ERP is under control. The status evaluation phase provides feedback information to top management in a dynamic manner. In order to be useful, the feedback should be timely, accurate, and systematic.

Based on status evaluation phase outcome, top management takes appropriate action. The feedback coming from the evaluation phase may be positive, which means that recorded performance of counter resistance efforts should be maintained (at least). Alternatively, the performance feedback may be negative. Management may find that there is still strong workforce resistance to the operational changes resulting from ERP implementation. In such a case, top management should make every effort to understand what went wrong. For example, top management may want to re-identify users' needs and re-evaluate the execution of adopted change management strategies to find an acceptable fit between the two.

Concluding thoughts

The paper suggests that the marketing concepts and strategies are adaptable to the ERP implementation context. To overcome users' resistance to change, top management has to:

- study the structure and needs of the users and the causes of potential resistance among them;
- deal with the situation by using the appropriate strategies and techniques in order to introduce ERP successfully; and
- evaluate the status of change management efforts.

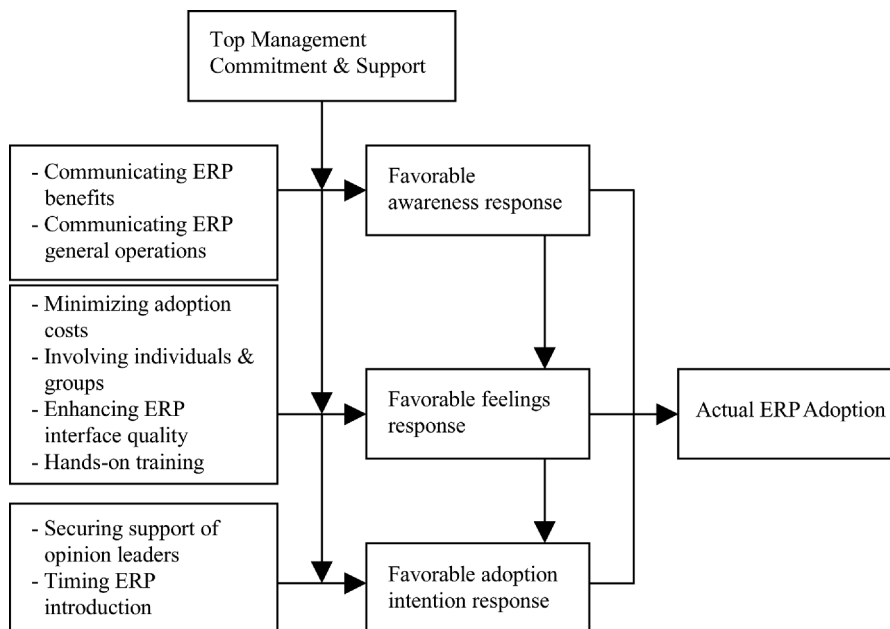


Figure 2.
A model of successful
ERP adoption

In this paper, I argue that successful ERP implementation requires matching appropriate strategies with the appropriate stage to overcome resistance sources (habits and perceived risks) effectively. The suggested approach demonstrated how this goal may be accomplished.

For the future, I propose a model for formal testing (Figure 2). The model has its roots in the literatures on ERP implementation and marketing. It summarizes the ideas in the present paper, which provides theoretical specification for generating a cumulative body of knowledge in the ERP implementation area.

References

- Aaker, D. (1992), *Developing Business Strategies*, John Wiley, New York, NY.
- Al-Mashari, M. and Zairi, M. (2000), "Information and business process equality: the case of SAP R/3 implementation", *Electronic Journal on Information Systems in Developing Countries*, Vol. 2 (<http://www.unimas.my/fit/roger/EJISDC/EJISDC.htm>)
- Aladwani, A. (1998), "Coping with users resistance to new technology implementation: an interdisciplinary perspective", *Proceedings of the 9th IRMA Conference*, Boston, MA, 17-20 May, pp. 54-9.
- Aladwani, A. (1999), "Implications of some of the recent improvement philosophies for the management of the information systems organization", *Industrial Management & Data Systems*, Vol. 99 No. 1, pp. 33-9.
- Amoako-Gyampah, K. (1999), "User involvement, ease of use, perceived usefulness, and behavioral intention: a test of the enhanced TAM in ERP implementation environment", *30th DSI Proceedings*, 20-23 November, pp. 805-7.
- Bogart, L. (1984), *Strategy in Marketing: Matching Media and Messages to Markets and Motivation*, 2nd ed., Crain Books, Chicago, IL.
- Computerworld (1998), "ERP user interfaces drive workers nuts", (<http://www.computerworld.com/home/print.nsf/CWFlash/981102erp>)
- Gable, G. and Stewart, G. (1999), "SAP R/3 implementation issues for small to medium enterprises", *30th DSI Proceedings*, 20-23 November, pp. 779-81.
- Guiltnan, J. and Paul, G. (1988), *Marketing Management: Strategies and Programs*, McGraw-Hill, New York, NY.
- Hultman, K. (1979), *The Path of Least Resistance: Preparing Employees for Change*, Learning Concepts, Austin, TX.
- Lazarus, G. (1988), *Marketing Immunity: Breaking Through Customer Resistance*, Dow Jones-Irwin, Homewood.
- Markus, M. (1983), "Power, politics, and MIS implementation", *Communications of the ACM*, Vol. 26 No. 6, pp. 430-44.
- Porter, M. (1985), *Competitive Advantage: Creating and Sustaining Superior Performance*, The Free Press, New York, NY.
- Russo, K., Kremer, A. and Brandt, I. (1999), "Enterprise-wide software: factors effecting implementation and impacts on the IS function", *30th DSI Proceedings*, 20-23 November, pp. 808-10.
- Sarker, S. and Sarker, S. (2000), "Implementation failure of an integrated software package: a case study from the Far East", *Annals of Cases in IT Applications and Management*, Vol. 2, pp. 169-86.
- Sheth, J. (1981), "Psychology of innovation resistance", *Research in Marketing*, Vol. 4, pp. 273-82.

- Stratman, J. and Roth, A. (1999), "Enterprise resource planning competence a model, propositions and pre-test, design-stage scale development", *30th DSI Proceedings*, 20-23 November, pp. 1199-201.
- Wilkie, W. (1990), *Consumer Behavior*, 2nd ed., John Wiley, New York, NY.
- Williams, T. (1982), *Consumer Behavior: Fundamentals and Strategies*, West Publishing, St Paul, MI.
- Zairi, M. and Sinclair, D. (1995), "Business process re-engineering and process management: a survey of current practice and future trends in integrated management", *Work Study*, Vol. 44, pp. 6-13.