Chapter 4

Change Management

LEARNING OBJECTIVES

After reading this chapter, you will be able to understand:

- Readiness of the organization for an ERP system
- Factors that influence attitude of employees
- Enhance attitude towards an ERP system system
- Change management at organizational level
- Tools for change management

4.1 INTRODUCTION

An ERP project has associated with it—people, technical and organizational issues. Each organization has to work out a strategy based on their exposure, experience, precedence and suggestions from their consultants to handle the changes brought about by an ERP system. Broadly, the focus of the strategy is one of the following three:–

- People issues
- Technical issues
- Organizational issues

Strategies to manage technical changes pay attention to ERP complexity, adequacy of inhouse technical expertise, and time and cost of the implementation.

We will discuss change management strategies to handle people and organizational issues. People issues are discussed in Sections 4.2, 4.3 and 4.4. Before the management decides to go for an ERP system, they should make an effort to check the attitude of the employees towards an ERP system. Attitude of employee can be checked with the help of a questionnaire. The chapter also discusses three different types of reactions from the employees in the form of resistance if they are not ready for ERP. Extended Technology Acceptance Model (ETAM) provides a framework to enhance the attitude of the employees. The earlier questionnaire can be used again to check the attitude.

Organizational issues are dealt with in sections 4.5, 4.6 and 4.7. An organization implementing an ERP system needs a change management strategy to manage the impact on the organization. We will discuss Lewin's model and improvisational model of change. We will also look at a general strategy for change management and three facilitating tools to execute the strategy. These tools are force field analysis and matrix of change.

4.2 PEOPLE ISSUES: ARE YOU READY FOR ERP?

An organization will need to change itself quite a bit to ensure success of ERP implementation in the organization. The change would involve and impact people in a big way. They will have to shed away their earlier ways of doing work. During the implementation phase, the anxiety may start due to the fear of unknown as well as the fear of known. People may also worry about the changes ERP system will bring about and their ability to adjust to the changes (fear of unknown). People may also fear getting laid off due to reduced manpower requirements (fear of known). Examining ERP implementation from a chronological process perspective aids in understanding when and how employee attitude play an important role.

We are primarily concerned with the attitude of people during pre-adoption phase of an ERP implementation. It is the phase where an organization begins to consider the need to change existing technologies and identify available ERP solutions.

The pre-implementation phase is time to identify and shape attitude of everyone in the organization. The attitude at the beginning is what finally shapes behaviour of the employees towards the technology. We need to figure out the following:

- What are the concerns people have when ERP system is considered for adoption by an organization?
- Possible relationships/interactions among these concerns.

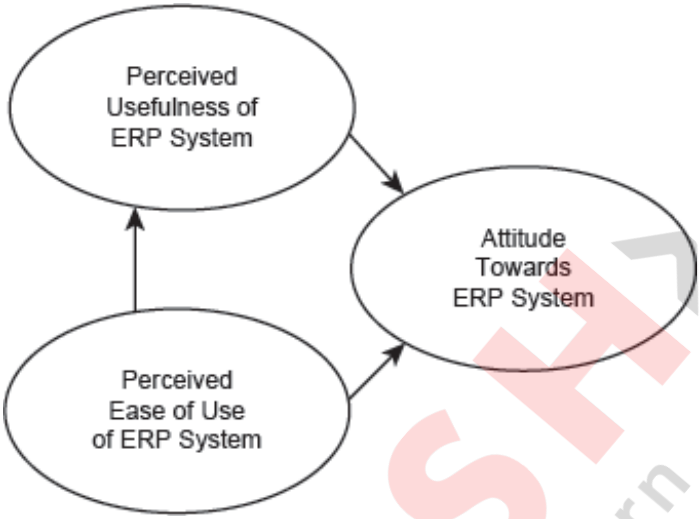
These two will help the organization to address the concerns and put people at ease so that the chances of acceptance will increase manifold.

We can address people issues in two phases. In the first phase, we figure out the preparedness of people for ERP system. In the second phase, we prepare them for ERP system.

4.3 FACTORS THAT INFLUENCE PRE-IMPLEMENTATION ATTITUDE

There have been multiple studies to assess factors that influence pre-implementation attitude of employees towards an ERP system. Organizational demography is an important factor determining attitude towards ERP implementation. Demographics are characteristics of individual employees. An organization with a higher proportion of relatively new employees may find it easier to implement an ERP system. If the employees have not experienced previous IT initiatives, they may not have any reason to have negative attitude. Past failures in IT initiatives/projects may impact end-users in a negative way. Better IT project track record establishes IT as a trusted unit within the organization. The managerial and professional employees are likely to have more positive attitude towards ERP system than the others. Managers and professionals are likely to have information about ERP system and their attitude would be based on this information. It has been shown that attitude towards ERP system is dependent on perceived usefulness and ease of use. The relationship among these three is shown in Figure 4.1. Stages theory which is discussed in Chapter 1 also supports these relationships.

FIGURE 4.1 Factors That Influence Attitude Towards an ERP System



If an organization has used information systems (TPS, MIS, DSS) successfully, then the organization and its people would perceive ERP systems to be useful and easy to use. These perceptions would be based on past experience. On the other hand, if an organization has not used information systems or has not had much success, the attitude of people is likely to be negative. Organizations that have a history of trust and collaboration across hierarchical levels are likely to experience smoother implementation experience.

One can use a questionnaire[10] similar to the one shown in Figure 4.2 to assess the attitude of employees. It has been used to assess attitude of employees of a government organization in India. If employees have negative attitude, they will resist ERP implementation. Such resistance is due to perceived risk and habit.[11] The resistance may manifest in one or more of the following form:

Ease of Use

Q1. Learning to use the new system will be easy for me.
Q2. It will be easy to get the new system to do what I want it to do.

Perceived Usefulness

Q3. Using the ERP system will increase my productivity.
Q4. The new system will be useful in my job.

Attitude Towards an ERP System

Q5. The ERP system will provide access to more data.
Q6. The ERP system will make data analysis easier.
Q7. The ERP system will be better than the existing systems.
Q8. The ERP system will provide accurate information.
Q9. The ERP system will provide integrated, timely and reliable information

FIGURE 4.2 Questionnaire to Assess Attitude of Employees Towards an ERP System

- **Level 1 resistance**: People resist change for simple and obvious reasons such as lack of information and exposure that leads to confusion to the extent that they find themselves in disagreement with the idea itself. In case of an ERP implementation, if one perceive that the system will not be useful and will be hard to use due to lack of information and exposure, they are likely to resist ERP implementation. If they are somewhat informed, they may be able to visualize the amount of efforts required to switch over to the ERP system.
- **Level 2 resistance:** If there is a fear such as fear of losing the job, power, control or importance, the resistance will manifest in the form of an emotional reaction. It becomes necessary for the management to first identify if level 2 resistance exists, and then deal with it. If there is lot of resistance and not sufficient support for an ERP

system, the organization should first prepare its people to accept ERP system (sufficient—In a democracy, if there are 100 people, about 55 of them vote and you have sufficient support to rule if 28 people vote for you). If one worries only about the resistance, no change will ever take place. On the other extreme, if one do not worry about the resistance at all and it remains unaddressed, it may mount to an unmanageable level.

- **Level 3 resistance:** Sometimes, people may dislike the person from whom they think that idea of ERP system has originated. They resist the person by resisting ERP system.

In Maurer and Associates,[12] it is cited that the primary reason for the failure of changes is resistance (according to a survey of Fortune 500 executives, reference not cited). We know from our school physics that resistance opposes movement. We also know that anytime there is a movement, resistance from somewhere or the other will be offered. In other words, resistance is inevitable. Then, is there a way out? It has been established that the management's (lack of) response to the resistance is the cause of the failure and not the resistance itself. Some authors[13] believe that resistance is good as it indicates that there is energy.

The objective is to reduce the resistance and increase the support level.

4.4 HOW TO ENHANCE ATTITUDE?

Assuming that people are rational, if a proposal is explained to them, individuals see that it is in their interest and subscribe to the change.[14] If the assumption that people are rational is correct, communication would resolve most of the issues. Level 3 resistance may be managed through communication. Level 2 resistance may also be managed to a great extent through communication and negotiations[15] such as trade short-term pains with long-term gains.

Some of the factors that help in preparing people and gaining their support identified in isolation are as follows:

- Top management support.
- A strong business justification for the project.
- A structured implementation team that performs well-defined jobs, both substantive and symbolic.
- Training of employees.
- Project communication.
- User involvement.

It does not help much to look at the factors in isolation and the above list may not be able to guide the change management team.

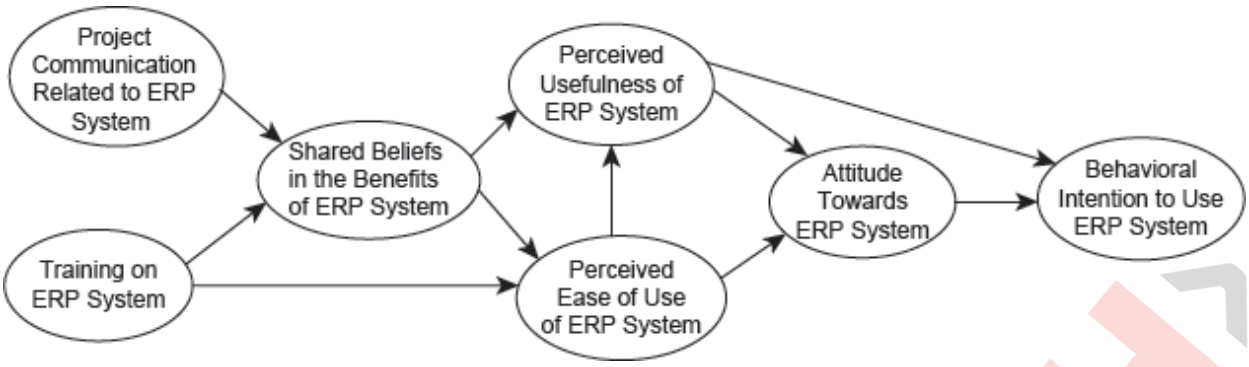


FIGURE 4.3 Extended Technology Acceptance Model

Extended Technology Acceptance Model (ETAM)[16] is a model that captures the issues and their relationships. ETAM is an extension of Technology Acceptance Model (TAM) model[17] that was developed for office automation systems. ETAM considers the issues involved in an ERP implementation.

4.4.1 Extended Technology Acceptance Model

There are two exogenous variables in ETAM:

- **Communications related to ERP project**: Informing the people about the project through multiple communication channels like newsletter of the company, Web site, demonstrations and presentations is important. Moreover, the change management team has to ensure that people are actually getting informed.
- **Training on ERP systems**: Training of adequate length at appropriate level of details to employees by knowledgeable trainers is important. The assumption is that the understanding of employees should improve after the training, that in turn should improve their perception about the usefulness and ease of use of the ERP system.

Various parameters and their relationships are shown in Figure 4.3. The actual usage of the system depends on the attitude towards the system. The direct communication from the company would lead people to start talking about ERP systems and issues involved. The positive beliefs about the ERP system get re-enforced if these dominate. The negative sentiments would soon start fading away due to mutual influence and shared beliefs with peers and supervisors. To achieve success, a sense of mutual trust and commitment must develop between the various participants to ensure a free exchange of beliefs and opinions.[18] Individual opinions and beliefs get influenced by others in the organization. These beliefs may be different for people at varied levels. If somehow the negative sentiments are stronger than positive sentiments, the organization may not be ready for the ERP system. Managers can proactively influence the beliefs and opinions through opinion leaders and liaison officers. Lack of communication has been identified as one of the reasons for project failures. People may form negative opinions about the system in absence of the information from reliable and competent authorities. It is essential to communicate with employees to help them form a coherent and accurate opinion about ERP system. Decision to implement ERP system in the organization mostly originates from senior management leaving the users, business units and the middle management out, even though its impact is felt across the organization. Therefore, user commitment to the success of the project may be at a reduced level than required. It is important to

communicate the benefits of ERP system to everyone in the organization. The information must be accurate and timely so that employees can depend on the information. The objective of the information is to make a positive change in the beliefs that an employee has about the benefits of an ERP system.

The ETAM model also has shown that training will help people realize that using an ERP system is not very challenging. If an organization has been using information systems, computer literacy in the organization may be high. People may be more receptive to the idea of an advanced information system such as ERP system. The legacy system and the comfort level with them may create certain level of inertia in switching over to a new system. In either case, training is essential to make people comfortable with ERP system. Direct experience that people would get during the training sessions is essential irrespective of the level of computer literacy level in the organization. Training programs also provide a mechanism to disseminate useful and pertinent information about the ERP system. Training program would be different for different people depending on their roles and responsibilities. One tends to use an information system if they finds it easy to use. A system that requires no additional efforts on the part of the user after the training, is more likely to be used. While the implementation is in progress and in parallel training, sessions are organized for the employees, their perceptions about the usefulness of the system and ease of use would determine their attitude towards the ERP system. The user must be assured that the management is supportive of ERP system. The user themselves must consider the new system better than the legacy systems in providing accurate, integrated, timely and reliable information. Direct benefits to the user may include increased productivity and improved job profile. This model is also useful in addressing Level 1 resistance (reaction to fear of unknown—not knowing the impact of ERP system) and Level 2 resistance (fear of known—chances of being laid off, losing power in the organization). Communication about the project and training would reduce the fear of unknown and the anxiety would disappear.

Level 3 resistances can be handled by making the idea of ERP system look like an idea of a group of people rather than an individual.

The questionnaire given in Figures 4.2 and 4.4 can be used to assess the attitude of employees after training and communication. One can use Likert-type scale with choices such as strongly agree, agree, neutral, disagree and strongly disagree with numerical values 1 to 5 associated with the choices. The responses of the employees are evaluated to find out the readiness of the employees. For further details, the case is provided in later stages. The communication and training will bring about a positive change in the attitude of employees.

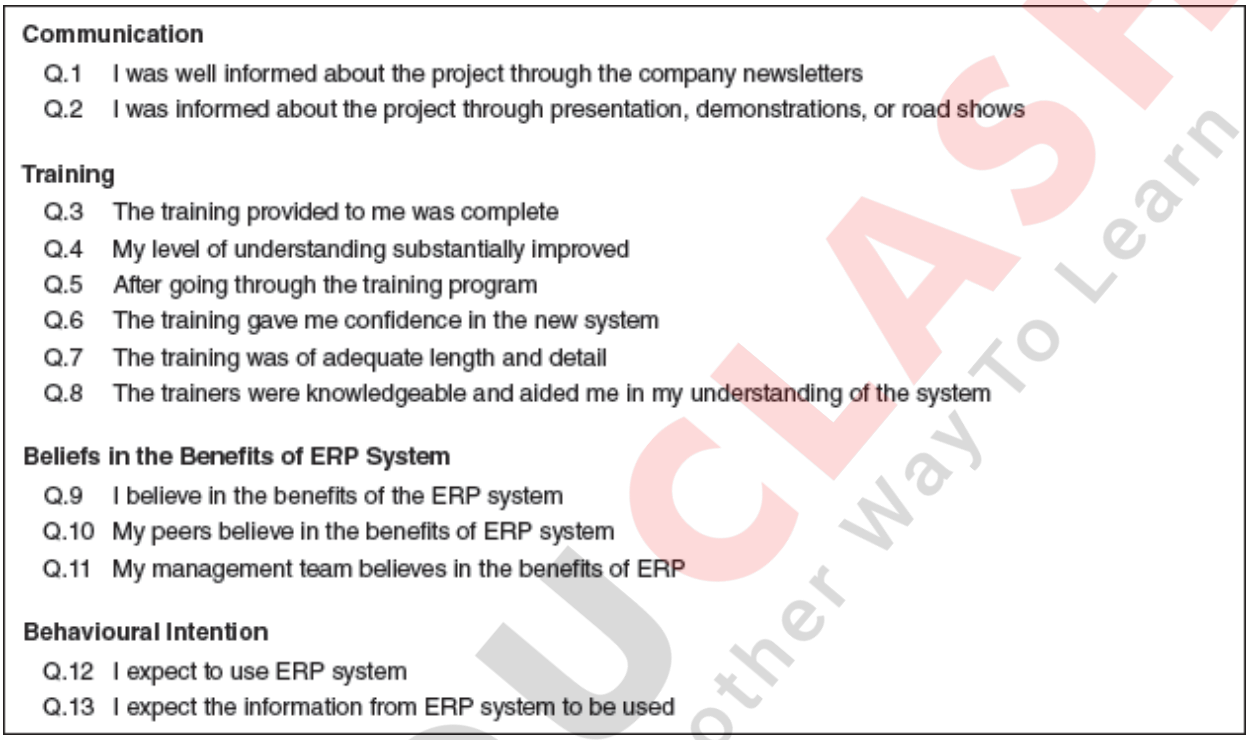
4.4.2 Summary

We have discussed a strategy for assessing and changing attitude of the employees that consists of the following three phases.[19]

- **Knowledge formulation phase:** Use questionnaire given in Figure 4.2 to evaluate the attitudes of individual users. An analysis of the data would reveal the attitude of groups or functional units provided the questionnaire request the individual to identify

their functional unit. The data would also help in identifying their needs and concerns.

- **Strategy implementation phase:** Based on ETAM, the communication and training are two activities to focus on to address most of the people issues.
- **Status evaluation:** Another survey should be done using questionnaire given in Figure 4.4 to evaluate effectiveness of the training and communication as well as their quality. If the attitude remains largely negative towards ERP system, it may be wiser to delay the adoption of the ERP system. The management should first focus on winning the support of the employees.



Communication

Q.1 I was well informed about the project through the company newsletters
Q.2 I was informed about the project through presentation, demonstrations, or road shows

Training

Q.3 The training provided to me was complete
Q.4 My level of understanding substantially improved
Q.5 After going through the training program
Q.6 The training gave me confidence in the new system
Q.7 The training was of adequate length and detail
Q.8 The trainers were knowledgeable and aided me in my understanding of the system

Beliefs in the Benefits of ERP System

Q.9 I believe in the benefits of the ERP system
Q.10 My peers believe in the benefits of ERP system
Q.11 My management team believes in the benefits of ERP

Behavioural Intention

Q.12 I expect to use ERP system
Q.13 I expect the information from ERP system to be used

FIGURE 4.4 Questionnaire to Assess Enhanced Attitude of Employees Towards ERP System Due to Training and Communication

There are many other changes that the organization will experience. The management would have to work out a change management strategy to handle organizational issues which are discussed further.

4.5 CHANGE MANAGEMENT STRATEGIES TO HANDLE ORGANIZATIONAL ISSUES

An ERP system makes an impact on organizational structure and its culture. To quote,[20]

Change management is defined as the process of assisting the organization in the smooth transition from one defined state to another, by managing and coordinating changes to business processes and systems. Change management involves the effective communication with stakeholders regarding the scope and impact of the expected change; formal processes for assessing and monitoring the impact of the change on the stakeholders and their work processes, and identifying and developing effective and appropriate techniques to assist stakeholders to cope and adapt to the new technology.[21] There are different ways of looking at the changes.

4.5.1 Lewin's Model

An early model of change developed by Kurt Lewin describes change as the following three-stage process:

- Unfreezing
- Changing
- Freezing

The first stage[22] is *unfreezing*. It involves overcoming inertia and dismantling the existing mindset. Unfreezing and getting motivated for the change is all about weighing up the pros and cons and deciding if the pros outnumber the cons. This is the basis of what Kurt Lewin called the Force Field Analysis. There are lots of different factors (forces) for and against making change that we need to be aware of (analysis). If the factors for change outweigh the factors against change, we will make the change. If not, then there is low motivation to change. This unfreezing stage involves moving an entire business towards motivation for change.

In the second stage, referred to as *changing*, the change occurs. This is typically a period of confusion and transition. The old ways are being challenged but a clear picture of replacement has not yet emerged. The third and final stages are *freezing*. The new mindset crystallizes and one's comfort level starts returning. Lewin's concern is about reinforcing the change and ensuring that the desired changes are accepted and maintained in the future. Without this, the organizations tend to go back to its older state.

Lewin treats change as a planned event that occurs in a bounded period. This model works well for organizations that are stable and changes are always a planned activity rather than an activity that gets triggered by technological changes or market forces. Present organizations are flexible and turbulent. The change itself is flexible and ERP implementation itself is an open-ended project.

4.5.2 Improvisational Model

The model[23] suggests that the changes fall into the following three categories:

- **Anticipated changes:** Changes that are planned ahead of time and occur as intended. These changes may be identified before a technology project commences and the management prepares to deal with them.
- **Emergent changes:** Changes that arise spontaneously from local innovation which are not anticipated or intended.
- **Opportunity-based changes:** These changes are introduced purposefully and intentionally during the change process in response to an unexpected opportunity, event or breakdown.

The change management team makes a plan to deal with anticipated changes, but emergent and opportunity-based changes are the ones that the change management team will have to watch for and respond to. For instance, ERP may empower employees through integrated information more than the management anticipated, this is an emergent change. The management may respond by enhancing job profiles (positive approach) or by limiting access to data (negative approach). An opportunity, which has presented itself to many companies after ERP system implementation went live, is to start a business centre. The

trained ERP manpower was utilized to start ERP consulting. Business intelligence and knowledge management at organization level and at industry level have emerged as an opportunity because of ERP systems. Bristlecone in India is one such company. In any case, we need to work out a change management strategy for handling the anticipated changes. The steps involved in creating a change management strategy are described in the next section.

4.6 CREATING A CHANGE MANAGEMENT STRATEGY TO HANDLE ORGANIZATIONAL ISSUES

It is now clear that an organization needs a change management strategy. Devising a change management strategy involves the following general steps (adapted from Hussey):[24]

- **Envision:** Determine the changes that the ERP project will bring about. This is the foundation step. The changes have to be identified and documented. It may not be possible to identify all the changes but the objective is to identify all major changes. There are certain tools available that can be used for the purpose such as force field analysis or matrix of change that we will discuss in Sections 4.7.1 and 4.7.2. Set the objectives of the change management strategy and the objective may be one or more of the following:[25]
  - Enhance acceptance of the ERP system.
  - Enhance sustainability of changes.
  - Create common orientation among all stakeholders.
  - Ensure motivation.
  - Make results felt.

  This list is not exhaustive. The management may set one or more objectives for the change management team depending on the anticipated changes. The next step is to communicate to the stakeholders so that they would support the change and would learn about the support system during the process of change.

- **Communication:** The changes identified in Step 1 need to be communicated to the stakeholders. The structure of the organization, decision-making process, control structure or reward system may change due to the ERP system. Since an ERP system impacts everyone in the organization, it is best to inform everyone about the changes. In literature, this approach is referred to as extensive participation. The stakeholders may have a say and may be allowed to provide feedback. For an ERP project, generally focused participation works better where business heads, process owners and influential people are communicated directly who in turn inform their subordinates. Some amount of persuasion may be required if the level of resistance is high. Persuading people may involve spelling out the need and benefits of the change. If the organization has a history of failed IT projects, a leader with strong commitment and integrity may be required to lead the ERP project.
  In any case, the communication has to include the change in a clear manner. The stakeholders should understand the changes and their impact on them.

- **Create change management team and assign tasks:** Depending on the outcome of Step 1, an appropriate change management team has to be created. The responsibility of the team is to make sure that changes occur as planned and retained. One way is to use a Balanced Score Card (BSC) Approach,[26] where every team member is provided a balanced score card that contains their objective, measures for performance, initiatives for achieving the objectives and targets. BSC is discussed in detail in Chapter 5.

4.7 TOOLS FOR ASSESSING THE ORGANIZATIONAL CHANGES

We will discuss two tools from literature for assessing the changes that are likely to be experienced by the organization implementing the ERP system.

4.7.1 Force Field Analysis

The objective of the force field analysis is to assess the current state of the organization to gather all the factors that would support the changes and the ones that would oppose the changes. The management can use this analysis in the change management strategy. The following steps are involved in force field analysis:

- **Define the desired change(s)**: Write down the goals or visions of a future desired state.
- **Identify the driving forces:** Those that are favourable to change. Record these on a force field diagram as shown in Figure 4.5. We have shown forces that have been identified in the literature.
- **Identify the restraining forces:** Those that are unfavourable to or oppose change. Record these on the force field diagram (Figure 4.5).
- **Evaluate the driving and restraining forces:** One can do this by rating each force, from 1 (weak) to 5 (strong) and total each side.
- **Review the forces:** Decide which of the forces have some flexibility for change or which can be influenced.
- **Strategize:** Create a strategy to strengthen the driving forces or weaken the restraining forces or both.

Driving Forces	Rating
1. Organization is IT savvy[30]	
2. History of successful information systems implementation[31]	
3. Management commitment[32]	
4. Perceived risk is low[33]	
5. ERP implementation is aligned with business strategy[34]	
6. ERP system requires negligible change in existing business processes[35]	
7. Responsibility on individuals would decrease[36]	
8. Vendor support is good[37]	
9. Information quality would improve[38]	
Restraining Forces	**Rating**
10. Functional units have autonomy[39]	
11. Accountability is localized[40]	
12. Decision making is localized[41]	
13. Processes are person-centric[42]	
14. Management has local control[43]	
15. Most employees have more than 5 years of the tenure[44]	

FIGURE 4.5 Force Field Analysis for ERP System

Driving Forces	Rating
1. Organization is IT savvy	1
2. History of successful information systems implementation	1
3. Management commitment	5
4. Perceived risk is low	1
5. ERP implementation is aligned with business strategy	4
6. ERP system requires negligible change in existing business processes	3
7. Responsibility on individuals would decrease	4
8. Vendor support is good	4
9. Information quality would improve	5
Restraining Forces	**Rating**
10. Functional units have autonomy	5
11. Accountability is localized	5
12. Decision making is localized	5
13. Processes are person-centric	5
14. Management has local control	5
15. Most employees have more than 5 years of the tenure	3

FIGURE 4.6 Force Field Analysis for ERP System

The relevant forces may be identified by the project leader. (*One can apply analytical hierarchical model (AHP)*[27] *to identify the forces that are important and the ones that are not so important to reduce the number of forces under consideration. A complete example of using AHP and expert*[28] *choice is presented in Chapter 8 for deciding important factors in selecting an ERP system*.)

We have considered all the force factors in our example. The managers and end users are requested to provide rating for each force. One can average all responses to get the final rating for each force. An example is shown in Figure 4.6. In this example, the driving forces sum up to 33 and restraining forces sum up to 28. There is enough insight that obtains from

such analysis. The organization does not seem to be ready for an ERP implementation. This conclusion is consistent with stages theory discussed in Chapter 1 and with suggestion[29] that successful IT history is important. The management has to work out a change management strategy.

In this particular example, it seems that the organization does not have enough exposure and experience with information technology. One can use stages theory[45, 46] and McFarlan Matrix (Figure 7.1, Chapter 7) as a reference and decide to start with a transaction processing system instead of an ERP system. Once the organization is comfortable with TPS, more advanced and integrated information technology systems can be deployed. The organization would stay in low risk and low gain zone. The organization should give itself some more time before going for an ERP system.

If we look at the restraining forces, each unit has autonomy, and processes are people centric. An ERP system would take away the autonomy, and accountability will be more widespread across the organization. The management would also get more control as the data would become available to them in real time. The processes will become non-person centric and some employees may feel loss of power while others may feel empowered. ERP will change processes and structure of the organization. The organization would need to spend efforts in business process reengineering (BPR) (For more details, refer to Chapter 7). There is a strong possibility that standard business processes are not documented and not known across this organization. The processes may not be most efficient. The feedback mechanism and performance measurements may also be local. If any of these problems exist, the organization may not be ready to change its processes according to the ERP system. A careful look at the existing processes, business strategy and their alignment (refer to Chapter 5) would help the management in making the right decision.

In this particular case, if the management decides to go for an ERP system, they will have to make sure that old ways are totally abandoned and the new ways are adopted. To summarize, according to force field analysis model, an organization prepares to change, implements the change and then tries to stabilize as quickly as possible.

4.7.2 The Matrix of Change

It is a framework[47] that can help managers understand the complex interrelationships that exist in the organization. The matrix can be built to capture interactions among the existing practices in the organization. The interactions and interrelationships may be complimentary (+) or interfering (−). Some practices may not have any interaction with other practices.

Let us explore this framework through an example. We will consider a service organization that has the following prevailing practices.

- Narrow job functions
- Independent functional groups
- Multiple management layers
- Customer care department
- Multiple contact points for customer

In order to change the organization which is energized and empowered, the underlying practices would become as follows:

- Greater job responsibility
- Functional group boundaries eliminated using IT
- All employees contribute ideas
- Few management layers
- Single contact point for customer.

We start by building two matrices as one horizontal and one vertical. Horizontal matrix captures the current organizational practices and vertical matrix represents the target practices. Next step is to identify and label interactions among existing practices. We do the same with target practices. Finally, interactions among existing and target practices are looked at. Interactions that are re-enforcing or complimentary are labelled with a positive sign, and opposing interactions are labelled with a negative sign. A blank indicates weak or no interaction.

Sometimes, the interactions are obvious. Sometimes a model, survey, empirical data, theories of ownership, and operation management models may be required. A matrix for the above service organization is shown in Figure 4.7.

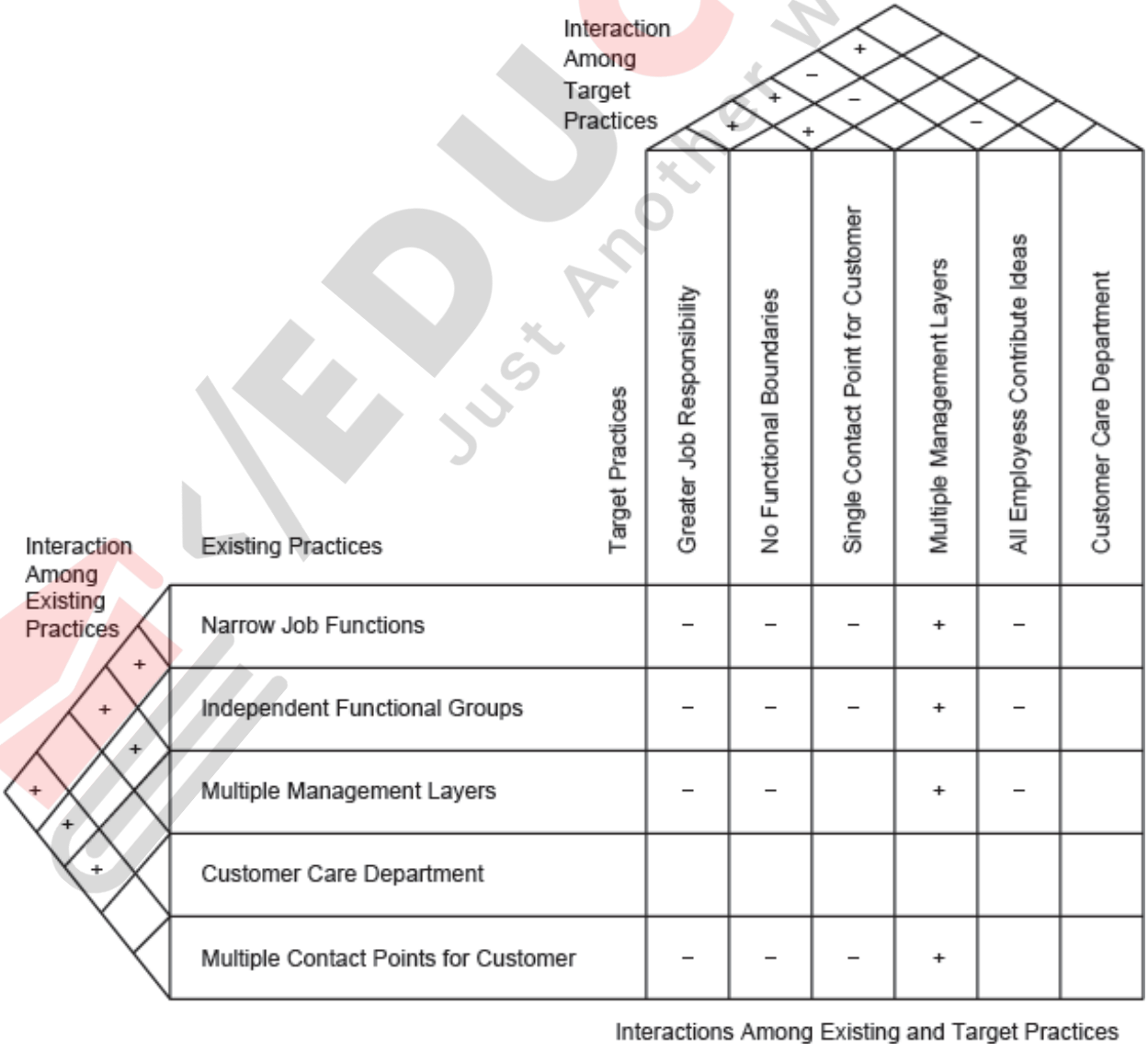


FIGURE 4.7 Matrix to Capture Existing and Target Practices, and Interactions

Analysis

The matrix of change is analysed to figure out the feasibility of the proposed changes and other issues involved.

Feasibility: The changes proposed have not been tried yet and the management may not feel confident about the changes. The matrix of change can show if the proposed system constitute a coherent and stable system. The same matrix can be used to figure out the stability of the present system as well. In Brynjolfsson,[48] matrix of change has been used to figure out the stability of the present and target system. In this book, we have taken the liberty to map these matrices to the graphs. Three graphs were made, one each for the present and target scenario which we will refer to as P and T graph (Figure 4.8) and one that includes both will be referred to as PT graph (Figure 4.9). A node in Graph P represents an element of the horizontal matrix for mapping the present scenario. There will be an arch between two nodes if the corresponding elements interact in the matrix. The arch will be labelled with a positive/negative sign as the case may be. Similarly, in the T graph, the nodes will represent elements of the vertical matrix. In the PT graph, we have drawn nodes of P graph as double-lined rectangles and nodes of T graph as single-lined rectangles. Figure 4.9 includes only negative interactions. There are 14 negative interactions and only four positive interactions.

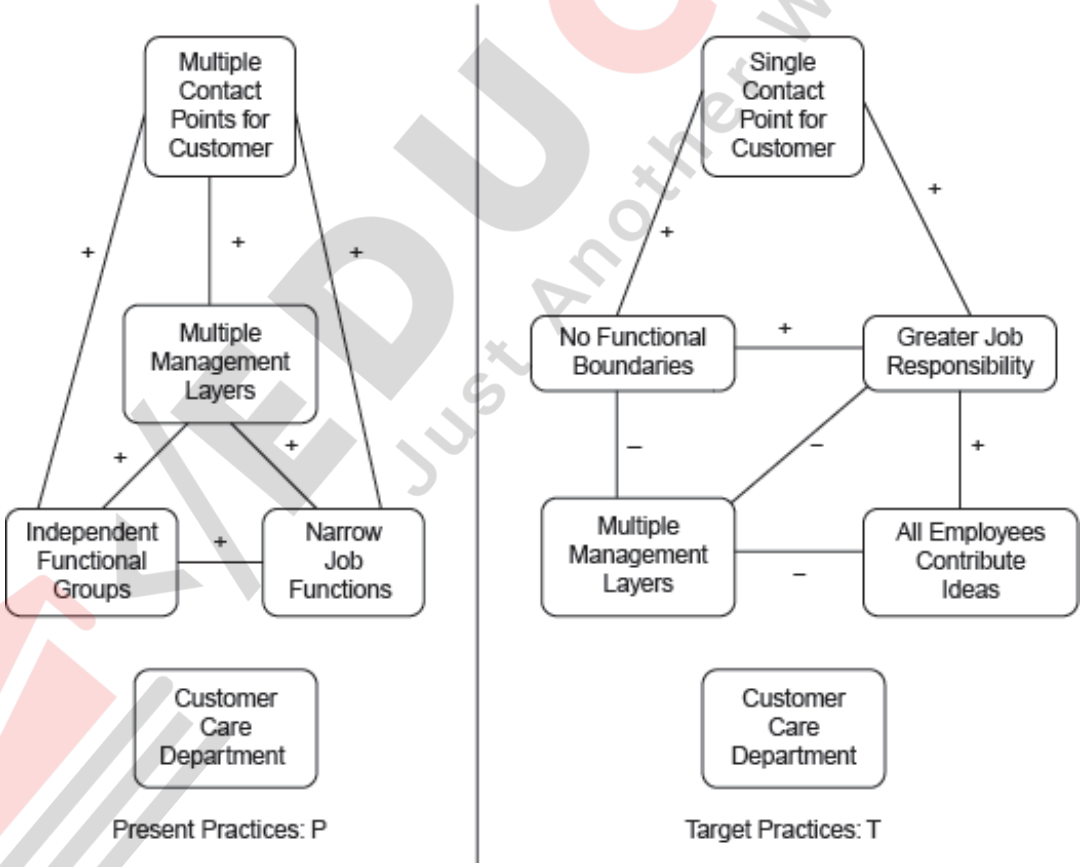


FIGURE 4.8 Graphs Showing Present (P) and Target (T) Practices, and Interactions

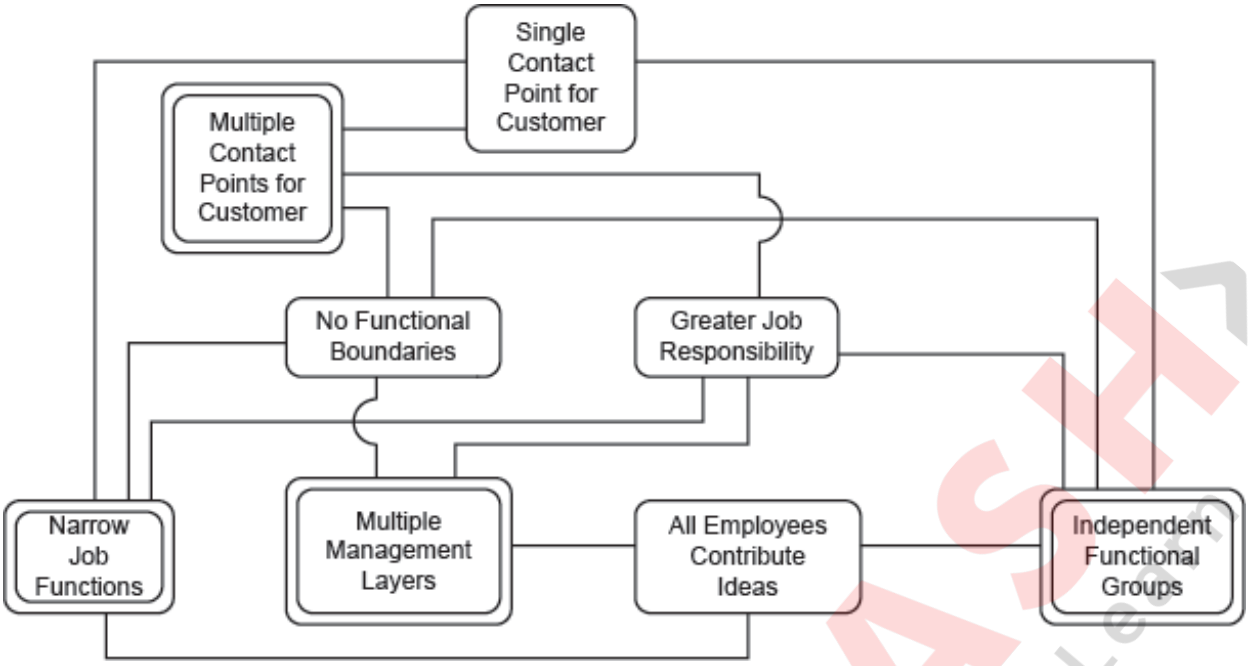


FIGURE 4.9 Graph (PT) Showing Negative Interactions Between Present (P) and Target (T) Practices; Nodes of P Graph are Drawn as Double-lined Rectangles and Nodes of T Graph as Single-lined Rectangles

The transition will be difficult and unstable if there are many arcs with negative labels on them in PT graph. The existing practices and the target practices do not support each other which usually would be the case (recall the definition of re-engineering). The target practices once implemented will face the initial problems that any new system faces, possibly to the extent that the manager will start suspecting the new practices and may revert back to old practices even though they are in direct conflict. A short-term view will even be able to justify the resistance to change back to the practices that work. But the success of the entire exercise of reengineering becomes doubtful.

Sequence of Execution

Where should change begin? How does the sequence of change affect success? Are there reasonable stopping points? Let us consider a simple situation where there are only two nodes in P and two nodes in T.

- One possibility is that all nodes interact and their interactions are positive which implies that the existing practices reinforce each other and the target practices behave in the same way. Moreover, the target practices are not in conflict with the existing practices. It seems a happy situation and one would be tempted to make changes in a phased manner by first replacing one existing practice followed by another. But such a situation should be carefully reviewed to find out if we are reengineering or simply rationalizing.
- Now consider another extreme situation where all nodes interact with each other and all interactions are negative. Such a situation will arise only if our present system in unstable and we are trying to make a transition to another unstable system. The present state of an organization is unlikely to be unstable as the processes over a period of time grow to a stable state. If indeed, the present and target states are both unstable, a relook at the policy, process and practice level is required before

attempting any re-engineering exercise.

- In all other situations, there will be some positive and negative interactions. Now we can handle arbitrary number of nodes in P and T. There will be some coherent groups in P as well as in T. There will be some nodes in P which will support some nodes in T. This is the true picture of a re-engineering project. One simple heuristic is to replace one coherent block of activities from P by corresponding new practices in T in one phase without stopping in the middle. An old activity, policy or process that belongs to a group of coherent activities in P if allowed to remain in existence, may for its own convenience, cause other old practices to roll back into the system. Multiple management layer is one such practice in the graph shown in Figure 4.9. The nodes in T that interact positively with nodes in P can build the bridge for reengineering and help the management gain confidence in the re-engineering project. However, this approach runs the risk of making people feel that re-engineering is not going to change things much. In fact, the old practices may get reinforced further.

The practices that are somewhat independent can be handled later.

- **Location:** Are we better off instituting the new system in a Greenfield site or can we reorganize the existing location at a reasonable cost? The number of disruptive changes can be used to decide the location for re-engineering project. If the changes are too disruptive, it is better to shield the re-engineering project from the existing practices and start the project at a new or Greenfield site. Greenfield site will be characterized with the new processes, fresh attitude and mental models involving goals, values and causal structure. For radical changes, a company may need an outside change agent to help people see processes differently. A fresh team of management may also be required to rapidly change the old ways. Some more issues may surface that may need addressing, sooner than later. Dismissing these issues as trivial may be too expensive for the re-engineering project. We will have more to say on the role of the management little later.
- **Pace and nature of change:** Should the change be slow or fast? Incremental or radical? Which groups of practices, if any, must be changed at the same time? The pace and nature is largely determined by the nature of proposed changes. The proposed practices that do not build on the existing practices can be introduced by a radical change. Let us recall that radical change is introduced where the existing practices are completely discarded. On the other hand, if the proposed changes build on the existing practices, an incremental change may introduce new practices. As far as the pace is concerned, a coherent block will have to be introduced in one go. In other words, the pace can be determined by the task interdependence. Another important factor is the organizational culture. If the present state of the organization is too stable and the organization has been in the present state for a reasonable duration, the employees as well as management may not be ready for any change unless there is an immediate market pressure. The willingness of the stakeholders to accept change is an important factor. A change in the atmosphere and attitude may be brought about by running some training programs.[49]
- **Stakeholder evaluations:** Have we considered the insights from all stakeholders? Have we overlooked any important practices or interactions? Do a survey to find out

the importance stakeholders attach to existing practices and target practices? Compute the net value by subtracting cumulative value for present practices from target practices, and if the net value is positive, there is support for the change. If the net value is negative, the stakeholders are not in favour of the changes.

CONCLUSION

An ERP system touches the culture of the organization. Before the management decides to go for an ERP system, they should make an effort to check the attitude of employees towards ERP system. A questionnaire can be used to check the attitude of employees. If employees are not ready for an ERP system, they may react negatively and offer resistance. ETAM can be used as a framework to check and then enhance the attitude of employees.

In this chapter, we have pointed out that an ERP system impacts culture and standard operating procedures (SOPs) of an organization. ERP may require changes in the culture and SOPs of the organization. The organization needs a change management strategy to manage the impact on its people. We discussed Lewin's model that consists of three stages, namely—unfreezing, changing and freezing. This model assumes that the change happens and then the system returns to a stable state. The improvisational model is based on the assumption that change is a continuous process and the management cannot anticipate all the changes beforehand. There are three types of changes: anticipated, emergent and opportunity-based changes. The management can use Lewin's model to prepare for anticipated changes but will have to watch for other changes and respond accordingly.

CASE STUDY

RetailS that we have been using as our company for the case study is a very new company with a young population of employees. The CMD was very sure of buy-in by the employees and no effort was made to assess the readiness of the employees.

We did a study in a larger organization that we will refer to as ABC in Hyderabad using the questionnaire given in Figures 4.2 and 4.4. We will present our findings here.

ABC is an arm of Defence Research and Development Organization (DRDO), Ministry of Defence and is dedicated to the R&D activity of defence equipments. The organizations have various departments termed as directorates and several programs that run concurrently. Being a R&D organization, ABC has taken the right initiative to implement SAP ERP system which is a great enabler for collaborative R&D. This ERP system will integrate all the functional directorates and work centres and will provide the data/status/analysis online at a single window on your desktop and thus it will IT enable the entire organization. We did this study when ABC was starting the project.

The data given in Table 4.1 gave us an idea about pre-project attitude of the employees. ABC can use these results to decide their change management strategy.

The major implications of the study are as follows:

ERP project communication: As mentioned in discussion of ETAM, project communication plays very important role in developing shared belief in benefits of ERP

systems, which in turn improves perceived usefulness and perceived ease of use. Collected data revealed that this is somewhat ignored aspect in ERP implementation in ABC. Most of the people who participated in the survey indicated that they were not adequately informed about ERP project. Virtually no one had seen any presentation and there has been no direct communication.

The implication is that ABC should pay attention to communication about ERP project to their employees.

Shared belief in the benefits of ERP system: As suggested by ETAM, acceptability of an ERP system depends on personal and shared belief in the benefits of the ERP system. As per the data collected, 72 per cent of the respondents believe in the benefits of the ERP project at an individual level. But people are hesitant to share their beliefs or have just not shared their beliefs as only 40 per cent people perceived others to share their belief. Most probably, this is due to lack of communication among them regarding ERP project. ABC need to encourage their employees to share their beliefs.

Perceived usefulness of ERP system: The respondents were asked questions about their perception on data accessibility, data analysis capabilities and information availability due to ERP system. About 70 per cent people had a positive perception of the usefulness of the ERP system in terms of improved data accessibility and data analysis, availability of accurate integrated, timely and reliable information. About 70 per cent respondent believed that ERP would be better than the old system.
The employees have a very positive perception about the usefulness of the ERP system.

Perceived ease of use: Perceived usefulness along with perceived ease of use leads to behavioural intentions of using the system. Only 40 per cent considered that learning to use ERP system will be easy or very easy while 50 per cent considered it from moderately difficult to very difficult.
ABC should plan very focused training programs.

Attitude towards ERP systems: About 70 per cent respondents believed that ERP will increase their productivity and will be useful in their job.
ABC has a strong support for their ERP project.

Behavioural intention to use: As suggested by ETAM, perceived usefulness and attitude towards the system lead to behavioural inattention to use ERP systems. About 60 per cent of respondents had all the intention to use the system as well as information available due to ERP system.
Employees of the ABC have very positive attitude towards using the ERP system.

TABLE 4.1 Data Collected from ABC

All Figures are in Percentage of Responses						
	Communication	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Q1.	I was well informed about ERP implementation in ABC through ABCNet.	13	20	18	18	18
Q2.	I was well informed about ERP implementation in ABC through ongoing discussions.	28	34	18	15	5
Q3.	I was well informed about ERP implementation in RCI through presentations/demonstrations	49	23	10	8	8
	Shared belief in the benefits of ERP system					
Q4.	I believe in the benefits of ERP system	0	0	28	26	46
Q5.	My colleagues believe in the benefits of ERP system	0	3	36	33	13
Q6.	My departmental team believes in the benefits of ERP system	0	10	41	26	13
	Perceived usefulness of ERP system					
Q7.	It will provide access to more data	3	3	8	20	51
Q8.	It will make data analysis easier	2	3	20	26	46
Q9.	It will be better than the OLD systems	0	0	15	26	49
Q10.	It will provide accurate information	0	3	28	31	28
Q11.	It will provide integrated, timely and reliable information	0	2	26	36	28
	Perceived ease of use					
Q14.	Learning to operate it will be easy for me	2	15	31	36	8
Q15.	It will be easy to get it to do what I want to do	0	13	44	33	5
	Attitude towards ERP system					
Q12.	It will increase my productivity	0	5	26	43	26
Q13.	It will be useful for my job	0	5	26	44	23
	Intention to use ERP system					
Q16.	I expect to use it	0	0	26	33	31
Q17.	I expect information from ERP system to be used	0	0	33	31	36

Important factors for change management at ABC: As per the data collected, lack of communication in ABC about the ERP project is a major concern. All three modes of communication must be used:

1. ABC Net
2. Meetings and discussions
3. Presentations about ERP

Another major concern is perceived ease of use. A training plan should be developed. This plan should identify:

- Which groups or individuals require training?
- What are the training requirements?
- How, where and when it will be delivered?
- Who will deliver the training?

This should result in a well-defined training plan that will ensure that the ABC community acquires skills to play their role in the ERP project and as end users.

There a slight concern about the openness and sharing the beliefs. Group meeting and forums can be created to encourage people to share their beliefs.

There are no other major concerns.

EXERCISES

Test Your Understanding

1. What are some of the indicators that management can use to judge readiness of the employees?
2. What are three different levels of resistance? Explain the reasons for all the three levels of resistances and their solutions.
3. Explain Extended Technology Acceptance Model (ETAM) in the context of ERP system. Why is ETAM used?
4. What is Lewin's Model and where is it used?
5. Is Lewin's Model applicable to an ERP implementation in an automotive industry? Is it also applicable to a service industry?
6. Explain force field analysis and its application to decision making with an example.
7. Explain matrix of change framework with an example. How will you determine sequence of change from matrix of change? What are other decisions that you can make with respect to an ERP project using this framework?

Apply Your Understanding

1. Identify the latest IT system that is installed in the organization that you are part of. Talk to people at different levels and find out if there was any resistance from the employees. What steps were taken by the management prior to introducing the IT system to reduce the resistance?
2. You identified an organization to work with in Chapter 1. If the organization has already implemented ERP system, find the resistance offered by its employees, if any. In case, the management faced no resistance, find out the steps that management took by talking to stakeholders. In case, there was resistance, find out how it was handled by the management.
3. Identify the latest IT system that was installed in the organization that you are part of. Talk to the department head or functional unit head where the IT system was installed. If the IT system is being used by the entire organization, talk to the management and find out the changes brought about by IT system. Categorize changes into anticipated, emergent and opportunity-based changes.
4. Identify the latest IT system that was installed in the organization that you are part of. Do a force field analysis to figure out if the IT system should be implemented or not. Do a reality check against your analysis.
5. Talk to the management of your organization to find out the changes they would like to introduce in the organization. Contrast the changes with the existing practices in the organization. Create matrix of change to capture interaction among existing practices, target practices and between them. Analyse the matrix of change to suggest to the management the following:
    - Feasibility of introducing the changes.

- Sequence for introducing the changes.
- What are different styles of leadership? What is the most appropriate style of leadership for a BPR project?

6. You identified an organization to work with in chapter one. If the organization has already implemented ERP system, find out their change management strategy. Was the strategy successful?