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is eventually to be made available to the end users. The entire production platform must be configured and built with the necessary hardware, network, security, software, database, and real production data. The tasks identified in the gap analysis are executed at this stage. These include customization of embedded software rules, data in the database tables, input screens, and reports that come with the ERP system. While the technical team is working on the installation, the change management team works with end users on implementing the changes in business processes and preliminary training with the sandbox version of the software. The data team similarly works on migrating data from the old system to the new system. This can be an extremely difficult task when the old system is a legacy application using a nonrelational database. Data mapping, missing data, and data dictionary design are the major tasks for data conversion. Finally, the ERP system needs to be configured with proper security, implement the authentication and authorization policy for accessing the system, and contain other modifications as recommended by the design plan.

Stage 4. Implementation stage. The focus for this stage is on installing and releasing the system to the end users (i.e., “Go-Live”) and on monitoring the system release to the end users. This production platform is a mirror of the development version of the system. Errors found in the production version have to go through the help desk or support staff. Any changes made to the development version are then retested and migrated to the production system as regularly scheduled updates. System conversion is a major activity for the new system and needs to be managed carefully. There are four basic conversion approaches, which are visually represented in Figure 6. The first

![Figure 6](image_url)

**FIGURE 6** ERP Conversion Approaches
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approach, *phased*, is a gradual movement of the company from the existing legacy system(s) to the ERP implementation. This approach can take a significant amount of time, but can also be the least disruptive to the company. The second approach, *pilot*, implements a small version of the final system. This pilot system is used to ensure that the final system is appropriate. It is the equivalent of a test drive in that the system is used, but only by select areas, and its impact can be managed more closely. The third approach, *parallel*, has the most up-front cost because the ERP system is implemented and used in conjunction with the legacy system. This approach is best used when risk of ERP failure is of significant concern. The final approach, *direct cutover* or *big bang*, is the highest-risk approach but the most straightforward and clean. The company moves from the legacy system directly and immediately to ease the ERP system. This approach has the least amount of up-front costs because systems are not duplicated or run concurrently for any length of time. Training end users on how to use the new system is another important activity. Training is generally part of the change management strategy designed to ease the transition to the post-implementation environment. Feedback received from system usage needs to be funneled to the post-implementation team for ongoing system support, including upgrades and patches, as well as to make adjustments to the change management strategy.

**Stage 5. Operation stage.** This is often managed by the operation team with assistance from the implementation team. Knowledge transfer is the major activity as support for the new system is migrated to the help desk and support staff. Some implementation team members are very often hired as support staff. The other major activities are ongoing training of new users to the system as ERP modules are released, as well as to take a fresh look at the change management strategy. The team has to monitor user feedback from training and actual system usage carefully and make the necessary adjustments to the change management approach. Another key activity is management of new releases of the software, installation of patches and upgrades to the system, and managing the software contract with the ERP vendor.

A summary of ERP life cycle phases is shown in Figure 7.

**ROLE OF CHANGE MANAGEMENT**

Change management (CM) plays an important role throughout the ERP life cycle. System failures often occur when the attention is not devoted to this from the beginning stages. A vision for CM needs to be articulated from the first stage and then revised, monitored, and implemented on a constant basis. A major role of the SMEs and other internal users working with the team is to guide the implementation team on all the activities of change management, including guidance on what processes need changing, customization of business rules in ERP software, input screen design, report design, and training and communications plan for the end users affected by the new system. Support of the top management as well as skills of the change management team are essential for successful implementation. Change management strategy and activities are discussed in detail elsewhere in this book.

**Rapid ERP Life Cycles**

ERP implementations are usually very long. They usually start with a long requirements-gathering phase, followed by designs, and implementations. That means that significant amounts of time (months to years) could go by between the time the requirement is given and the time it is
actually implemented. As businesses grow and move quickly, there is a high chance that the requirement will change during those months or years of time that pass.

Consultants play an important role in rapid implementation of ERP systems. They provide different methodologies and techniques for rapid or accelerated implementation. This is an area where the use of experienced consultants can best be leveraged as they bring knowledge of techniques and approaches that have worked well with other organizations. Scripts and wizards provided by consultants can help automate some of the more common tasks that occur during an implementation. These include migration of data, identification of duplicate data, and other standard tasks.

This section will give you a sample of methodologies offered by ERP consulting firms. The appropriate implementation model may vary based on company, culture, software, budget, and the purpose of the implementation, but previous implementation experience of the program management and consultants will likely be the largest driving factor in determining the best approach. With that said, the high commitment of resources required in the first stages of the implementation and the time and cost saving claimed by rapid implementation approaches have drastically increased the number of rapid implantations. Some examples of methodologies used in implementing ERP systems follow.

**TOTAL SOLUTION** ERP packages have increasingly become indispensable to run businesses; yet, ERP implementations often fail because these solutions are highly integrated, demand cross-functional collaboration, and require significant change management. Although ERP solutions have matured and stabilized over the years, they are still difficult to implement and manage. Ernst & Young, LLP, have developed a systematic way of approaching systems reengineering called the **Total Solution**. The Total Solution approach has five components:
Development Life Cycle

1. **The value proposition.** Building the business case for an ERP solution. The key decision to be made before any process can begin is to make sure that the ERP solution makes sound business sense. The following questions should be answered before the process is started:
   - Is the investment in new technology justified?
   - Does the ERP solution match the company’s objectives?
   - Does management understand what change means, and does that change have full support?
   - What is the framework for making decisions?
   - What milestones will measure the project’s progress?
   - Is value being delivered throughout the process?

2. **Reality check.** Assessing an organization’s readiness for change. Since many people oppose change, it’s something that needs to be anticipated. Status quo is easy. Change is not. The following questions therefore need to be asked:
   - Is the organization ready for change?
   - Are there any “hidden agendas?” If so, how will they be managed?
   - Is everybody on board with the nature, scope, and pace of the change?
   - What are management’s expectations?

   The answers to these questions will adjust the implementation approach. Knowing the answers up front helps to avoid a possibility that the change is incompatible with the client’s expectations.

3. **Aligned approach.** Setting the right expectations that deliver both short-term and long-term value. Short-term as well as long-term benefits are equally important to any project’s success. Even if change is discomforting for some, it is easier to accept when progress is visible. In this approach, the following tasks are performed:
   - Evaluate alternatives to a comprehensive reengineering project.
   - Craft a “best-fit” approach that allows the implementation to proceed in well-defined modules.
   - Communicate expected results to management. Keep communicating throughout the project so no surprises surface at the end. This approach helps keep the entire project on time, on budget, and on management’s agenda for success.

4. **Success dimension.** Getting the right blend of people, skills, methods, and management in the team. The key to any project’s success is having the right mix of people, skills, methods, and management (i.e., people with diverse skills in process management, change management, knowledge management, and industry skills). Teamwork is very important to a project’s success.

5. **Delivering value.** Measuring results and celebrating success. A project that does not show measurable results throughout the process is going to flounder. People will lose enthusiasm and the expectation of a new way of doing business becomes just another broken promise. Total Solution methodology makes sure that every project pays continuous “value dividends” all along the way and helps to minimize the risk of change.

**FASTTRACK** Whether your business objective involves global reengineering, process improvement, or software replacement, Deloitte & Touche Consulting Group’s FastTrack implementation methodology can enhance and accelerate ERP software implementations. The FastTrack approach developed by Deloitte & Touche is based on a matrix of five phases and five focus areas:

- **Phases** Designed to reflect and integrate decisions regarding business redesign, organizational change and performance, training, process and systems integrity, client–server technologies and technical architecture.
**Development Life Cycle**

**Stage 1.** *Scoping and planning:* Project definition and scope. Project planning is initiated.

**Stage 2.** *Visioning and targeting:* Needs assessment. Vision and targets identified. As-is modeling.

**Stage 3.** *Redesign:* To-be Modeling. Software design and development.

**Stage 4.** *Configuration:* Software development. Integration test planning.

**Stage 5.** *Testing and delivery:* Integration testing. Business and system delivery.

**Areas**

In addition, it identifies five areas (groups) as an individual thread to be woven into a cohesive fabric through its five-phase work plan. The areas and a list of the functions performed are as follows:

**Stage 1.** *Project management* (project organization, risk management, planning, monitoring, communications, budgeting, staffing, quality assurance).

**Stage 2.** *Information technology architecture* (hardware and network selection, procurement, installation, operations, software design, development, installation).

**Stage 3.** *Process and systems integrity* (security, audit control).

**Stage 4.** *Change leadership* (leadership, commitment, organizations design, change readiness, policies and procedures, performance measurements).

**Stage 5.** *Training and documentation* (needs assessment, training design and delivery for project team, management, end users, operations, and help desk. Scripting of end-user and operations documentation).

**Rapid-Re**

Gateway, a consulting firm in New York, has developed an ERP life cycle methodology called *Rapid-Re.* The five-stage, 54-step modular methodology is customized to the needs of each project because that is what happens in practice. Individual projects skip, rearrange, or recombine tasks to meet their needs or give greater or lesser emphasis to some tasks.

**Stage 1.** *Preparation.* Mobilize, organize, and energize the people who will perform the reengineering project.

**Stage 2.** *Identification.* Develop a customer-oriented process model of the business.

**Stage 3.** *Vision.* Select the processes to reengineer and formulate redesign options capable of achieving breakthrough performance.

**Stage 4.** *Solution.* Define the technical and social requirements for the new processes and develop detailed implementation plans.

**Stage 5.** *Transformation.* Implement the reengineering plans. In an ideal project, stages one and two consider all key processes within a company and conclude with a step that sets priorities for the processes to reengineer. The other stages are executed repeatedly for each process selected for reengineering.

**ACCELERATED SAP (ASAP)**

The ASAP roadmap is a detailed project plan by SAP that describes all activities in an implementation. It includes the entire technical area to support technical project management, and addresses such concerns as interfaces, data conversions, and authorizations earlier than do most traditional implementations.

The ASAP roadmap consists of five phases—project preparation, business blueprint, realization, final preparation, and go-live—and supports continuous change.