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Chapter 3: Implementation of the Milestone Deliverables Process

A milestone Deliverables ERP implementation project is made up a “lucky thirteen” basic phases. However, these phases can be expanded upon and further broken down into smaller and smaller components. In fact, that is exactly what is needed to link tangible deliveries to achievable tasks.

Phases are made up of tasks and deliverables, and some cannot start until their predecessors complete. The deliverables are strategically associated with key milestones; ultimately when all tasks and deliverables are completed, the project is technically over.

Overview of the Phases

Like the pyramid in Figure 1, the phases build on a foundation of solid planning. They then move to the development of concepts; proving concepts; transferring the knowledge learned; and taking the data used in the old systems and transferring it to the new.

The logical order of the phases enable the deliverables to evolve naturally, and incrementally, as the team’s understanding of the ERP application software improves.

Establish the Objectives and Guidelines (Planning Phase)

The first stage of any project is to define the scope, set expectations, prepare high-level plans, estimate costs, and develop timelines.

Develop the Concepts (Key User Training, Mapping, and Walkthrough Phases)

Then, learn the new systems, revise the business processes, and ensure (in theory) that they work seamlessly across the organization.

Prove the Concepts (Conference Room Pilot, Departmental Pilot, and Integrated Pilot Phases)

Pilot several layers of testing to prove that the theories can be put into practice on the new ERP software.

Transfer the Knowledge (End User Training Phase)

Enhance worker skills and train the end users to run the business on the new system.
Out with the Old (Migration, Customizations, Interfaces, Special Projects, IT Infrastructure Phases)

Bring the data from the old systems to the new, adapt and develop ancillary systems. Construct the appropriate IT infrastructure.

In with the New (Cutover Phase)

Close down the old, and fire up the new ERP system.

Improve Forever (Optimization Phase)

Never stop improving the ways of conducting business.

Figure 2 (page 4) shows a view of the time-line of the relationship of these phases. In the sample, a six-month start-to-finish duration is used for reasons of brevity and simplicity.

Each of the thirteen phases, their tasks, and associated deliverables is covered later in this chapter.
Figure 1 - The Phase Pyramid

A solid foundation, built from the bottom up, ensures the project will not crumble under its own weight.
### Figure 2 - The Phases

Thirteen phases comprise a complex ERP implementation project.
Overview of the Tasks and Milestone Deliverables

The project tasks are accompanied by fourteen tangible deliverables, strategically sprinkled throughout the project’s phases. Completing a deliverable signifies the completion of a particular milestone. And this completion often is a prerequisite to the start of the next phase.

Figure 3 and Figure 4 illustrate the further breakdown of the major phases described in the previous section. The high-level tasks and associated Milestone Deliverables completion points are also shown on the chart.

Each “bubble” contains a description of the deliverable and points to the milestone event after which the deliverable must be completed. Note that the same deliverable can appear several times since many deliverables repeat; deliverables are constantly improving while being revised over the life of the project.

The format of these deliverables is not set in stone. In fact, this methodology does not intend to limit the choice of software for word processing, spreadsheets, project management or databases, nor does it intend to suggest using the sample report formats without modification. What is important is to be faithful to the concept of using this methodology to manage the team to produce high-quality, tangible results in a timely fashion.

The Milestone Deliverables are:

1. **Project and Subsidiary Plans** to list project objectives and scope
2. **Kickoff Presentation** to signal the start of implementation execution
3. **Core Team Training Courses** to teach ERP overviews and details
4. **Business Scenario Lists** to list each department’s processes
5. **Blueprint White Papers** to document each department’s operations
6. **Gaps and Issues Database** to assist tracking and reporting gaps and issues
7. **Change Management Plan** to lay out end users’ skills upgrades
8. **Walkthrough Presentations** to present each department’s business processes
9. **80% and 20% Scenario Scripts** to detail user instructions for each business scenario
10. **User Training Courses** to teach the new operating methods and ERP application details
11. **User Documentation** to combine the many deliverables into a complete document
12. **IT Specifications** to detail customizations, interfaces, and special projects
13. **Migration Plan** to map out tasks for conversion and entry of legacy data
14. **Cutover Plan** to document the project final weeks’ tasks
## Figure 3 – High-level Tasks and Milestone Deliverables

### Milestone Deliverables: The Hands-On Approach to Implementing ERP Projects

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### Figure 4 – High-level Tasks and Milestones Deliverables (Continued)

<table>
<thead>
<tr>
<th>20XX</th>
<th>Month 3</th>
<th>Month 4</th>
<th>Month 5</th>
<th>Month 6</th>
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<tbody>
<tr>
<td></td>
<td>Week 12</td>
<td>Week 13</td>
<td>Week 14</td>
<td>Week 15</td>
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<td></td>
<td><strong>User Documentation and Training Courses</strong></td>
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<tr>
<td></td>
<td>Complete Training Manuals</td>
<td>End User Training</td>
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<tr>
<td></td>
<td><strong>80% Business Scenario Scripts</strong></td>
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<tr>
<td></td>
<td><strong>Updated Blueprint White Papers, Gaps and Issues Database, 80% Business Scenarios and Scripts</strong></td>
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<tr>
<td></td>
<td><strong>Updated Blueprint White Papers, Gaps and Issues Database, 80% and 20% Business Scenarios and Scripts</strong></td>
<td></td>
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<tr>
<td></td>
<td>Develop CRP Scenarios/Scripts (80%)</td>
<td>Enter CRP Test Data</td>
<td>Perform CRP</td>
<td>Develop Dept. Pilot Scripts (20%)</td>
</tr>
<tr>
<td></td>
<td><strong>20% Business Scenario Scripts</strong></td>
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<td><strong>Updated User Documentation</strong></td>
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<td>Customizations</td>
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<td>Interfaces</td>
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<td>Special Projects</td>
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<td>IT Infrastructure</td>
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<td></td>
<td>Prepare Cutover Plan</td>
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<td><strong>Cutover Plan</strong></td>
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<td>Test Migration Scripts and Sessions</td>
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<td>Full Static Migration into Live (Dual Entry)</td>
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<td></td>
<td>Long-term and Short-term Dynamic Data Entry</td>
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<tr>
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<td>IT</td>
<td></td>
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<tr>
<td></td>
<td>Cutover</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Migration</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*Note: Diagram not fully visible in the image.*
The Project Schedule Overview

In the samples, we have used an elapsed six-month project timetable for the sake of simplicity. In fact, full-scale ERP projects can vary in length from brief 4 ½-month implementations to larger undertakings lasting from one to several years.

Figure 5 shows the collapsed view of all the project phases. In this example, the first task starts in early June and the final Optimization Phase completes just less than six months later.
The Migration Phase

Bad data is one of the three primary causes of ERP project failures. *Bad data cannot be tolerated.* In other words, “Garbage in, garbage out.”

Migration refers to the automatic or manual transfer and cleansing of any existing data into the files needed by the new ERP application to function. Sources for this data include the legacy system files, manual documents, spreadsheets, and so on.

The Timetable

The Migration Phase starts immediately after the core team is trained on the new ERP application and continues right through the final cutover weekend. It functions in parallel with the process phases of the implementation.
What This Phase Accomplishes

At this point, two definitions are required:

a) **Static data** is data that has a tendency to change infrequently. It can be migrated early in the implementation cycle to ease any last-minute rush, and to provide test data for piloting.

b) **Dynamic data** is data that is volatile. It should be migrated at the last possible moment to reflect its most up-to-date state.

Some examples of static data include:

**Tables, Parameters, and Master Data**
- Logistic, finance, and tax tables
- Application module parameters
- Non-volatile master data (order types, numbering series, user profiles, etc.)

**Operating Data**
- Business partners (customers, suppliers, etc.)
- Engineering master items, coding systems
- Engineering bills of materials, routings, etc.
- Employees
- Price books

**Financial Data**
- Charts of account
- Inter-module integrations (mappings)
- Financial budgets

Some examples of dynamic data include:

**Operating Data**
- Sales orders
- Purchase orders
- Shop work orders
- Inventory balances

**Financial Data**
- A/R open items
- A/P open items
- G/L balances
- Cost data
Dynamic data can be further sub-divided into:

a) **Long-term** dynamic data

b) **Short-term** dynamic data

Long-term dynamic data are those elements that are not expected to change between the time they are entered and the date the new system goes live. Examples are: sales and purchase order lines not scheduled for delivery or receipt until after cutover; shop work orders not scheduled to start before cutover.

Short-term dynamic data are those elements likely to change up to the final moments before final cutover. Examples include: sales order lines scheduled to ship before cutover; invoices with pending payments; costing files; and inventory balances.

**Data cleansing strategies**

The new system should start with a clean bill of health for all data. The data to be transferred to the new ERP application must be reviewed carefully to correct errors and redundancies. Any unnecessary or duplicate information must be removed.

There are at least three opportunities to cleanse data:

1. It can be cleansed prior to migration, using existing sessions on the legacy system itself.

2. It can be downloaded into an intermediate format (such as an Excel spreadsheet or Access database) and cleansed there before being transferred into the new ERP application files.

3. It can be cleansed after migration using the new ERP application sessions themselves.

**Automated and manual conversion**

Programs can be written to migrate data with little or no user intervention. The volume of data to be transferred and the compatibility of the legacy and the new ERP application record elements often determine whether fully automated routines can be used.

When coding automated migration routines, programmers must use rules to create structurally correct ERP application records that won’t jeopardize the integrity of the file system.

A full re-migration of the static data can occur as often as necessary as long as no related operating data has been entered in the interim.

**Maintaining data correctness**

By definition, static data is cleansed and migrated to the ERP application files early in the final phases of the implementation cycle. Dynamic data is migrated as late as possible. However, the legacy system will still be operating, and some synchronization between the data in legacy and the newly migrated data must occur from that point forward. Any changes, additions, or deletions of records must be entered in duplicate to reflect the data correctly in both versions.
Identifying long and short-term dynamic data

Clearly, it will be necessary to get a head start on entering dynamic data since the last days before cutover will be exceedingly busy. This dynamic data must be prioritized to indicate which elements are long-term and which are short-term. The long-term dynamic data, by definition, should be entered before the short-term data since its contents are not as susceptible to change.

Print reports from the legacy system to list the data elements that should not change between their entry into the new ERP system and the cutover date; these should be ordered from most- to least-current date sequence. If these are available from the legacy system, include sufficient details to enable complete data entry from this report. If unavailable, print the location of the source documents.

Automated data migrations of both long- and short-term dynamic data need not be run as early in the cycle. An exception to this rule is for high-volume data that may force the migration routines to run over several days or weeks.

As the final cutover approaches, ship, receive, and close as many transactions as possible in the legacy systems to minimize the last-minute, short-term data entry. Once the legacy system is closed, enter the final open legacy data elements into the new ERP application. Print the legacy and new ERP application backlog reports to crosscheck and balance the two systems.

Attrition and converted data sets

It may be beneficial to leave some data on the legacy system to disappear by attrition depending on the volume of data to convert, its longevity, the compatibility of the legacy and the new ERP application file definitions and the ease of maintaining two systems and two sets of business procedures.

The Tasks

1) Prepare the Migration Plan
2) Execute the Migration Plan
   a) Populate the static data files in the test environment for the departmental and integrated pilots and in the production files for final cutover
   b) Populate any long- and short-term dynamic data files prior to cutover.
Figure 6 - Migration Tasks

The Deliverables

Migration Plan

Prepare Migration Plan
A sample Migration Plan Table of Contents includes:

a) Introduction
b) Sandbox, QA, and Production Companies
c) Migration Strategies
   (1) General approach
      1. Locating data
      2. Data cleansing
      3. Maintaining correctness
      4. Automatic versus manual migration
   (2) Static data
      1. Parameters, master data
      2. Business partners
      3. Item master records
      4. Employees
      5. Bills of materials
      6. Routings
   (3) Dynamic data
      1. Open sales order lines
      2. Open purchase order lines
      3. Open work order lines
      4. Open service order lines
      5. Open warehouse order lines
      6. Inventory details
      7. Finance open items
      8. Costing elements
      9. Trial balance opening entries
   d) Timetables
      (1) Static data
      (2) Long-term dynamic data
      (3) Short-term dynamic data

The migration plan must address the methods used to transfer data into the new ERP application files.

Migration Strategies

a) Identify each ERP Application file to be populated, its source, and specify when it is to be done: early for static data; later for long-term dynamic data; or at the last minute for short-term dynamic data.

b) Determine the method of cleansing the data
   (1) In the legacy system
   (2) In an intermediate file using a secondary process such as Excel, Access, etc.
   (3) In the new ERP Application sessions, once transferred

c) Choose the migration method: automatic or manual entry

d) Determine the method to keep the data current in the Production Company
Track the migration progress in a tabular matrix such as the one presented below.

<table>
<thead>
<tr>
<th>Table</th>
<th>Original Data Source</th>
<th>Type</th>
<th>Cleanse Method</th>
<th>Migration Method</th>
<th>Production Update Method</th>
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</thead>
<tbody>
<tr>
<td>Manufacturing Parameters</td>
<td>MAN</td>
<td>Static</td>
<td>MAN</td>
<td>MAN</td>
<td>Manual</td>
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<tr>
<td>Work Centers</td>
<td>LEG</td>
<td>Static</td>
<td>LEG</td>
<td>AUTO</td>
<td>Re-migrate</td>
</tr>
<tr>
<td>Machines</td>
<td>LEG</td>
<td>Static</td>
<td>ERP</td>
<td>MAN</td>
<td>Dual Manual</td>
</tr>
<tr>
<td>Bills of Material</td>
<td>LEG</td>
<td>Static</td>
<td>LEG</td>
<td>AUTO</td>
<td>Re-migrate</td>
</tr>
<tr>
<td>Routings</td>
<td>LEG</td>
<td>Static</td>
<td>LEG</td>
<td>AUTO</td>
<td>Re-migrate</td>
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<tr>
<td>Work Orders</td>
<td>LEG</td>
<td>Dynamic</td>
<td>LEG</td>
<td>MAN</td>
<td>Dual Manual</td>
</tr>
</tbody>
</table>

**Sandbox, QA, and Production Companies**

The IT environment for the ERP implementation must adhere to a set of quality control standards established at the project outset. With this methodology, we do not intend to suggest a single approach. Based on what has worked well in the past, we propose working within a simple framework of one or more instances or companies: Virgin, Sandbox, Development, Quality Assurance (QA), Migration, and Production.

The Virgin Companies preserve the parameters and master data settings and are maintained and kept up-to-date as any changes to these files occur. All the pilot testing occurs in the Sandbox Companies, and the quantity of these Sandboxes varies according to the piloting needs. Sandbox Companies are refreshed (as required from the Virgin Companies) via data entry or using automated migration routines.

ERP application version patches and IT-developed customizations are tested in Development Companies and selectively moved to QA Companies for pre-production testing and quality assurance. When final approval is given to the customizations, the updates are moved to the Production Companies, keeping the QA and Production Companies in close synchronization.

Migration scripts and programs are tested in Migration Companies.

These relationships are illustrated in Figure 7.
Figure 7 - Migration Environment

Work within a simple framework of one or more companies: Virgin, Sandbox, Development, Quality Assurance (QA), Migration, and Production.