

Project Dissertation Report
on
“ERP IMPLEMENTATION IN ORGANIZATION”

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CERTIFICATE

This is to certify that the project work “**ERP Implementation in Organization**” is a bona-fide record of work done by Abhishek Sharma under my guidance for the partial fulfilment of the requirement for the award of MBA degree.

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DECLARATION

I, Abhishek Sharma, hereby declare that the presented project dissertation report titled “**ERP Implementation in Organization**” is uniquely prepared by me.

I also confirm that the report is only prepared for my academic requirement, not for any other purpose. It might not be used with the interest of the opposite party of the corporation.

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EXECUTIVE SUMMARY

Enterprise Resource Planning systems (ERPs) integrate (or attempt to integrate) all data and processes of an organization into a unified system. A typical ERP system will use multiple components of computer software and hardware to achieve the integration. A key ingredient of most ERP systems is the use of a unified database to store data for the various system modules. ERP is an amalgamation of a company's information systems designed to bind more closely a variety of company functions including human resources, inventories and financials while simultaneously linking the company to customers and vendors. The aim of ERP is to advance and modernize inner business processes, which characteristically requires reengineering of current business processes. The components of an ERP system are the common components of a Management Information System (MIS). Because of their wide scope of application within a business, ERP software systems are typically complex and usually impose significant changes on staff work practices. Implementing ERP software is typically not an "in-house" skill, so even smaller projects are more cost effective if specialist ERP implementation consultants are employed. The length of time to implement an ERP system depends on the size of the business, the scope of the change and willingness of the customer to take ownership for the project. A small project (e.g., a company of less than 100 staff) may be planned and delivered within 3 months; however, a large, multi-site or multi-country implementation may take years.

The most important aspect of any ERP implementation is that the company who has purchased the ERP solution takes ownership of the project. To implement ERP systems, companies often seek the help of an ERP vendor or of third-party consulting companies. These firms typically provide three areas of professional services: consulting, customization and support. The top 5 vendors of ERP happen to be SAP, Oracle Corporation, Peoplesoft, Inc. (now Oracle Corp.), JD Edwards & Company, and Baan International. They account for 64 percent of total ERP market revenue. These vendors play a major part in shaping up the new target markets, with enhanced product functionality and higher access rates.

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Introduction to ERP

The initials ERP originated as an extension of MRP (material requirements planning; later manufacturing resource planning) and CIM (Computer Integrated Manufacturing). It was introduced by research and analysis firm Gartner in 1990. ERP systems now attempt to cover all core functions of an enterprise, regardless of the organization's business or charter. These systems can now be found in non-manufacturing businesses, non-profit organizations and governments.

To be considered an ERP system, a software package must provide the function of at least two systems. For example, a software package that provides both payroll and accounting functions could technically be considered an ERP software package

Examples of modules in an ERP which formerly would have been stand-alone applications include: Product lifecycle management, Supply chain management (e.g. Purchasing, Manufacturing and Distribution), Warehouse Management, Customer Relationship Management (CRM), Sales Order Processing, Online Sales, Financials, Human Resources, and Decision Support System.

Some organizations — typically those with sufficient in-house IT skills to integrate multiple software products — choose to implement only portions of an ERP system and develop an external interface to other ERP or stand-alone systems for their other application needs. For example, one may choose to use human resource management system from one vendor, and perform the integration between the systems themselves.

This is common to retailers, where even a mid-sized retailer will have a discrete Point-of-Sale (POS) product and financials application, then a series of specialized applications to handle

business requirements such as warehouse management, staff rostering, merchandising and logistics.

Ideally, ERP delivers a single database that contains all data for the software modules, which would include:

- **Manufacturing** Engineering, bills of material, scheduling, capacity, workflow management, quality control, cost management, manufacturing process, manufacturing projects, manufacturing flow
- **Supply chain management** Order to cash, inventory, order entry, purchasing, product configurator, supply chain planning, supplier scheduling, inspection of goods, claim processing, commission calculation
- **Financials** General ledger, cash management, accounts payable, accounts receivable, fixed assets
- **Project management** Costing, billing, time and expense, performance units, activity management
- **Human resources** Human resources, payroll, training, time and attendance, rostering, benefits
- **Customer relationship management** - Sales and marketing, commissions, service, customer contact and call center support
- **Data warehouse** - and various self-service interfaces for customers, suppliers, and employees
- **Access control** - user privilege as per authority levels for process execution
- **Customization** - to meet the extension, addition, change in process flow

Enterprise resource planning is a term originally derived from manufacturing resource planning (MRP II) that followed material requirements planning (MRP). MRP evolved into ERP when "routings" became a major part of the software architecture and a company's capacity planning activity also became a part of the standard software activity. ERP systems typically handle the manufacturing, logistics, distribution, inventory, shipping, invoicing, and accounting for a

company. ERP software can aid in the control of many business activities, including sales, marketing, delivery, billing, production, inventory management, quality management and human resource management.

ERP systems saw a large boost in sales in the 1990s as companies faced the Y2K problem in their legacy systems. Many companies took this opportunity to replace their legacy information systems with ERP systems. This rapid growth in sales was followed by a slump in 1999, at which time most companies had already implemented their Y2K solution.

ERPs are often incorrectly called back office systems indicating that customers and the general public are not directly involved. This is contrasted with front office systems like customer relationship management (CRM) systems that deal directly with the customers, or the eBusiness systems such as eCommerce, eGovernment, eTelecom, and eFinance, or supplier relationship management (SRM) systems.

ERPs are cross-functional and enterprise wide. All functional departments that are involved in operations or production are integrated in one system. In addition to manufacturing, warehousing, logistics, and information technology, this would include accounting, human resources, marketing and strategic management.

ERP II, a term coined in the early 2000's, is often used to describe what would be the next generation of ERP software. This new generation of software is web-based, and allowed both internal employees, and external resources such as suppliers and customers real-time access to the data stored within the system. ERP II is also different in that the software can be made to fit the business, instead of the business being made to fit the ERP software. As of 2009, many ERP solution providers have incorporated these features into their current offerings.

EAS — Enterprise Application Suite is a new name for formerly developed ERP systems which include (almost) all segments of business, using ordinary Internet browsers as thin clients.

Best practices are incorporated into most ERP vendor's software packages. When implementing an ERP system, organizations can choose between customizing the software or modifying their business processes to the "best practice" function delivered in the "out-of-the-box" version of the software.

Prior to ERP, software was developed to fit the processes of an individual business. Due to the complexities of most ERP systems and the negative consequences of a failed ERP implementation, most vendors have included "Best Practices" into their software. These "Best Practices" are what the Vendor deems as the most efficient way to carry out a particular business process in an Integrated Enterprise-Wide system.

A study conducted by Ludwigshafen University of Applied Science surveyed 192 companies and concluded that companies which implemented industry best practices decreased mission-critical project tasks such as configuration, documentation, testing and training. In addition, the use of best practices reduced over risk by 71% when compared to other software implementations.

The use of best practices can make complying with requirements such as IFRS, Sarbanes-Oxley or Basel II easier. They can also help where the process is a commodity such as electronic funds transfer. This is because the procedure of capturing and reporting legislative or commodity content can be readily codified within the ERP software, and then replicated with confidence across multiple businesses who have the same business requirement.

Advantages of ERP

In the absence of an ERP system, a large manufacturer may find itself with many software applications that cannot communicate or interface effectively with one another. Tasks that need to interface with one another may involve:

- Integration among different functional areas to ensure proper communication, productivity and efficiency
- Design engineering (how to best make the product)
- Order tracking, from acceptance through fulfilment
- The revenue cycle, from invoice through cash receipt
- Managing inter-dependencies of complex processes bill of materials
- Tracking the three-way match between purchase orders (what was ordered), inventory receipts (what arrived), and costing (what the vendor invoiced)
- The accounting for all of these tasks: tracking the revenue, cost and profit at a granular level.

ERP Systems centralize the data in one place. Benefits of this include:

- Eliminates the problem of synchronizing changes between multiple systems
- Permits control of business processes that cross functional boundaries
- Provides top-down view of the enterprise (no "islands of information")
- Reduces the risk of loss of sensitive data by consolidating multiple permissions and security models into a single structure.

Some security features are included within an ERP system to protect against both outsider crime, such as industrial espionage, and insider crime, such as embezzlement. A data-tampering scenario, for example, might involve a disgruntled employee intentionally modifying prices to below-the-

breakeven point in order to attempt to interfere with the company's profit or other sabotage. ERP systems typically provide functionality for implementing internal controls to prevent actions of this kind. ERP vendors are also moving toward better integration with other kinds of information security tools.

Disadvantages of ERP

Problems with ERP systems are mainly due to inadequate investment in ongoing training for the involved IT personnel - including those implementing and testing changes - as well as a lack of corporate policy protecting the integrity of the data in the ERP systems and the ways in which it is used.

Disadvantages

- Customization of the ERP software is limited.
- Re-engineering of business processes to fit the "industry standard" prescribed by the ERP system may lead to a loss of competitive advantage.
- ERP systems can be very expensive (This has led to a new category of "ERP light" {Expand section} solutions)
- ERPs are often seen as too rigid and too difficult to adapt to the specific workflow and business process of some companies—this is cited as one of the main causes of their failure.
- Many of the integrated links need high accuracy in other applications to work effectively. A company can achieve minimum standards, then over time "dirty data" will reduce the reliability of some applications.
- Once a system is established, switching costs are very high for any one of the partners (reducing flexibility and strategic control at the corporate level).
- The blurring of company boundaries can cause problems in accountability, lines of responsibility, and employee morale.
- Resistance in sharing sensitive internal information between departments can reduce the effectiveness of the software.

- Some large organizations may have multiple departments with separate, independent resources, missions, chains-of-command, etc, and consolidation into a single enterprise may yield limited benefits.
- The system may be too complex measured against the actual needs of the customers.
- ERP Systems centralize the data in one place. This can increase the risk of loss of sensitive information in the event of a security breach.

ERP Vendors

Microsoft

Microsoft has no formal ownership experience program defined. Microsoft has developed its cost management strategy based on a very low software price point and close to 100% out-of-the-box deployments with little ability to customize the software. As a result, Microsoft offers basic functionality that does not require extensive training, but it also does not necessarily deliver the full value expected by the customer in view of the ownership experience.

Oracle

Addressing cost of ownership is at the heart of Oracle's philosophy for Enterprise Applications. Based on the Oracle eBusiness Suite, an integrated suite of applications, Oracle claims that it can lower implementation costs by avoiding unnecessary costs, such as those associated with costly custom integration between applications. Although Oracle's approach has some merit - some measurable benefits have been highlighted through ROI case studies, serious concerns are still being raised regarding what Oracle has delivered to date.

PeopleSoft

Structured in a formal program, PeopleSoft dedicated over 1,000 developers and \$800 million to

improve the Total Ownership Experience for customers. Rather than focusing simply on best practices that improve the ownership experience, PeopleSoft has rethought its entire set of applications to ensure that they are built from the ground up to minimize deployment and maintenance costs.

SAP

Many users of SAP applications have, over the years, noted the complexity of SAP applications, the resulting high implementation costs, and consequent budget overruns. In response to these issues, SAP today highlights SAP NetWeaver as the centrepiece to SAP's product strategy for decreasing the complexity and cost of ownership for SAP applications. Currently, the impact of SAP NetWeaver on the overall SAP cost of ownership remains to be proven. SAP has not yet provided proof points validating that its customers benefit from improved ownership experience through the implementation of SAP's latest technology.

Siebel

Siebel's customer experience initiative was first focused on customer satisfaction and high-level ROI measurements. It is only recently (12+months) that Siebel has focused more specifically on cost-of-ownership issues (mainly in response to customers' complaints). Siebel's improvements to its software development process are guided by the experience and insight gained from close examination.

Research Methodology

For this study, the research was organized along key ownership experience criteria that allowed the research to capture quantitative and qualitative information across the major components of enterprise applications. The list of criteria was thoroughly defined to take into account the experience of not only the technical staff, but also end users who must accomplish specific business tasks with the application. The software versions that were compared included:

- Microsoft Great Plains version 7.5 and previews of Microsoft Great Plains version 8.0
- Oracle E-Business Suite 11.5.9
- PeopleSoft Enterprise 8.8 and 8.9 and EnterpriseOne 8.11
- SAP: mySAP Business Suite R/3 4.6 and SAP R/3 Enterprise 4.7
- Siebel 7.5 and Siebel 7.7

The research also included functional areas such as Financial and Human Capital Management Systems (FMS & HCM), Supply Chain Management (SCM), Customer Relationship Management (CRM); and application lifecycle phases such as installation, implementation, configuration, usage, maintenance, support, and upgrades. We have broken the entire process down into five steps:

- Reviewed vendors' web sites and their positioning documents, as well as their online and hard copy documentation.
- Utilized analyst reports, press articles, and technical reviews that are available to the general public.
- Validated, using the defined criteria, the information collected in steps 1 and 2 through in-depth interviews with the consulting panel of experts. For the interview process, preference was given to respondents with multi-year experience and experience with the latest version of the application to ensure that the entire application lifecycle was properly covered.
- Compared and analyzed findings from this primary and secondary research to generate a rating for each vendor on specific criteria. In this comparison and analysis, the respondent's experience with multiple vendors was leveraged as well.
- Aggregated comparisons and ratings along three major phases of the enterprise application ownership lifecycle.

ERP Packages Feature Comparison

CIOs have expressed growing concerns over the Total Cost of Ownership (TCO) of enterprise software and have highlighted costs as a contributing factor in the decline of IT investments. As a result, software vendors are trying to develop more structured "Ownership Experience" strategies and, in some cases, have focused R&D efforts and resources on improving the ownership experience for customers. In response to these executive concerns, PeopleSoft launched its Total Ownership Experience (TOE) initiative, followed by other major application vendors with varying kinds of programs for, and degrees of success in, controlling costs and improving the overall ownership experience.

We have considered and find in enterprise application software and every phase of the ownership lifecycle has reviewed and evaluated key software features that directly impact the ownership experience of enterprise applications. Some of these feature sets included: advanced data loading and moving during the implementation phase, task-oriented navigation for the usability phase, and user-centric performance testing for the maintenance phase. This research offered an objective assessment of these detailed features, validated through in-depth interviews with the panel of consulting experts distinguished by multi-vendor and multi-lifecycle experience.

The resulting study provides a comparative, multi-vendor assessment across the three major phases of the application lifecycle: implementation, application usage, and ongoing support and maintenance. The players and software versions evaluated in the study included:

- Microsoft Great Plains version 7.5 and previews of Microsoft Great Plains version 8.0
- Oracle E-Business Suite 11.5.9
- PeopleSoft Enterprise 8.8 and 8.9 and EnterpriseOne 8.11
- SAP mySAP Business Suite R/3 4.6 and SAP R/3 Enterprise 4.7
- Siebel 7.5 and Siebel 7.7.

Each phase of the enterprise application lifecycle has potential pitfalls that can affect the ultimate success or failure of the ownership experience. For example, if an enterprise software application is not installed completely or correctly, then the rest of the implementation will have problems. Maintenance costs often reflect repetitive tasks, such as upgrades performed many times over the lifecycle of an enterprise application, while poor diagnostics tools lead to unpredictable downtimes and business disruption. Finally, usability features affect end user adoption, and poor usability can lead to increased costs due to lost productivity. The experts looked at these potential outcomes and identified the key feature sets that enabled implementers, IT, or end users to successfully implement, maintain, or use the applications.

Then, based on its primary and secondary research, the team rated each vendor as to whether it offered the feature and then rated how successfully each implementation, usability, and maintenance feature set contributed to the ownership experience. Vendors received either a full circle for a full offering, a half circle for less than a full offering, and an empty circle for no offering. The following analysis represents a compilation of a detailed vendor-to-vendor comparison.

1. Implementation : The implementation phase includes the initial installation of the software, its configuration, the initial load of data into the new application, and any work that might be required for the application to interface properly with the IT environment of the customer, such

as integration with other applications, and whether the integration is batch or real time. The implementation phase is typically broken into three major steps:

1. Software installation
2. Configuration
3. Integration

The installation step is important since an incomplete or incorrect initial installation of the software can lead to significant lost time in further steps of the implementation. Streamlined configuration tools are critical in keeping an application implementation project on time, since, during configuration, all the specifics of customer business requirements are captured and shared. Finally, the integration step is typically one of the most challenging - with many hidden and unanticipated costs. Three factors - the complexity of the applications to interface with, the complexity of the business processes between applications, and the complexity of the integration tools that may require multiple experts and multiple types of expertise - make it difficult to establish detailed project plans and thus to accurately estimate project costs. For the analysis and comparison of vendor approaches to implementation, the experts utilized criteria:

1. Application installation wizard
2. Advanced configuration
3. Process modeller
4. Advanced data loading and moving
5. Process-oriented integration
6. Pre-packaged integration between vendor applications
7. Built-in web services integrations

PeopleSoft and Oracle emerge with the most comprehensive feature set for the implementation phase. PeopleSoft excels in the areas of application installation wizard, advanced

configuration, advanced data loading and moving, pre-packaged integration between vendor applications, and built-in web services integration. Oracle shows strength in advanced configuration, the process modeller, advanced data loading and moving, and built-in web services integration, but not in pre-packaged integration between vendor applications. SAP and Siebel slightly address all seven criteria, while Microsoft is clearly lacking in four areas - advanced configuration, process modeller, advanced data loading and moving, and process-oriented.

Let's examine each of the seven feature sets in the installation category.

1.1. Application installation wizard : Both Microsoft and Siebel offer a streamlined installation wizard that is comprehensive and well packaged. PeopleSoft offers an application installation wizard that removes manual steps and automates key installation processes, including the configuration of the underlying database. By contrast, while SAP also uses wizards, its installation procedure and wizards are proprietary and more complex and very often require the implementers to step out of the automated process to handle tasks that were omitted during the planning phase. Oracle has improved its installation wizard tremendously over previous releases, but still the wizard is inconsistent across modules and requires additional manual steps.

1.2. Advanced configuration : PeopleSoft has gone further than any vendor in enabling the application to be configured by product or by business processes. For example, the PeopleSoft Setup Manager configuration tool enables implementation staff to connect to documentation online and navigate through the documentation by selecting product and features directly from the configuration screen. Both Siebel and Oracle provide advanced tools to support the definition of business processes and data flows. SAP provides tools that are more complex and require more technical expertise. Microsoft limits end user ability to fully configure applications.

1.3. Process modeller : PeopleSoft provides 1,200 pre-defined models that cover PeopleSoft best practices business process flows. Oracle Workflow allows for business processes to be

modelled using a drag-and-drop designer and produces a visual diagram of the business process. With Siebel, customers can add pre-defined or custom business processes, branching, and sub-processes to create a workflow process tailored to their unique business requirements. SAP offers functionality in process modelling only within the context of its own applications. The ability to manipulate existing business processes within Microsoft Great Plains is limited and requires customization work. Process modelling is independent from integration but is a critical step for developing process oriented integration.

1.4. Advanced data loading and moving : Microsoft simply does not allow advanced data loading and moving. Oracle iSetup automates and simplifies the initial setup of data. Oracle iSetup is a question-driven wizard that automatically generates application related parameters and flows such as chart of accounts, expense policies, and rules. PeopleSoft provides advanced data-loading and moving capabilities, including the ability to load data online from Excel spreadsheets into PeopleSoft applications through component interfaces. SAP provides a free set of tools and procedures that make it possible to transfer data from a variety of sources without any programming. Siebel has a set of proprietary tools for the data load; the tools can be used as batch loading for information that must be reloaded on a regular basis.

1.5. Pre-packaged integration between vendor applications : PeopleSoft Process Integration Packs deliver all levels of required integration: data transformation, routing, cross-reference maps, and standard-based connectors/adapters for a complete end-to-end integration. PeopleSoft currently provides five pre-packaged integrations for key SAP and Oracle business processes out of the box. These pre-packaged integrations replace the need for custom integrations, thereby saving customers up to 60% off the cost of custom integration. While not offering pre-packaged integration packs, Oracle maintains adapters to most commonly used applications. Its adapters do help reduce the effort for custom integration. SAP encapsulates integration tasks within its NetWeaver platform, but still requires deep technology expertise to complete the integration. Siebel Universal Application Network provides a common interface layer for Siebel Application to interface with non-Siebel applications but requires third-party components. Microsoft introduced a toolbox for integration to replace Great Plains integration tools (Integration Manager). It is reported to be a great improvement over the previous

proprietary tools but has not yet reached a level of usability and completeness comparable to vendors.

1.6. Process-oriented integration : Within Oracle E-Business Suite, Oracle Workflow supports basic process-oriented integration and the modelling of it. Siebel's approach to process-oriented integration is to publish all its process-oriented business services as web services. PeopleSoft's new interactive integration repository enables customers to display integration points from a business process point of view and generate integration process plans. SAP's integration approach has been very focused on business processes, but it relies heavily on proprietary technologies. Microsoft Integration Manager includes a set of templates that allow the business control.

1.7. Built-in web services integrations : PeopleSoft provides built-in web services and fully supports industry standards for web services. In addition, Oracle supports web services integration at every layer of its application framework (database, middle-tier, and application layer) using open connector standards such as SOAP, WSDL and UDDI. Siebel's strategy is to expose all its business processes as web services to deliver business services-driven integration. SAP provides integration based on web services through its SAP NetWeaver platform.

2. **Usability** : The usability phase includes all key functionality that is related to the application ease of use. Usability covers topics such as ability to perform tasks with the minimum amount of errors, intuitive use of the application, end user productivity, ability to learn how to use the application effectively with the minimum amount of training, number of screens or clicks required to perform a specific task, support for novice as well as advanced users, alignment with industry standard interfaces, response times, and ease of adapting application terminology to customer business cases. With this kind of scope to the issue of usability, it does provide

value to evaluate and build an objective comparison on the usability of various applications.

Usability, in fact, can impact positively or negatively the total ownership experience. First and foremost, usability has a direct impact on end user adoption, which can make or break a deployment. Poor usability can lead to on going hidden costs through lower end user productivity, error-prone applications, or applications that are misaligned with a business process.

Five criteria were involved in the analysis assessment of usability:

1. Task-oriented navigation
2. Navigation configurability
3. Task-oriented dashboards
4. Web client
5. Integrated office productivity. the analysis assessment of usability:

Both PeopleSoft and Siebel have obviously made usability a key deliverable to customers and, among the five vendors, provide the fullest feature set for usability, including task oriented navigation, the ability to configure navigation, task-oriented dashboards, and web clients. Only SAP provides no task-oriented dashboards, and Microsoft provides no web clients.

Let's examine each of the five feature sets in the usability category.

2.1. Task-oriented navigation :A task-oriented navigation is designed to allow users to use business process based navigation to complete tasks. PeopleSoft delivers an easy-to read graphical layout that displays task-based terminology and icons representing the portal registry content. Navigation pages not only have a consistent layout throughout the application, but users can more easily and quickly locate navigation items by scanning the new 2-level navigation shortcut collection. This process based flow for the application is consistent from the top level portal page down to the specific application pages, where application pages have process driven recommended actions and

selectively show only the fields that are relevant to the current stage of a specific business process. To ensure optimal design of this task based navigation metaphor, PeopleSoft performs usability tests with at least 100 customers per application per release. This continuous investment in customer driven solution design enables PeopleSoft to continually improve usability and explains the high degree of usability compared to other vendors. Oracle's screens can be rearranged slightly to align better with the customer's business processes and tasks, but this ability is not systematic across all modules and requires a high level of expertise in Oracle. Within SAP, navigation can be customized but requires custom development on top of the SAP Portal, which is part of SAP NetWeaver and is not currently used by most customers. Both Microsoft and Siebel have focused much development effort on usability and both deliver a simplified user interface and applications.

2.2. Navigation configurability : Most vendors provide tools to the technical staff and the implementation team to customize the application interface in order to better fit the business needs and business processes of the customer. Microsoft provides only limited tools to customize the application interface. All modifications made to Microsoft Great Plains' interface and navigation are done through custom coding rather than configuration and wizard-driven, point-and-click tools. With PeopleSoft, Oracle, and Siebel, it is easy to create customized and personalized navigation pages and choose to use these pages in addition to, or instead of, the default navigation pages that are provided out of the box. SAP requires advanced programming to achieve a level of configuration and customization of the interface that might be fit for the average user.

2.3. Task-oriented dashboards : Microsoft and Oracle offer only limited functionality with task-oriented dashboards. Through task-oriented, pre-built dashboards that organize key tasks, such as applicant job tracking and reporting, PeopleSoft delivers greater productivity to end users. PeopleSoft is so focused on usability and end user productivity that new releases can ship only when a majority of new users tested can complete key tasks without any assistance in a timed usability exercise. Siebel also supports task oriented dashboards that are end user-oriented. By comparison, vendors such as SAP have not fully migrated their interface toward a more task-oriented navigation and still require users to click back and forth between multiple

screens to complete the various steps necessary for a specific business task.

2.4. Web client : All PeopleSoft modules and applications, including PeopleSoft Enterprise One, are fully web-enabled and do not require the download of any application code on the end user workstation. This feature facilitates upgrades that are very transparent to the end users and that do not require the attention of either the end user or the technical staff regarding client side issues. Siebel has added 100% web deployment in the most recent version of its software. Previously with Siebel, some code had to be downloaded to the client. While Oracle claims to be 100% web enabled, some code components are still downloaded to the client. And unfortunately, Oracle's web architecture is not consistent across all Oracle modules. SAP is not yet fully web-enabled. By contrast, Microsoft's applications are still mostly client-server, and release upgrades can trigger significant disruption to business operations through additional downtime and unnecessary incremental costs to upgrade each end user workstation.

2.5. Integrated office productivity : Microsoft has developed the most integration points between its business applications and its desktop applications, such as Microsoft Office and Outlook. Siebel provides basic integration between its sales force automation modules and email. Meanwhile, PeopleSoft CRM provides integration to standard desktop software tools like Microsoft Office Suite and Lotus Notes as well as mobile devices including laptops, Pocket PC.

3. Maintenance, Support, and Upgrades : The maintenance includes all post-implementation activities that are required to keep the application operational under normal and stressed conditions. It includes on going support, upgrades (patches and minor and major upgrades), all diagnostics and tuning activities managed by administrators to maintain the application running in optimal conditions, and the archiving of historical data. Maintenance costs have an important impact on the overall ownership experience, due to the traditionally labour-intensive and repetitive nature of these activities. Diagnostics and tuning facilitate the upgrade process by staying current on releases, while poor diagnostics tools lead to unpredictable downtimes and business disruption. Seven criteria were involved in the expertise assessment of the maintenance phase:

1. Diagnostic and technical support
2. Remote and online support
3. Performance diagnostics and tuning
4. Patch management
5. Automated upgrade process and toolsets
6. User-centric performance testing
7. Data archiving.

In this phase, PeopleSoft offers the fullest feature sets covering diagnostic and technical support, performance diagnostics, patch management, user centric performance testing, and data archiving. PeopleSoft, Oracle, and SAP all offer full performance diagnostics and tuning. And PeopleSoft, Microsoft, and Siebel fully address patch management, while only PeopleSoft and Siebel fully address the issue of user-centric performance testing. All vendors have basic automated upgrade tools, and all have shown progress in addressing maintenance improvements to the ownership experience.

Let's examine each of the seven feature sets in the maintenance, support and upgrade category.

3.1. Diagnostic and technical support : Microsoft, SAP, Oracle, and Siebel support is delivered the "traditional" way: a knowledge base on the web and phone calls with technical support. PeopleSoft is the only vendor to provide a built-in diagnostic framework through embedded diagnostics scripts that let customers send secure, real-time production system snapshots to PeopleSoft's support centre. This unique capability ensures faster issue diagnosis and resolution. With SAP, Oracle, and Siebel, diagnostics and resolution information is exchanged between the customer and the vendor through tailored emails that depend on the availability, the responsiveness, and the knowledge of the vendor's support staff. In some cases, support requires extensive communication and exchange of files such as log files that contain the exact configuration of the customer implementation.

3.2. Remote and online support : All vendors provide some form of a remote support and online capabilities to help customers self-diagnose issues. Both PeopleSoft's and Oracle's online support databases are rich in content but can be time consuming to navigate. Siebel provides some support

content over the web but, once a problem has been logged online, always promotes interaction with the customers over web self service support. SAP has recently introduced multiple web sites to provide better post implementation information to its customers, but the efforts remain fragmented.

3.3. Performance diagnostics and tuning : Oracle, PeopleSoft, and SAP provide a built-in, instrumented performance monitoring tool that tracks the application performance in real time as well as by component. The tool provides comparisons to average performance levels to proactively identify and troubleshoot non-performing components. Siebel supports industry-standard application response-time management that amplifies performance tuning across all tiers of the Siebel Smart Web Architecture and supports proactive performance monitoring by a third-party ARM-compliant monitoring application. Because it requires third-party software, Siebel is not rated as highly. With Microsoft, performance monitoring is done at the platform level (Windows/NT); no specific application performing tools are available.

3.4. Patch management : Applying patches to enterprise applications can be a very time consuming and disruptive activity. SAP, Oracle, and Siebel make their list of patches fully available on the web but provide limited guidance and automated tools to select which patches are relevant to a specific configuration. PeopleSoft has streamlined this task by offering a Change Assistant toolset that supports the automatic checking of pre and post- requisites and by automatically selecting which patch should be applied for the customer to be current. Microsoft releases new versions of patches for its applications very infrequently (less than once a year.)

3.5. Automated upgrade process and toolsets : SAP offers tools to identify pre-requisites and guide technical staff through the various steps of an upgrade. The SAP upgrade process is only partially automated, with many complex tasks to be performed manually. PeopleSoft provides Upgrade Assistant, an automated upgrade tool with well tested and complete upgrade scripts. Starting with Enterprise Human Capital Management 8.9 customers, PeopleSoft has re-engineered the upgrade process from eight steps to five with Accelerated Upgrades. Now customers can use a visual compare tool to identify customizations and an ETL-based data migration tool to ensure downtime

is less than a day. Oracle offers upgrade scripts and tools but with a lesser degree of automation. Microsoft provides basic upgrade automation tools that are adequate for Microsoft's low frequency release.

3.6. User-centric performance testing : PeopleSoft allows customers to submit test cases, which are used as part of the application testing and release process. PeopleSoft is the only vendor to test functionality and performance using real customer data on volume database systems. Oracle relies mostly on its database performance test to validate the performance of its application. SAP offers test services reported to be so expensive that very few customers opt to use them. Siebel has been focused on usability since it released its first CRM application, and user-centric testing is an integral part of its product development cycle. Microsoft delivers good usability but not the functionalities.

3.7. Data archiving : Oracle only provides purge capabilities and does not allow customers to archive or restore/reinstate archived data into production. Both SAP and PeopleSoft provide archive, purge, and restore capabilities natively. In addition, PeopleSoft provides rules-based archiving templates enabling administrators to set up different archiving rules for different regions for better global compliance support. Siebel and Microsoft do not directly offer archive, purge capabilities.

Return on investments for ERP

Some of the instructions that have to be followed to ensure adequate Return on Investments are given below:

Working out the Myths of ERP in the Initial stage:

The question of Erg's ROI remains a puzzle to companies who are experiencing difficulties even in implementing it. There is a simple and straight answer to the question of ROI on ERP. Companies can definitely be assured of ROI from ERP if they properly follow the procedures and practices. This is often well said than done. One common blunder committed by the company is following the age old methodologies and thereby the ERP process will not add any value to the company and business process. The difficulty in implementation process makes them think it is difficult to embrace ERP and the returns will not be guaranteed. This mind-set is not true and hence companies have to work more as the process deepens and not vice versa, in order to achieve optimum benefits from ERP. Otherwise the operations done by ERPROI calculator will not be true. Even using ERPROI tools will serve no purpose.

Proper Implementation and Finance:

There implementation process should take place in a smooth manner and in accordance with the set standards .There should be no compromise or controversy in the funds allocated. One mistake which is normally done by companies is that they tend to cut down the expenditures on some areas. However the fact is that it will affect the company in the long run unless the step is meant to change the decision like partial implementation (provided it is supported by some logical reasons. While talking about the implementation process it is important to ensure that it confirms with the standards and as per the instruction of the vendor/ERP consultant.

Strict Adherence to Changes:

Many of ERP's welfare measures are visible to the naked eye. However there are some elements that are unseen but still impact the organization in a large manner. These elements make the company to assume that ERP is not worth the money and hence they even go to the extent of violating/discarding it halfway and not following the changes that were arrived after a long suggestion and deliberate planning. They will defeat the very objective of ERP ROI .There will be no use even in disgruntling on ERPROI tools.

ERP System Selection Methodology

An ERP system selection methodology is a formal process for selecting an Enterprise Resource Planning (ERP) system.

Irrespective of whether the company is a multi national multi-million dollar organisation or a small company with single digit million turnover, the goal of system selection is to source a system that can provide functionality for all of the business processes; that will get complete user acceptance; management approval and, most importantly, can provide significant return on investment for the shareholders.

Since in the mid-70s , when there was wide-spread introduction of computer packages into leading companies to assist in Material Requirements Planning software companies have strived, and for the most part succeeded, to create packages that assist in all aspects of running a business from Manufacturing; Supply Chain Management; Human Resources; through to Financials. This led to the evolution of ERP Systems.

Accordingly, a significant number of packages purporting to be ERP systems have entered into the marketplace since 1990. There are packages at the upper end of the market such as SAP; Oracle; Movex; and IFS among others in addition to medium enterprise systems such as Microsoft Navision; Axapta; Tropos; Great Plains, Dynamics; iRenaissance; Sage; and Epicor Vantage and a vast quantity of other packages that vendors claim to be ERP Systems. There are also packages that claim to be best of breed for certain processes and sold merely as an add-on to an ERP System. The options are many and this, in reality, creates a problem for the company who has to make a decision.

Attempting to select an ERP system is further exacerbated by the fact that some systems are geared for discrete manufacturing environment where a distinct amount of items make up a finished

product while others are more suited to process industries such as chemical and food processing where the ingredients are not exact and where there might be re-work and byproducts of a process.

In the last decade, companies have also become interested in enhanced functionality such as Customer Relationship Management and e-Commerce capability.

Given all of the potential solutions, it is not uncommon for companies to choose a system that is not the best fit for the business and this normally leads to a more expensive implementation. Thus, it is understandable that "ERP Costs can run as high as two or three percent of revenues" . A Proper ERP System Selection Methodology will deliver, within time and budget, an ERP system that is best fit for the business processes and the user in an enterprise.

It is seldom that companies adopt a fully objective system selection methodology when choosing an ERP System. Some of the common mistakes that companies resort to are:

Incomplete Set of Requirements

When a new ERP has been implemented in an enterprise, Wallace & Kremzar state that "it requires people to do their job differently" . Therefore, it is very important to understand the requirements of each user for current processes and for future processes [i.e. before and after the new system is installed]. One can then review systems that have the best fit from a functionality perspective. It is also imperative that the requirements go into great detail for complicated processes or processes that may be unique to a particular business.

Reliance on Vendor Demos

Vendor Demonstrations tend to be focus on very simplistic processes. A typical demonstration will show an ideal order to cash process where a customer orders a quantity of product that is in stock. The reality in most businesses is that most customers have varying and more complicated commercial arrangements and products are not always in stock.

Over-Emphasis on System Cost

According to Finlay and Servant “The differential in purchase price between packages is unlikely to be the dominant factor”. While the cost of an ERP system is very important for a company, there tends to be a lack of focus on the other important decision criteria such as functionality; future proofing; underlying infrastructure [network & database]; and e-commerce capability among others.

Selection Bias

It is not unusual that the decision on which system to purchase is made by one individual or by one department within the company. In these situations, an ERP system that may be excellent at one function but weak at other processes may be imposed on the entire enterprise with serious consequences for the business.

Failure to use Objective Professional Services

One the main reasons for failure in system selection is the understandable lack of knowledge within the company. Experienced Consultants can provide excellent information on all of the packages that are available in the marketplace; the latest functionality available in the most common packages and, most importantly, can assist the user in deciding whether a specific requirement would provide added value to the user and to the business. However, it is worth noting that the professional help must be provided by objective consultants who have no affiliation with ERP System vendors. "If a consultancy has built up an expertise in the use of a particular package then it is in its interest to recommend that package to its client”.

Inability to Understand Offering by ERP Vendor

"It is estimated that approximately 90% of enterprise system implementations are late or over budget". A plausible explanation for implementations being late and over budget is that the

company did not understand the offering by the vendor before the contract was signed. A typical example of this would be the scenario where a vendor may offer 5 days of services for the purpose of data migration. The reality is that there is a huge amount of work required to input data onto a new system. The vendor will import the data into the new system but expects the company to put the data into a file that is easy to import into the system. The company are also expected to extract the data from the old system; clean the data and add new data that is required by the new system. "ERP, to be successful, requires levels of data integrity far higher than most companies have ever achieved – or even considered. Inventory records, bill of materials (BOM), formulas, recipes, routings, and other data need to become highly accurate, complete and properly structured". This typical scenario is one of many issues that cause implementations to be delayed and invariably lead to requests for more resources.

A Proper System Selection Methodology

To address the common mistakes that lead to a poor system selection. It is important to apply key principles to the process, some of which are listed hereunder:

Structured Approach

The first step in selection of a new system is to adopt a structured approach to the process. The set of practices are presented to all the stakeholders within the enterprise before the system selection process begins. Everyone needs to understand the method of gathering requirements; invitation to tender; how potential vendors will be selected; the format of demonstrations and the process for selecting the vendor. Thus, each stakeholder is aware that the decision will be made on an objective and collective basis and this will always lead to a high level of co-operation within the process.

Focused Demonstrations

Demonstrations by potential vendors must be relevant to the business. However, it is important to understand that there is considerable amount of preparation required by vendors to perform demonstrations that are specific to a business. Therefore it is imperative that vendors are treated equally in requests for demonstrations and it is incumbent on the company [and the objective consultant assisting the company in the selection process] to identify sufficient demonstrations that will allow a proper decision to be made but will also ensure that vendors do not opt out of the selection process due to the extent of preparation required.

Objective Decision Process

"Choosing which ERP to use is a complex decision that has significant economic consequences, thus it requires a multi-criterion approach.". There are two key points to note when the major decision makers are agreeing on selection criteria that will be used in evaluating potential vendors. Firstly, the criteria and the scoring system must be agreed in advance prior to viewing any potential

systems. The criteria must be wide-ranging and decided upon by as many objective people as possible within and external to the enterprise. In no circumstance should people with affiliations to one or more systems be allowed to advise in this regard.

Full Involvement by all Personnel

The decision on the system must be made by all stakeholders within the enterprise. "It requires top management leadership and participation..... it involves virtually every department within the company". Representatives of all users should:

- Be involved in the project initiation phase where the decision making process is agreed;
- Assist in the gathering of requirements;
- Attend the Vendor Demonstrations;
- Have a significant participation in the short-listing and final selection of a vendor.

The implementation of an ERP system takes a significantly longer time and level of resource than the selection process. However, the extent of the implementation will be profoundly influenced by the level of resource and objectivity within the selection. Companies that use a proper System Selection Methodology reap the benefit not only during the implementation phase but also and most significantly during the life of the ERP System.

Important Issues to Consider Before ERP Implementation

Before integrating business functions, managers must consider several important issues that will help them decide whether an ERP integration is the right choice for their organization. These pertinent issues are classified under the following categories: fundamental issues, organizational change process, people, and the different approaches to implementing ERP.

Fundamental Issues

First, managers must consider the fundamental issues of system integration by analyzing the organization's vision and corporate objectives. For instance, does management fully understand its current business processes, and can it make implementation decisions in a timely manner? Is management ready to undertake drastic business process reengineering efforts to yield dramatic outcomes? Is management ready to make any changes in the structure, operations, and cultural environment to accommodate the options configured in the ERP system? Is the organization financially and economically prepared to invest heavily in an ERP implementation? Next, management needs to decide on the key related implementation and business issues and how to proceed. Certainly, ERP is not suitable for companies that are experiencing rapid growth and change in an unstable environment are undergoing change in the corporate management and philosophy, or that will be experiencing merger or liquidation in the near future. Understandably, there will be more foreseeable system integration problems if one of the merging companies is in the midst of an ERP upgrade because it must deal with scalability, a new IT infrastructure, and a different corporate culture simultaneously. Further, ERP integration is not recommended for companies which require a lot of flexibility to succeed or which manufacture products that are constantly changing. Similarly, companies that have very little experience with formal information systems or have constantly changing information systems requirements will not benefit from an ERP implementation. Finally, organizations need to exploit future communication and computing technology to integrate the ERP system with e-business applications. Oftentimes, additional new hardware and specialized professionals are needed to run the powerful software system. Depending on the size of the company and the modules installed, the cost of implementation can range from

one million to five hundred million dollars, and will take as long as two years for a mid-size company and seven years for a large, multinational corporation to complete.

People

People-related issues such as corporate philosophy and leadership style can play an important role in the ERP implementation process. Research has concluded that active top management support and commitment are essential to the success of any system implementation. Frequently, executive councils and steering committees consisting of top managers are developed to plan and manage the IT initiatives. Such senior managerial involvement tends to increase the optimization of IT business values. Employees can be quite wary of any kind of change in the business processes, particularly during periods of economic downturn. Ill-trained employees who fight the changes in the business process tend to be poor performers. Therefore, to increase the chance of a successful ERP implementation and to reduce users' resistance to change, end users, especially those who are very knowledgeable with the operations, must be involved in all stages of the implementation process. Employees must also be educated about the ERP installation. Such educational endeavor should include a concise introduction to the basic concepts and architecture of ERP systems, including actual screen shots of the function modules. During these training sessions, it is important to discuss the managerial issues involved and to build a basic understanding of the integration concepts prior to the actual installation of the ERP system. Further, any Business-to-Business initiatives, reengineering projects, alliances, and the introduction of new technologies should also be addressed. Project managers must take charge of the implementation process at all times. They must oversee the reengineering of the key business processes, reassign job responsibilities, restructure the organization's chart, and redefine work relationships. Further, they must also learn how to manage the software vendors and any outside consultants.

The Organizational Change Process

ERP implementation requires organizations to reengineer their key business processes in fundamental ways, revamping old ways of conducting business, redefining job responsibilities, and restructuring the organization. For major multinational corporations (MNC), the ERP systems must be customized to address global issues where different countries have different ways of doing

business, and to incorporate country-specific business practices pertaining to accounting, tax requirements, environmental regulations, human resources, manufacturing, and currency conversion into the integrated systems. While integrating the information systems across various countries, three types of misfits (relating to data, process, and output) can occur due to incompatibilities between software functionality and organizational requirements as well as differences in cultural and regulatory environments. The unique context of each country in which an organization operates must be carefully enmeshed into the traditionally Western-biased business practices inherent in the ERP systems. Diese, et al. (2000) describes an eight-level process that managers can use to manage change. The first step is to create a comprehensive change vision and to make the vision operational. Then, a change strategy is defined to assess readiness change within the organization, to select the best change configuration, and to establish change governance. The third process is to develop leadership, in order to lead the change program and to develop leadership capability.

Commitment from teams is built through communication, managing resistance, and transferring of knowledge and skills. The fifth process is to manage employee and stakeholders' performance by establishing needs, and implementing performance management and people practices. Business benefits are delivered through the building of business cases, and quantifying and sustaining benefits. The next process is to develop culture in the organization by understanding the current culture, and then to design the target culture and to implement cultural change. The final process is to design the organization by understanding the current organization, and then to design the target organization and to implement organizational change.

Methods in implementing ERP

ERP implementation support includes all the services of the vendor. Companies spend a lot of time in discussing about the need to go for ERP. They make all sorts of assessments and bring the necessary resources to work on ERP. They even carry the exercises suggested in restructuring. When the stage is all set to take ERP the next million dollar question that comes to them is the appropriate method of implementation due to the risk for ERP implementation.

Some popular methods for implementation are as follows:

Joint ventures with the Respective Industry

The company need not necessarily implement ERP all on its own. They can as well share it with leading players in the same industry. This will ensure that the risks will not be heavy in the case of loss. This practice is assuming greater significance in the current scenario. The sharing allows them to have an interface with the systems on the basis of a common platform. This is catching up in the market with the only trouble being reluctance of competitive firms to come together on a mutual agreement for fear of losing business tactics. It is also seen as ERP implementation problem solution. Though the companies are at liberty to create security for their respective information there will not be any protection for the (pool of) records in the common database. However this has helped largely in many aspects. For e.g. the medical history of a patient brought in an emergency condition can be immediately accessed though ERP. This particular fact has itself saved many lives. On the contrary they would have to go through the rigorous process of finding the patient's identity and the steps aftermath which brings down the chances of the patient's survival are very minimal, in the absence of ERP. This is one of ERP implementation support. Perhaps there are many risks for ERP implementation.

Doing it all alone

This is in fact one of the primitive methods and is no doubt followed till date. This method takes a lot of risks in this method. But if they are calculated properly then the regime would be inscribed as a golden period in the company's history. The simple formula behind this phenomenon is that

the company should go for it subject to its financial potential, requirements, technical acumen management policy and similar facts. All these will help them to arrive at ERP implementation problem solution.

Full/Partial Implementation

It has always been said that ERP products and services are purely based on the needs and resources of the company. This is not a risk for ERP implementation. Hence the companies can choose to go for a full fledged ERP system and implement it through the organization and thereby interlink the whole process and the people concerned. Otherwise they may prefer to go for an ERP system that performs a particular function of the company. This is an important step in choosing the appropriate ERP software but at the same time it also adds more value to the implementation process. It is also an important ERP problem solution.

Successful ERP Implementation

Businesses have a wide scope of applications and processes throughout their functional units; producing ERP software systems that are typically complex and usually impose significant changes on staff work practices. Implementing ERP software is typically too complex for "in-house" skill, so it is desirable and highly advised to hire outside consultants who are professionally trained to implement these systems. This is typically the most cost effective way. There are three types of services that may be employed for - Consulting, Customization, Support. The length of time to implement an ERP system depends on the size of the business, the number of modules, the extent of customization, the scope of the change and the willingness of the customer to take ownership for the project. ERP systems are modular, so they don't all need be implemented at once. It can be divided into various stages, or phase-ins. The typical project is about 14 months and requires around 150 consultants. A small project (e.g., a company of less than 100 staff) may be planned and delivered within 3-9 months; however, a large, multi-site or multi-country implementation may take years.[citation needed] The length of the implementations is closely tied to the amount of customization desired.

To implement ERP systems, companies often seek the help of an ERP vendor or of third-party consulting companies. These firms typically provide three areas of professional services: consulting, customization and support. The client organisation may also employ independent program management, business analysis, change management and UAT specialists to ensure their business requirements remain a priority during implementation.

Data migration is one of the most important activities in determining the success of an ERP implementation. Since many decisions must be made before migration, a significant amount of planning must occur. Unfortunately, data migration is the last activity before the production phase of an ERP implementation, and therefore receives minimal attention due to time constraints. The following are steps of a data migration strategy that can help with the success of an ERP implementation:

- Identifying the data to be migrated
- Determining the timing of data migration
- Generating the data templates
- Freezing the tools for data migration
- Deciding on migration related setups
- Deciding on data archiving

Process preparation

ERP vendors have designed their systems around standard business processes, based upon best business practices. Different vendor(s) have different types of processes but they are all of a standard, modular nature. Firms that want to implement ERP systems are consequently forced to adapt their organizations to standardized processes as opposed to adapting the ERP package to the existing processes. Neglecting to map current business processes prior to starting ERP implementation is a main reason for failure of ERP projects. It is therefore crucial that organizations perform a thorough business process analysis before selecting an ERP vendor and setting off on the implementation track. This analysis should map out all present operational processes, enabling selection of an ERP vendor whose standard modules are most closely aligned with the established organization. Redesign can then be implemented to achieve further process congruence. Research indicates that the risk of business process mismatch is decreased by: linking each current organizational process to the organization's strategy; analyzing the effectiveness of each process in light of its current related business capability; understanding the automated solutions currently implemented.

ERP implementation is considerably more difficult (and politically charged) in organizations structured into nearly independent business units, each responsible for their own profit and loss, because they will each have different processes, business rules, data semantics, authorization hierarchies and decision centers. Solutions include requirements coordination negotiated by local

change management professionals or, if this is not possible, federated implementation using loosely integrated instances (e.g. linked via Master Data Management) specifically configured and/or customized to meet local needs.

A disadvantage usually attributed to ERP is that business process redesign to fit the standardized ERP modules can lead to a loss of competitive advantage. While documented cases exist where this has indeed materialized, other cases show that following thorough process preparation ERP systems can actually increase sustainable competitive advantage.

Configuration

Configuring an ERP system is largely a matter of balancing the way you want the system to work with the way the system lets you work. Begin by deciding which modules to install, then adjust the system using configuration tables to achieve the best possible fit in working with your processes.

Modules — Most systems are modular simply for the flexibility of implementing some functions but not others. Some common modules, such as finance and accounting are adopted by nearly all companies implementing enterprise systems; others however such as human resource management are not needed by some companies and therefore not adopted. A service company for example will not likely need a module for manufacturing. Other times companies will not adopt a module because they already have their own proprietary system they believe to be superior. Generally speaking the greater number of modules selected, the greater the integration benefits, but also the increase in costs, risks and changes involved.

Configuration Tables – A configuration table enables a company to tailor a particular aspect of the system to the way it chooses to do business. For example, an organization can select the type

of inventory accounting – FIFO or LIFO – it will employ or whether it wants to recognize revenue by geographical unit, product line, or distribution channel.

So what happens when the options the system allows just aren't good enough? At this point a company has two choices, both of which are not ideal. It can re-write some of the enterprise system's code, or it can continue to use an existing system and build interfaces between it and the new enterprise system. Both options will add time and cost to the implementation process. Additionally they can dilute the system's integration benefits. The more customized the system becomes the less possible seamless communication between suppliers and customers.

Consulting services

Many organizations did not have sufficient internal skills to implement an ERP project. This resulted in many organizations offering consulting services for ERP implementation. Typically, a consulting team was responsible for the entire ERP implementation including planning, training, testing, implementation, and delivery of any customized modules. Examples of customization includes additional product training; creation of process triggers and workflow; specialist advice to improve how the ERP is used in the business; system optimization; and assistance writing reports, complex data extracts or implementing Business Intelligence.

For most mid-sized companies, the cost of the implementation will range from around the list price of the ERP user licenses to up to twice this amount (depending on the level of customization required). Large companies, and especially those with multiple sites or countries, will often spend considerably more on the implementation than the cost of the user licenses -- three to five times more is not uncommon for a multi-site implementation.

Unlike most single-purpose applications, ERP packages have historically included full source code and shipped with vendor-supported team IDEs for customizing and extending the delivered code. During the early years of ERP the guarantee of mature tools and support for extensive customization was an important sales argument when a potential customer was considering

developing their own unique solution in-house, or assembling a cross-functional solution by integrating multiple "best of breed" applications.

"Core system" Customization vs Configuration

Increasingly, ERP vendors have tried to reduce the need for customization by providing built-in "configuration" tools to address most customers' needs for changing how the out-of-the-box core system works. Key differences between customization and configuration include:

Customization is always optional, whereas some degree of configuration (e.g. setting up cost/profit centre structures, organisational trees, purchase approval rules, etc.) may be needed before the software will work at all.

Configuration is available to all customers, whereas customization allows individual customer to implement proprietary "market-beating" processes.

Configuration changes tend to be recorded as entries in vendor-supplied data tables, whereas customization usually requires some element of programming and/or changes to table structures or views.

The effect of configuration changes on the performance of the system is relatively predictable and is largely the responsibility of the ERP vendor. The effect of customization is unpredictable and may require time-consuming stress testing by the implementation team.

Configuration changes are almost always guaranteed to survive upgrades to new software versions. Some customizations (e.g. code that uses pre-defined "hooks" that are called before/after displaying data screens) will survive upgrades, though they will still need to be re-tested. More extensive customizations (e.g. those involving changes to fundamental data structures) will be overwritten during upgrades and must be re-implemented manually.

By this analysis, customizing an ERP package can be unexpectedly expensive and complicated, and tends to delay delivery of the obvious benefits of an integrated system. Nevertheless,

customizing an ERP suite gives the scope to implement secret recipes for excellence in specific areas while ensuring that industry best practices are achieved in less sensitive areas.

Extension

In this context "Extension" refers to ways that the delivered ERP environment can be extended with third-party programs. It is technically easy to expose most ERP transactions to outside programs, e.g.

Scenarios to do with archiving, reporting and republishing (these easiest to achieve, because they mainly address static data);

Transactional data capture scenarios, e.g. using scanners, tills or RFIDs, are relatively easy (because they touch existing data); however because ERP applications typically contain sophisticated rules that control how master data can be created or changed, some scenarios are very difficult to implement.

Maintenance and support services

Maintenance and support services involves monitoring and managing an operational ERP system. This function is often provided in-house using members of the IT department, or may be provided by a specialist external consulting and services company.

ERP Implementation Plan

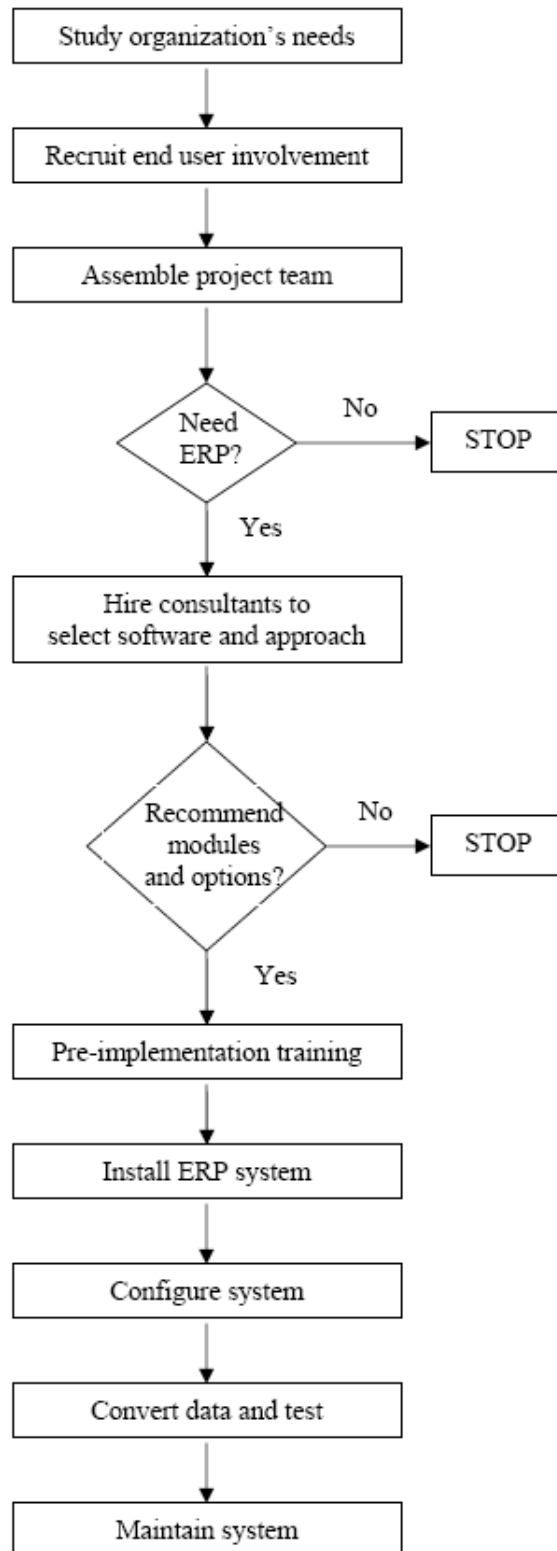
The flowchart in Figure 1 depicts several activities that must be performed before implementing an ERP system. First, managers must conduct a feasibility study of the current situation to assess the organization's needs by analysing the availability of hardware, software, databases, and in-house computer expertise, and make the decision to implement ERP where integration is essential (2). They must also set goals for improvement and establish objectives for the implementation, and calculate the break-even points and benefits to be received from this expensive IT investment. The second major activity involves educating and recruiting end users to be involved throughout the implementation process.

Third, managers will form a project team or steering committee that consists of experts from all functional areas to lead the project. After a decision is made, a team of system consultants will be hired to evaluate the appropriateness of implementing an ERP system, and to help select the best enterprise software provider and the best approach to implementing ERP. In most situations, the consultant team will also recommend the modules that are best suited to the company's operations (manufacturing, financials, human resources, logistics, forecasting, etc.), system configurations, and Business-to-Business applications such as supply-chain management, customer relationship management, e-procurement, and e-marketplace.

The importance of adequate employee and manager training can never be overestimated. IT analysts usually recommend that managers reserve 11% of the project's budget for training. Different kinds and different levels of training must be provided to all business stakeholders, including managers, end users, customers, and vendors, before the system is implemented. Such training are usually customized and can be provided by either internal or outside trainers. The system installation process will address issues such as software configuration, hardware acquisition, and software testing. Data and information in the databases must be converted to the format used in the new ERP system and servers and networks need to be upgraded. System maintenance will address issues and problems that arise during operations. A post implementation

review is recommended to ensure that all business objectives established during the planning phase are achieved. Needed modifications are tackled during this phase too.

ERP Implementation Plan



Case Studies



SHARDA MOTORS

Sharda Motor Industries Limited is a fast growing automotive manufacturing company. With multiple disparate systems running across 12 manufacturing plants, it was becoming increasingly difficult for Sharda Motor to effectively manage its business. Time and resources were wasted duplicating data entry efforts, which often resulted in inaccurate data. Additionally, inventory was kept high to ensure complete orders. The company needed a flexible enterprise resource planning system that could handle complex manufacturing requirements and scale to meet growing demand. After a thorough search, Sharda Motor opted to migrate to Microsoft® Dynamics™ NAV 4.0 with SP3 to enhance its business processes. Microsoft® Certified Partner, Trident Information Systems assisted the company in implementing the same. Today, the company is using Dynamics NAV to standardize its operations on a common technology platform, helping to improve inventory tracking and make more informed business decisions in real-time.

SITUATION

Sharda Motor, a diversified, multi-product group of companies, believes in satisfying its customers by meeting their needs promptly and accurately. The company maintains the highest quality standards with state of the art manufacturing facilities with continuous focus on new product, innovation and technology up gradation. Under the dynamic leadership and vision of Shri N.D.Relan, Chairman and Shri Ajay Relan, the Managing Director, Sharda Motor has a successful track record and today is an industrial force to reckon within the automotive supplier industry.

With presence spread from Haridwar to Chennai, Sanand to Pune via Nashik, the company is in the process of expanding its manufacturing capabilities and technology to become the leader in automotive exhaust systems and independent front suspensions by 2010.

Sharda Motors was using Tally to manage all its core accounting and financial tasks. This legacy system was however, inept to cope with the inventory, manufacturing, and job work processes; and control them at the same time to maintain a record. It also lacked the ability to integrate and compile data in real time. Another dreary job at Sharda Motors was to maintain the detailed data from all its 12 plants spread across the country. Again, the legacy system was unable to do so. Nitin Vishnoi, Company Secretary, Sharda Motor explains, “Until now, all our plants were using different applications for managing their operations. With these disconnected systems, we had no control over the plants leading to lack of visibility to real time information. We needed to exert more control over these so that real time updated information was always available instantly.”

The company foresaw that these issues were posing a threat to its expansion plans. It recognized the need for a single integrated system that could be cost-effectively tailored to streamline core business functions - a system that would manage not only accounts and finance but overall business processes.

“To overcome all the existing issues and enable smooth and efficient working of the company, we decided to streamline our workflow with a reliable Enterprise Resource Planning (ERP) solution that will tighten workflow integration, and also enhance information flow across business functions,” says Nitin Vishnoi.

SOLUTION

After a thorough research and a detailed analysis of all the technology options available in the market, Sharda Motor decided to focus its software development on the Microsoft® Dynamics™ NAV platform. “We wanted a system that was reliable, affordable, easy to use and most importantly, easily scalable to our future computing requirements,” says Nitin Vishnoi. “Microsoft Dynamics NAV 4.0 with SP3 matched all these requirements. It was an integrated solution and could be customized to fulfil all our requirements.” Thus with the help of Microsoft Certified Partner, Trident Information Systems, Sharda Motor implemented Microsoft Dynamics NAV 4.0 SP3.

Apart from being rich in functionality, Microsoft Dynamics NAV 4.0 with SP3 is flexible enough to adapt to the company’s changing business needs. It integrates all locations by delivering a single, real-time view into all information. This easy-to-access information provides employees with greater insight into business processes.

The solution was implemented across all locations in April 2009. The modules implemented were Finance, Sales, Purchase, Inventory, and Manufacturing.

All the standard features of the ERP system were implemented along with some unique customizations applicable to the automotive manufacturing industry. One of the main customization done was the Job Work module. Niranjana Kumar, Technical Head – ERP, Sharda Motor explains, “The biggest asset in implementing Dynamics NAV is its ability to adapt the system to our specific processes and this has been vital to our continued growth. Earlier we could see only one item per bill. Now with the new solution, we can see 4-5 items per bill.”

Material is sent to vendors through Delivery Challan. The consumption is based on Delivery Challan against which vendor has sent the material and their consumption is based on actual quantity. All this activity is captured in the Job Work module.

After implementing the new business solution, various unique features are functional in the organization. Inventory planning and control are some of the most important functions that have reduced the cost.

Additionally, auto manufacturing reports are being created based on daily sales log. This automatically creates Released Production Order and their consumption for regular items thus

reducing booking output times. Gate Entry and RGP module are separately developed to capture moving in and out of material. This results in smooth activity as per the company's needs.

“The new environment resulting in a centrally managed solution that spans the entire company has strengthened us,” says Nitin Vishnoi. “The flexible technology platform prepares us to scale for future computing standards. We are now better positioned to increase operational efficiencies and ensure sustained business growth.”

Looking ahead, Sharda Motor wants to further enhance its effectiveness by using the solution for MIS report generation.

BENEFITS

With Microsoft Dynamics NAV, Sharda Motor enjoys new business efficiencies. The solution provides real time visibility into the company's operations resulting in greater operational efficiency. The greatest benefit of the new system is the consolidation of data across its manufacturing plants.

Allows Inventory Planning, Reduces Inventory Costs

The new ERP solution plans and controls inventory such that inventory pileups are reduced. This improves stock management as the right stock is always available whenever needed. Tight inventory management helps to increase operational efficiency across the organization and also improve customer service.

“Because Microsoft Dynamics NAV provides instant access to inventory levels, vendors, customer balances, and chart of accounts at any instance, we're able to plan our purchasing, profit loss statement, find lost making components for analysis, and keep inventory to minimum,” says Nitin Vishnoi. “With access to real time information and increased visibility about inventory levels, we have reduced the total cost of its inventory by 3 percent in the 1st year of complete implementation.”

Enhances Visibility, Enables Faster Decision Making

A key advantage of the solution is the availability of more detailed, real-time information that is accessible to all users. With a centralized repository for all business information, the company is able to make quick decisions in a fast-paced business environment.

Niranjan Kumar explains, “With real-time access to accurate information, our management is now assured of making smarter and better-informed decisions. The centralized database also helps us make faster decisions to better control our costs.”

Bestows Cost-Effective and Easy to Use Solution

Sharda Motor wanted a simple solution that would be easily accepted and learnt within the organization, without adding huge capital expenditure on software and services. Microsoft Dynamics NAV provides a simple, familiar, and intuitive interface that is user friendly and is easy



to train users. “The system is so easy to use that with just one day of training, our employees were ready to use it”, says Nitin Vishnoi.

Exerts Greater Control Over all Locations

The new business solution integrates all the 12 manufacturing plants. This helps the company to have total control and monitor everything from the head office. It helps to analyse and conduct sound business planning.

Nitin Vishnoi, Sharda Motor states, “With the legacy system, we were not able to exert full control over our manufacturing plants. By the time, information reached the head office, it was old. But with the deployment of new solution, working atmosphere of the company has improved. It connects processes and information with people. The integrated and centrally controlled robust database and automated inter-company processes help employees to accomplish any task from any location.”

CAREER LAUNCHER

Established in 1995, Career Launcher India Limited (CL) offers focused career-oriented training and preparatory education to school and college students for different entrance examinations. Administration of all the divisions across centers and consolidating the financial data had traditionally been time consuming manual activities at CL. To overcome the challenges, Tectura, a Microsoft® Certified Partner, implemented Microsoft® Dynamics™ NAV 5.0. With Dynamics NAV, CL has standardized its accounting and financial environment, that is also easy-to-use. Besides it improves administrative and operational efficiency and reduces overhead, and thus cost by INR 10,00,000 (U.S.\$ 20,000).

SITUATION

Established in 1995, Career Launcher India Limited (CL) provides educational services in over 195 locations across India, Middle East, and United States. It offers guidance and test-preparation services for school and college students to gain admission to professional courses. It publishes magazines and academic material, offers career advisory services, tutoring and training services.

CL is actively involved in mainstream education through its chain of play schools, secondary and K12 schools. It also operates formal vocational and skill education schools. It is based in New Delhi, India. With more than 400 academicians and professionals around the world, CL grooms over 100,000 students annually. By acquiring POWERMath in the United States, CL has entered the math tutoring and SAT Test Prep market in the country. It generated the revenue of U.S.\$20million in financial year 2009-10.

- The IT infrastructure at CL consisted of Tally to manage accounting requirements. An in-house developed Oracle based application was installed at each of the 195 centers to manage student’s enrollment, receipts and outstanding information. Both being standalone

applications, couldn't be linked for data transfer. Lack of common financial management system posed issues in consolidating data and reports, and share information across 20 divisions. Hence on time availability of financial data was a major limitation in the existing system.

CL database consists of approximately five million entries. The existing system could neither cope with the growing volumes of data, nor hold the detailed information about its students and customers. Thus there were multiple storage locations which often resulted in ambiguity.

Each school and center managed its individual financials which barred information sharing and resulted in multiple versions of same information. It hindered standardized reporting and slowed processing times. As a result, there was ineffective decision-making, lack of flexibility and inefficient use of resources.

With increasing number of schools and training centers, CL identified the need of a standardized enterprise resource planning (ERP) solution that could be simultaneously implemented at all the locations. The Oracle based application used at CL was developed over years to define the unique features and functionalities. Thus its seamless integration with the new ERP was one of the prime requirements of the organization.

High cost incurred to implement and maintain standalone applications at multiple locations; disparate budgeting, analysis, and reporting that didn't integrate prompted CL to adopt a globally accept ERP solution. "We wanted one common integrated solution to serve the needs of all our divisions. It also had to be quick to deploy in various geographical locations," states Abhishek Sapra, Assistant Vice President (Finance), Career Launcher.

SOLUTION

"We chose Microsoft Dynamics NAV because of its versatility, scalability and flexibility," says Abhishek Sapra, Assistant Vice President (Finance), Career Launcher. "We can tailor it to develop new features to meet the requirements of our educational institution and help streamline our accounting procedures."

CL used the expertise of Microsoft® Certified Partner Tectura for the implementation. After the successful deployment of NAV 4.0, NAV 5.0 was released and Tectura assisted CL in smooth With all the essential features present in the solution, Tectura minimally customized the solution to include the integration with the Oracle-based application that manages student's enrollment, receipts and outstanding information. The application is used at more than 195 centers of CL. 2.5 lakh (2,50,000) students' data and transactions were migrated to Dynamics NAV. During this migration, it was business as usual for CL as the environment wasn't affected. The solution is also tailored to enable online banking. It facilitates CL to use the Commodity Broking Services (CBS) account and electronically transfer funds through National Electronic Funds Transfer (NEFT) and Real Time Gross Settlement Systems (RTGS). Once transactions are completed, system generated emails are sent to vendors to update the status via this new system. Hence lots of time, administrative cost and paper work is spared.

BENEFITS

The new ERP solution enables users to share information and work collaboratively. In addition, managers now enjoy enhanced business insight, with quick access to up-to-date management information.

Reduces Administrative Costs by INR 10,00,000

Microsoft Dynamics NAV supports the entire business at all the locations with a single, integrated solution. It reduces barriers between admin and finance departments. Transparent operating cost, automatic billing and reporting features have reduced the number of administrative tasks performed by staff. “We now operate with 30 percent fewer employees in finance, reducing the administrative cost by INR 10,00,000 (U.S.\$ 20,000),” comments Abhishek Sapra, Assistant Vice President (Finance), CL. “Manual planning and reporting using spreadsheets is a thing of past.”

The solution not only reduces the administrative cost but also supports and improves e-business requirements. Online banking transactions have made life easier for the accounts team. Quick online paperless transactions save 100 hours every month.

Increases Operation Efficiency by 70 Percent

Abhishek states, “With centralized information such Enrollment Details, Outstanding Balance, Fixed Assets available, processes are accelerated. This has enhanced our operational procedures and increased efficiency by 70 percent.”

Allows Seamless Integration

It is also seamlessly integrated with the organization’s Oracle based application that is accessed over web at multiple locations. Data flows freely between the two. “We had put lots of efforts into developing an application to meet our specific requirements and we want to continue using it,” says Abhishek. “Since NAV is smoothly integrated to it, we need not spend time, energy and money in re-developing and customizing the application to define our needs.”

Consolidates, Analyzes Data for Decision Making

“Earlier each centre or school managed its own set of accounts which made it impossible to compare expenditures and derive profitability,” says Abhishek. “It used to take us 15 days to consolidate financial information from all the locations; we can now do it in 2 hours. Without Dynamics NAV, it would have been impossible to close the accounts in desired time frame. “Now file balance, individual accounts, consolidated data, budgets etc. are all updated and timely available in head office for review.

“Enhanced efficiency with reduced expenditures allows us to focus our time, energy, efforts and money on providing the best options in education. We need not worry about administration and financials,” concludes Abhishek. “In addition, it presents us with the option to scale up with future growth, thus providing a better performing and reliable solution for the business applications.”

Conclusion

An ERP implementation is a huge commitment from the organization, causing millions of rupees and can take up to several years to complete. However, when it is integrated successfully, the benefits can be enormous. A well-designed and properly integrated ERP system allows the most updated information to be shared among various business functions, thereby resulting in tremendous cost savings and increased efficiency. When making the implementation decision, management must consider fundamental issues such as the organization’s readiness for a dramatic change, the degree of integration, key business processes to be implemented, e-business applications to be included, and whether or not new hardware need to be acquired.

In order to increase the chance of user acceptance, employees must be consulted and be involved in all stages of the implementation process. Providing proper education and appropriate training are also two important strategies to increase the end user acceptance rate. The organization is also going through a drastic change, with changes in the way businesses are conducted, the organization being restructured, and job responsibilities being redefined. To facilitate the change process, managers are encouraged to utilize the eight-level organizational change process. Managers can implement their ERP systems in several ways, which include the whole integration, the franchise approach, and the single-module approach. Finally, the paper concludes with a flow chart, depicting many of the activities that managers must perform to ensure a proper ERP implementation.

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