CHAPTER 5: IMPLEMENTATION STRATEGIES

CHAPTER OBJECTIVES:

- Acquire a greater knowledge base of ERP components and how they work together to support business.
- Learn why third party products are needed to operationally round out ERP system functionality and the issues involved in using them.
- Appreciate the impact of an ERP implementation on platform components such as data security, system reliability and sustainability.
- Understand implementation approaches, the differences between vanilla (minimal or no system modifications) and chocolate (modifying the system) implementations and the short-term and long-term impacts on the system and company.

CHAPTER OUTLINE:

CHAPTER OVERVIEW:

The beginning of Chapter 5 deals with ERP components and the use of third-party products for an ERP system. The middle of the chapter is concerned with assessing database requirements and determining which ERP approach and implementation to use. The rest of the chapter goes over implementation examples, platform issues, implications for management, and risk management. Overall, what you get out of this chapter is a sense of what an ERP actually is and the importance of selecting the correct software and implementation strategy while properly managing risk to ensure the project accomplishes business goals and stays within established tolerances for time, budget, etc.

The three components that compose an ERP system are hardware, software, and people resources. The hardware component consists of all the physical hardware used by an ERP, such as server computers, client computers, and various computer peripherals. The software component is composed of three key types of software: system software, application software, and database management system software. These software systems are responsible for providing specialized interfaces between the end-user and the computer hardware so that the end-user can manipulate the computer to perform desired tasks. The people resources simply consist of end-users, IT specialists, a project manager, ERP implementation team—basically any persons who utilize the ERP system.

Third-party products are also very important to ERP implementation as they fill in gaps in desired functionality and ensure the ERP system can perform all desired and required tasks. Third-party products can either be interfaced or integrated with the ERP system, but this decision will have a large impact on the overall implementation and must be given much consideration. Usually some form of middleware is created to assist this process. Integration will share all data and data elements with the ERP system with no data redundancy, but this means building it directly into the ERP. Interfacing is easier to implement, but information will only flow in one direction and updating will be slow and often with data redundancy. "It is important for companies to be sure they choose the right software. Third-party software vendors can be used as strategic partners and provide quality advice and service." ERP vendors will often have a list of their strategic partners that they work with involving third-party software, so companies should keep this in mind when dealing with their ERP vendor.

Another important aspect of ERP planning involves understanding the database requirements. The two main types of databases a company will need are transactional and reporting. A transactional database allows for quick data entry and retrieval on an individual scale. A reporting database is like a warehouse that holds all of the information of a company and is fed data periodically from transactional databases. A reporting database is used to

generate specialized reports that a transactional database is likely incapable of doing. The most important part of this process is selecting the right database. A company needs to take into consideration the availability of software applications that will use the selected database, the availability of a knowledgeable technical staff, and if the overall functionality of the database will satisfy the company's needs. The company will then need to address the need for staffing and database administration. If the company has sufficient internal resources and trained professionals, then it need not worry. However, if sufficiently trained personnel do not exist, then a company either needs to look to hire new staff or outsource its administration.

The final portion of the chapter talks about approaches to successfully implement an ERP system. Governance is a critical component that ensures proper leadership is identified and holds those in management positions accountable for making sure that decisions are based on developed strategies with a clear direction. Everyone involved must understand and accept the governance structure from the very beginning so that any problems, concerns, decision making, etc, is all submitted through the proper channels so that everyone knows what is going on and managers can keep track of everything. Some governance roles include owners, a project executive, a steering committee, an application steward, a chairperson, project management office, project teams, project team leads, and cross-functional teams. All of these people or groups have specific roles that allow them to facilitate ERP implementation in an organized and efficient manner, and also provide a sound hierarchy of leadership.

When selecting an ERP a company must have a clear understanding of its implementation methodology choices, as these choices will affect what software they purchase, how it will be used, and who will ultimately support it. The importance of choosing the right methodology will affect the entire implementation process as it will ensure deadlines are met, budgets remain on target, and functionality yields desired outputs. The three key methodologies are comprehensive, middle-of-the-road, and vanilla. Comprehensive means full customization of the ERP and yields the greatest control over desired functionality, but is expansive, lengthy, costly, requires significant BPR, and often sacrifices vendor support. Vanilla, on the other hand, means simply implementing an ERP as is, without any modification. This saves the most time, money, and retains full vendor support. Business processes are aligned to serve the ERP software rather than modifying the software to serve current business processes. Middle-of-the-road strategy is somewhere in between the two extremes. The importance is recognizing when it is appropriate to use a particular methodology.

There are benefits and drawbacks to each methodology, which ultimately express themselves on the balance sheet. If a company is inexperienced or lacks a highly trained technical staff, then it will want to use a vanilla approach to avoid complications and to retain full vendor support. Choosing to customize is very risky as upgrades become cumbersome and lengthy, if not impossible. ERP implementation is a high-risk venture no matter what you do; yet it can yield tremendous benefits that often far outweigh those risks

The implications for management revolve around making sound business decisions regarding ERP selection, implementation, governance, and methodology. If management can incorporate these aspects into implementation and keep a close connection with the project, then the chances for success exponentially increase. Choosing the right methodology and determining whether or not to customize the system will ultimately determine the complexity and feasibility of the project, as will communicating this to everyone involved and maintaining unanimous direction.

ADDITIONAL INFORMATION:

1. http://databases.about.com/od/administration/a/softwareoptions.htm (Mike Chapple, "Database Software Options," from About.com: Databases).
2. http://en.wikipedia.org/wiki/List_of_ERP_vendors ("List of ERP Vendors," from Wikipedia).
3. http://sysoptima.com/erp/implementation_methodologies.php ("ERP Implementation Methodologies," from sysoptima.com).
4. http://connect.educause.edu/Library/EDUCAUSE+Quarterly/ASecurityChecklistforE RPI/45535?time=1207070225 (Joy R. Hughes, Robert Beer, "A Security Checklist for ERP Implementations," from Educause Quarterly).
5. http://www.eweek.com/c/a/Supply-Chain-Management-and-Logistics/Microsoft-ERP-Users-Buy-ThirdParty-SCM-Software/ (Jacqueline Emigh, "Microsoft ERP Users Buy Third-Party SCM Software," from eWeek.com).
6. http://findarticles.com/p/articles/mi_m0CGN/is_n186/ai_21154432 ("Third Party Vendors Show Off R/3 ERP Products," from Computergram International).
7. http://www.msc-inc.net/ERP_Implementation.htm (Skip Stein, "Impact on ERP System Implementation," from Management Systems Consulting, Inc.).
8. http://sysoptima.com/erp/erp_definition.php (Dr. Bruce Zhang, "ERP Definition – A Systems Perspective," from sysoptima.com).
9. http://www.saleslobby.com/OnlineMagazine/1100/features_SCiszewski.asp (Sunil Ciszewski, "A Common View of the Customer: ERP, Best-of-Breed, or eCRM," from The Alexander Group, Inc.).

ANSWERS TO END-OF-CHAPTER REVIEW QUESTIONS

1. What are the components of an ERP system?

The three components are hardware, software, and people. Hardware consists of computer devices and peripherals that will be used by an ERP system. Software is usually the ERP applications, and other necessary applications to allow the ERP software to function, and is the tool necessary for building the system.

2. Why would a company choose to implement an ERP?

The choice for a company to implement an ERP is based upon its desired operational and functional capacity compared to its current limitations from existing systems. A company would choose to implement an ERP after a careful determination of business inputs, processes, and outputs which they have identified the current system being inadequate to handle, thus requiring an ERP to improve business performance.

3. What are third-party products and why are they needed?

Third-party products consist of software components that provide necessary functionality to the ERP to make the system operational. This could include things like extra modules to support current ERP software or new software components that work in conjunction with, but independently from, the ERP system to ensure operational needs are satisfied.

4. What is an implementation methodology and why is it important in ERP implementations?

Implementation methodology involves identifying requirements from an ERP and modifying the implementation plan to maximize returns in the most efficient way. It is important to choose the right methodology as it will affect the entire implementation process, ensuring deadlines are met, budgets remain on target, and functionality yields desired outputs.

5. What are the pros and cons of implementing a system without customization?

Being able to implement a system without customization yields the most benefits and is the most cost effective solution. The pros of using a Vanilla (non customized) implementation strategy include lower costs, easier and less time consuming upgrades, and retaining full vendor support. The con of this strategy is that a company must choose from "out of the box" processes and functions and have little control over functionality.

6. Why are there differences between a transactional and reporting database?

ERP systems require databases that can provide the quickest data entry and retrieval. A single relational database instance is simply too inefficient for long and short term data storage and retrieval. Therefore, two types of database instances were created: transactional and reporting. Transactional databases handle individual pieces of info for updating or inquiring, while reporting databases import data from transactional ones for long term storage and for producing specialized reports.

DISCUSSION QUESTIONS

1. **Governance and methodology are important for ERP implementations; discuss the merits of each and how in the Army they were able to implement each.**

   Governance: Governance is a structure (such as executive councils and steering committees) that encourages the active participation of leaders in planning and controlling the business use of IT, to include ERP in the Army case. Also, as stated in the text, governance of any major change in an organization is critical to the success of the change effort, but governance of ERP programs is even more critical. The Army addressed this issue by using five transformation considerations, with **sponsorship/leadership** and **stakeholder alignment** at the top of the list. ERPs require sustained leadership, and Army officers often transfer/rotate out. This was addressed by having the departing officer thoroughly engage his/her successor and convey the importance of continued engagement to their successors during transition.

Methodology: Methodology refers to the systematic approach to solving a business problem. The Army used blueprinting methodology. Blueprint is a proven, flexible and scalable process used by ERP teams to successfully implement any large scale ERP. There are various DoD statutory and regulatory rules, which are not accommodated by ERP software, but this does not have to be a barrier to using the delivered ERP functionality. Blueprinting is the methodology of choice because it allows the army to stay within the statutory limitations by using the comprehensive pilots on a live system of proposed business processes using delivered ERP functionality.

2.   **In addressing ERP implementations the infrastructure needs to be addressed also. Describe the infrastructure components and what is involved in choosing and installing the components**

Components of infrastructure include the following:

1) Hardware – Servers, Clients, and Peripherals

2) Software – System Software, Database Management System (DBMS), and Application Software

3) People Resources – End-users, IT specialists, and Project Managers.

In order to properly choose and install these various components the company must first identify and plan exactly what is needed. Without a clear, well thought out direction and focus ERP implementations will not go smoothly leading to over-run costs, employee frustration, and numerous other issues. Also, people with the necessary skill set to install these components must be involved in order to eliminate and/or minimizing mistakes when it comes to integration/implementation of the new components.

Infrastructure components necessary for ERP should provide for available, secure, and reliable operation of the ERP system. Infrastructure components should be selected based on connectivity, network and system bandwidth, security, user load, and back-up and recovery capability.

Major infrastructure components will include servers. These can be selected on ERP vendor input. Servers should be expandable to take care of future capacity and growth demands. Associated with servers is the election of a properly sized database and web servers to assume quick and reliable access to data.

Network infrastructure is another component that is required for a successful implementation. The network should be reliable and secure. Selection can be based on connectivity and speed for end users of the ERP. If the server and database components are outsourced it is usually recommended that the server farm company provide connectivity.

Security software and practice are an aspect of infrastructure necessary to prevent

unauthorized access, to prevent virus infestation of desktop PCs and servers. Software security should be augmented with a good security awareness program with a minimum training requirement for users.

The final piece of infrastructure should be a disaster recovery and business continuity plan. This involves business and senior management. They must identify mission critical transactions and develop a plan to make them available quickly as possible after a disaster.

CASE STUDY QUESTIONS: U.S. ARMY

1. **What were the key goals in the Army using an ERP system?**

    *   Common view of the rapidly changing operational environment
    *   Eliminate boundaries between One Army and One Enterprise
    *   Synchronize transformation between Institutional and Operational Army
    *   Optimize the Army at the enterprise level
    *   Rapidly affect combat operations by anticipating change and providing decisive and dominant combat capability where and when required
    *   Transform the Army from end-to-end

2. **What were the key implementation considerations that were addressed as part of the planning process, especially related to using an integrated ERP and transforming the culture?**

    *   **Sponsorship/Leadership** – Successful ERP systems require dedicated and engaged leadership. The Army has a unique situation where leaders rotate, and an ERP implementation can span over multiple sponsors.
    *   **Stakeholder Alignment** – The Army's previous structure did not require each area to work together. There needed to be tradeoffs in each of the areas to have the best overall solution for the organization, so there needed to be decisions made at a higher level than the area that are implementing the tradeoffs.
    *   **Cost** – Transformation Management (TM) is a key element to the success of the implementation. It must be communicated and accepted by the leadership in advance. Often times when there are cuts to the budget it is the first thing to be cut.
    *   **Project Lifecycle** – TM needs to be part of the project from the beginning and is key to the overall success of the project.
    *   **Culture** – As with any organization that has a long term history, change will be a challenge. Leadership must take an active role within the Army to support the change.
    *   **Communication** – The Army has many areas in which communication is key to success, both internal and external to their organization. A good communication plan must be put into place.

3. How was the change management process incorporated into the implementation?

The Army used blueprinting, which is a comprehensive set of pilots to test proposed changes and ensure that the proposed changes will work as advertised. Additionally, the Army evaluated customization of the software versus changing the process on a regular basis.

4. Discuss the pros and cons to customizing the system?

- Pros – The software will better meet the needs of the Army and their unique processes and business processes. Users will not have major changes and therefore adjust to the new system more readily.
- Cons – Upgrading to a newer version of the software will be more time consuming and expensive; customizations are not supported by the vendor and customizing can cause delays in the project and possibly destabilize the software.