

Educational Opportunities in Enterprise Resource Planning (ERP)

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Abstract

For quite some time, the goal of technology leaders has been to integrate the information systems applications in their organizations. Quite recently, concern about readiness for Y2K and the viability of legacy systems served as an impetus for organizations to assess their information systems and to examine their organizational processes with the underlying objective of improving cross-functional integration.

Many organizations have looked to enterprise resource planning (ERP, frequently with costs exceeding hundreds of millions of dollars, as a means to achieve inter-departmental integration and cross-functional integration of processes. A typical ERP system includes a complete set of applications including order processing, human resource management, manufacturing, finance, accounting, and customer relationship management.

Several ERP vendors have made their products available to educational institutions with very attractive pricing options. This paper will discuss the educational offerings of three major vendors, namely Oracle, PeopleSoft, and SAP R/3

Introduction

Enterprise Resource Planning (ERP) is a cross-functional enterprise wide system that serves as a framework to integrate and automate many of the business processes that must be accomplished within the manufacturing, order processing, logistics, distribution, accounting, finance, human resource, and customer relationship management functions of a business (O'Brien, 2002, McNurlin, 2002). The major objective of an ERP system is to integrate all departments and functions of a company on a single computerized system (Turban, 2002). ERP is a family of software modules that supports the business activities cited above and is the equivalent of an operating system for electronic business (Kalakota 1999). Although ERP was originally packaged with business process reengineering initiatives, when successful, ERP systems have created major business value by:

- Creating a framework that results in major improvements in areas such as customer service, production and distribution efficiency.
- Providing timely cross-functional information that assists managers in the decision-making process (McCarthy, 2000 and Steadman, 1999).

The installation and adaptation to an ERP system is a complex task largely because of the many business process changes required by the ERP software. ERP software makes certain assumptions about how a business operates. The assumptions and processes imbedded in the software may be significantly different than the processes currently in place. Of course, adapting to new processes involves change, and frequently the change required meets with considerable resistance. Customization of ERP software is possible, but it is a very costly and time-consuming undertaking. The company implementing the ERP must decide that its current processes warrant the expenditure of substantial dollars to accommodate customization of the modules or manage change in order to adapt to the processes as they are designed in the ERP system.

Because of the complexity of the systems and the fact that processes must be changed to suit the software, success with ERP installations is not guaranteed. Just as there are many success stories with ERP, there are also many notable failures. Organizations must be willing to change not only their processes but also their culture in order to optimize benefits from ERP systems (McNurlin). Buckhout (1999) studied ERP implementations in organizations that had more than \$500 million in revenues and reported some alarming findings. The study revealed the following:

- Average cost overrun was 179 percent.
- Average schedule overrun was 230 percent.
- Desired functionality averaged 59 percent below expectations.
- Implementation projects that finished on time and on budget amounted to 10 percent.
- About 35 percent of the projects were cancelled.
- The most notable cancellation was Dell Computer, which canceled an ERP project after two years and over \$200 million dollars invested.

Application Service Providers (ASPs)

Application service providers provide online channels for packaged software. ASPs generally focus on high-end software applications such as databases, enterprise resource planning and customer relationship management (O'Brien). The end-user business generally pays a monthly fee for the application software, hardware, service and support, maintenance and upgrades. Fees can be fixed or based on utilization. (Turban). ASPs differ from outsourcers in that they manage servers at a centrally controlled location, and the applications are accessed via the Internet or a value-added network (VAN) using a standard Web browser interface. ASPs are particularly prominent in enterprise computing and electronic commerce, areas that are too cumbersome and too expensive for many organizations to do on their own. Major providers of ERP software such as SAP and Oracle are offering ASP options for their clients (Turban). Advantages of using ASPs include cost savings in development, hardware, software maintenance and upgrading, and user training. Disadvantages include security, confidentiality of information, consistency in level of service, and degree of control, especially when problems occur.

Use of an ASP should involve a detailed and well-defined service level agreement (SLA). Service level agreements usually address all major system resources, namely hardware, software, people, data, networks, and procedures. Expectations and level of performance in all areas should be clearly stipulated in the SLA in order to define expectations and eliminate future disagreements.

The difficulties and expenses involved in implementing ERP systems in a business setting suggests that it will also be quite difficult in an educational setting. Typically, the resources available in higher education are considerably less than those available in a business environment. Therefore, the use of an ASP for technical assistance may be quite beneficial to an educational institution.

Customer Relationship Management (CRM)

An increasing number of organizations are looking to customer relationship management (CRM) as a business strategy. The notion that the customer is the core of the business and is of utmost importance has never been more pronounced. CRM is just one of the many modules available in an ERP family of applications, but it is one that all of us can relate to and understand. CRM software enables an organization to provide fast, convenient, dependable and consistent service to its customers. The software enables organizations to track customer contacts for cross-selling and up-selling, qualify leads, manage responses, schedule sales contacts, provide information to prospects, and manage service requests (O'Brien). Mowen and Minor (1998) define relationship marketing as "the overt attempt of exchange partners to build a long-term association, characterized by purposeful cooperation and mutual dependence on the development of social as well as structural bonds. It includes the elements of loyalty and trust."

Kalakota reports the following as an endorsement for maintaining solid customer relationships:

- It costs six times more to sell to a new customer than to an existing customer.
- Typical dissatisfied customers tell eight to ten people about a negative experience.
- By boosting annual customer retention by five percent, a company can boost its profits by up to 85 percent.
- The odds of selling a product to an existing customer are 50 percent as compared to 15 percent to a new customer.
- When complaining customers are promptly satisfied, 70 percent of them will do business with the company again.

Although similar justifications can be provided for the importance of many of the modules included in an ERP suite of products, the above is included in this paper to illustrate the sophistication and emphasize the significance of one of the most popular modules being adopted from ERP product lines. The key point, and one of the primary reasons for considering an ERP system is the single system cross-functional integration of subsystems that the ERP system provides.

ERP for Education Programs

A key strategy of software vendors for a number of years has been to provide very deep discounts for educational institutions that wish to purchase the software. In earlier years, Lotus Development Corporation, and more recently, Microsoft has provided software suites for educational institutions at a fraction of the retail cost of the software. Three of the major ERP vendors have launched cooperative educational programs to make their ERP software modules available to institutions of higher education. The ERP software is targeted at business, engineering pro-

grams and applied technology programs. The software made available to the educational institutions typically has a commercial value estimated at one to two million dollars. At this time, even with the educational pricing, ERP offerings can become quite expensive, and therefore educational institutions must proceed with caution.

The most developed of the ERP educational offerings is the SAP Education Alliance Program. SAP was founded in 1972, employs 20,000 people, and is based in Waldorf, Germany. The Education Alliance Program has been in place since 1995. SAP is very proud of its commitment to education and currently claims several hundred academic institutions and an emerging group of high schools as members of its Alliance program. SAP R/3 or mySAP.com e-business software has been integrated into a number of fields including business (general to graduate), technology, computer science, engineering, and engineering management. Each education alliance member receives enterprise software, faculty training, curriculum development support, and professional development opportunities (SAP, 2001).

In order to become an Alliance member, the school must commit to an SAP academic coordinator, an IT staff person, and faculty commitment to training, curriculum planning and development. It also requires the necessary hardware, operating systems, connectivity and workstations. A new addition to the program allows for running the entire suite of products on a local server or optional access to a host referred to as a University Competency Center (UCC). Annual membership cost is \$8,000 including the ASP host if desired. Additional details are provided in the Pricing Table at the end of this paper (SAP).

Oracle's program is also quite good and is called the Oracle Academic Initiative (OAI). Like SAP, the program offers a wide range of software products. Also similar to SAP, Oracle offers an eBusiness Initiative program in addition to its more long-established products. The Oracle product line receives very high praise among the ERP applications and is noted for its reliability and compatibility. Although the front-end investment is not as great with Oracle, training is rather expensive, though discounted at 50%. Costs are detailed in the Pricing Table at the end of this paper. Requirements for academic participation in the OAI program are comparable to SAP. The institution must be a degree-granting accredited institution, must meet hardware and operating system requirements, have personnel to support the system, and have a plan for integration within the curriculum. The Redwood, California based Oracle Corporation provides 24/7 product support, access to a self-service web site for downloading class lab files, and classroom technical support. To the best of the author's knowledge, ASP service is not an option with the OAI program (oai.oracle.com).

The latest entrant into the educational ERP market is Pleasanton, California based PeopleSoft. PeopleSoft has instituted a comprehensive industry – academic partnership called the On Campus program to assist colleges and universities to integrate PeopleSoft enterprise software into curricula. The academic offerings available are considerably less than SAP or Oracle, with Human Resources Management, Financials, Supply Chain Management and Customer Relationship Management applications currently available. As detailed in the Product Offering and Pricing Tables at the end of this paper, PeopleSoft offers the least applications but is the most expensive of the three ERP options. At this time, the number of participating universities in the program is rather small. Qualification requirements to be part of the program are similar to SAP and Oracle.

Requirements include a proposal for integration, a primary contact person for planning and implementation, sufficient annual budget, detailed plans for technical support, a commitment of faculty with a curriculum implementation plan, and an estimate of the number of students involved. PeopleSoft has attempted to provide ASP service, but thus far the effort has not been successful (peoplesoft.com).

Conclusion

A curricular ERP implementation is both difficult and costly. The three major vendors detailed in this paper have initiated programs that enable an educational institution to have access to millions of dollars worth of ERP software for a relatively low cost. Both organizational and educational ERP implementation projects are difficult because of the complexity and detail of the software applications. Faculty training is very time consuming and expensive for Oracle and PeopleSoft. It is included as part of the SAP academic initiative. Deciding what and how much to include in coursework is difficult, because there is a risk that too much coursework will be dedicated to ERP and not enough to developing the course's core content. Implementation is also difficult because of the knowledge requirements of the personnel who will support the software. Competent personnel are both expensive and very much in demand. Hardware requirements are also quite expensive. For most educational institutions, use of a host ASP may prove to be the best solution.

Based on the information, especially product availability and pricing, presented in the tables in this paper, it appears that SAP offers the most comprehensive and affordable ERP options for education. SAP has devoted considerable resources to development of its educational offerings, and is quite proud of its educational initiatives. It is relatively easy to secure information from SAP, and they are the only ERP educational offering that includes ASP service at no additional cost through their University Competency Center program. As an added bonus, SAP is currently the most widely used ERP software suite in the business world.

Product Offering Table

The Product Offering Table below is the author's best effort to summarize educational product availability from SAP, Oracle, and PeopleSoft. Offerings are subject to change.

MODULE	SAP	ORACLE	PEOPLESOFT
CRM	X	X	X
SCM	X	X	X
HR	X	X	X
Financial/Accounting	X	X	X
Manufacturing	X	X	
OLAP		X	
Data Warehousing	X	X	
Data Mining		X	
Decision Support	X	X	
Enterprise Information Portals	X	X	
Production Planning	X		
Sales & Distribution	X		
Personnel Planning & Development	X		
E-Procurement	X	X	
Product Life Cycle Management	X		
Mobile Business	X		

Pricing Table

The Pricing Table below is the author's best effort to summarize educational product pricing from SAP, Oracle and PeopleSoft. Contacts are also provided. Pricing is subject to change.

SAP	ORACLE	PEOPLESOFT
\$8,000 Membership, Maintenance, ASP fee; Training and R/3 Software are included; 110 days of training for faculty and IT Staff in use of R/3 also included All upgrades are free and upgrade training is free	\$500 Annual Fee; \$150 Instructor kit per course/department/year; \$150 Student kit per course/department/year; Training fee @ 50%; \$3,000 Initial E-Bus Membership Fee	\$10,000 on campus standard fee; Implementation fee: \$2,500-\$12,500 Additional Fee of \$7,500 for CRM - 25% discount on install; Additional Fee of \$10,000 for SCM- 25% discount on install
Contact: Email: www.sap.com/usa/education/alliance Ed Wilson, Ph.D. Manager, U.S. University Alliance Program Telephone: 610. 661.5573 Fax: 610.661.5574 Email: edward.wilson@sap.com	Contact: Email: www.oai@oracle.com Telephone: 800.633.0584 x 48730	Contact: Email: www.peoplesoft.com Susan Webb Edelman Public Relations for PeopleSoft Higher Education Telephone: 202.326.1707 swebb@edelman.com Dan Conway PeopleSoft, Inc. 510.468.2697 dan_conway@peoplesoft.com

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