

ENTERPRISE RESOURCE PLANNING SOFTWARE IN GRADUATE BUSINESS PROGRAMS

Daniel A. Rivetti, University of San Diego
Gary P. Schneider, University of San Diego
Carol M. Bruton, California State University San Marcos

ABSTRACT

Business education has been largely function-centric since it emerged from its origins in Schools of Economics. Curricula were based on a core of fundamentals; studies in such areas as Accounting, Economics, Finance, Information Systems, Management, Marketing, and Operations Research. Recent radical downsizing in corporate America and related innovations such as business process reengineering have led function-centric business organizations into the post industrial information age. Strategic value chain principles have been widely applied in many businesses. Enterprise-wide computing solutions have approached being, for the first time, a unifying business technology. Enterprise resource planning software (ERP) is becoming a way for firms to organize their strategy within this technology. This paper recommends that business schools grappling with curricular revision issues consider using the ERP structure of these software packages as an organizing theme for such revisions.

INTRODUCTION

Business education has been largely function-centric since it emerged from its origins in Schools of Economics. Curricula were based on a core of fundamentals; studies in such areas as Accounting, Economics, Finance, Information Systems, Management, Marketing, and Operations Research. Most programs offered an end of program capstone course in business or management strategy. Economists' theory of the firm often became lost amidst disconnected and unrelated course offerings. Meanwhile, the radical downsizing of corporate America and innovations such as business process reengineering led function-centric business organizations into the post industrial information age. Porter's (1985) Value Chain principles have been widely discussed in the business research literature and have been applied in many businesses.

Originally, computers were used to automate existing business systems. Breakthroughs in client-server architectures have led to the creation of enterprise-wide solutions in commerce and industry that have approached being, for the first time, a unifying business technology. A German software firm, SAP AG, is the leading enterprise resource planning software (ERP) firm today (Curran, et al., 1998). Founded in 1972, SAP has defined over 800 business practices and modeled them using graphical representations of events and tasks (Blain, 1997). Many leading firms have adopted SAP or other ERP software implementations. This paper recommends that business schools grappling with curricular revision issues consider using the ERP structure of these software packages.

For many firms, these software packages have allowed firms to do many things that were impossible with earlier, non-integrated software (Atre and Storer, 1995; Borthick, 1992, 1993; Elliot, 1996). Online analytical processing (OLAP) software (Callaway, 1995; Fairhead, 1995; Ricciute, 1994) has enabled managers to compile and analyze their planned and actual results in a variety of ways. Hammer (1999), notes that ERP software is an integrating tool. As such, it combines with OLAP and data mining technologies to give managers integrated enterprises.

Business schools have been under continual pressure to revise their curricula. In the early 1990s, business schools once again began to feel pressure from the outside to revise curricula that had lost touch with the needs and realities of business practice. Distance learning, accreditation standards, new missions, and other changes in the business education environment are requiring institutions to develop new levels of what management theorists call “organizational plasticity” (Gioia and Thomas, 1996; Kimberly and Bouchikhi, 1995).

In the next sections of this paper, we will provide a description of ERP software and present arguments for using ERP software as an organizing theme for MBA curriculum revision today.

ERP SOFTWARE

Berman (1998) notes that 70% of the largest 1,000 U.S. firms have implemented ERP software such as SAP, Baan, J. D. Edwards, Oracle, or PeopleSoft. Many firms in the next tier, with revenues ranging from \$50 million to \$1 billion, are considering implementing such software. ERP software requires a consideration of, and often modification of, the business processes of a firm. As such, its implementation is often accompanied by a complete review and examination of the business processes of the firm. Since it is enterprise-level software, it demands a conscious integration effort that includes all elements of the firms activities and processes.

Hammer (1999) explains that using ERP software forces firms to become integrated enterprises. Such enterprises demand extremely high levels of teamwork, understanding of key business processes, and distillation of business knowledge. In the course of implementing an ERP system, firms often find themselves moving both authority and responsibility from upper levels of management down to the operational levels. This allows people in the firm to break down traditional barriers and work toward shared goals in the collective spirit so often discussed but seldom before implemented. Individual departments simply do not have the ability to sustain an existence as individual empires secluded in functional silos.

In a typical ERP software package, the enterprise solution is built from existing modules that accomplish information gathering and processing activities for individual business processes (Curran, et al., 1998). In many cases, such as the logistics modules, the integration is accomplished not only within the enterprise, but also extends outside the firm to other participants in the industry’s value chain. The exact titles and specific purposes of these software modules vary somewhat in ERP packages offered by different vendors. In this paper, we will use some of the SAP modules to illustrate our approach.

SAP was founded in 1972 to provide integrated business software for large enterprises that integrates all elements of an organization’s activities (SAP, 1999). The software is designed to show results for such things as specific supply chains and customer relationships in addition to providing the usual outputs needed by a large organization to keep its bills paid, its financial statements

prepared in a timely fashion, its sales and distribution network under control, and its human resources function operating in conformity with myriad laws in multiple jurisdictions.

The main SAP modules include: financial management, control (which accumulates costs by cost center, activity, order, project, and/or profit center), treasury management, capital investment management, production planning and control, sales and distribution, human resources, plant maintenance, materials management, and enterprise control. Some of the more specialized modules include applications for conducting electronic commerce, managing foreign exchange transactions, and doing business in particular geographic areas of the world. SAP also offers specialized vertical integration for specific industries such as automotive, banking, chemicals, real estate, health care, construction, oil, utilities, and retail.

Other ERP vendors offer a similar range of modules (Baan, 1999; Edwards, 1999; Oracle, 1999; PeopleSoft, 1999). In all cases, these ERP vendors offer complete integrated business solutions. Many large firms have used outside consultants to help them install these ERP software packages. The need for consultants arises, in large part, because these are more than just software packages, they change the way firms do business and the way firms think about themselves doing business.

ERP SOFTWARE AS A CURRICULUM-ORGANIZING THEME

The integration and need to rethink business organization structures that flow from ERP software implementations provide tangible way to implement those desired goals in MBA curricula. Instead of haphazard stabs at implementing teamwork and shared goals in MBA courses, ERP software principles provide a structure for implementing these features that is used increasingly in major corporations today.

In addition to providing a tangible model for implementing soft skills such as interpersonal communication and team-building activities, ERP software can provide an organizing theme for other elements in the MBA curriculum. For example, most MBA programs include courses in accounting. These courses are usually taught by professors that have done considerable research and have high degrees of expertise in one of the narrow areas of academic accounting. The use of ERP modules to organize the accounting elements of the MBA curriculum could lead to a completely different set of courses.

Instead of one financial accounting course and one managerial accounting course, a business school may decide to have a financial management course based on that module and then offer a course in control that was based on the ERP controlling module. Such a course would include elements of cost accounting, management theory, organizational design, human behavior regarding incentives, and related topics. The ideal instruction in such a course may come from a team of professors rather than one with a high level of specialization. Alternatively, a seasoned business executive who has taken an executive-in-residence appointment might be an ideal instructor for this course. The treasury management module and the capital investment module might work well in a reengineered finance course. In all cases, these modules could be used to emphasize the integration of business processes across the enterprise. For example, both the financial accounting course and the finance course might use elements of the financial management module to show the integration of fixed asset accounting with the capital investment process.

Similar opportunities abound for use of other ERP elements as structuring themes for MBA courses. The sales and distribution module could be used to organize and integrate marketing and management course offerings. The enterprise control module would be an excellent fit with strategic management or business policy courses, as would the industry-specific module for conducting electronic commerce. International business courses could use the international development modules for one or several geographic areas. Courses in real estate or health care management would find modules specific to those industries available to support teaching in those areas.

Some MBA programs, such as Bentley and Carnegie Mellon (Crowley, 1999), are including specific tracks or degrees that emphasize information technology. Classes are held in Internet-enabled, networked classrooms that allow students to use ERP and other software directly in finding solutions to business problems. Federal Express has joined with the University of Memphis to create an Internet curriculum model that is available for adoption at business schools (Roman, 1997). This model was created in response to the severe shortage of information technology professionals that have a good understanding of business processes.

CONCLUSIONS

The world of business is enthusiastically adopting ERP software. Schools of business can gain a practitioner's edge by using some elements of these software offerings as an organizing theme for curriculum revisions that are currently underway. By using ERP software to tie courses to business processes, MBA curricula will give students a reason to engage in teamwork and goal sharing activities. This approach can also give students a better view of the integrated enterprise of the future.

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