

Integrating Enterprise Systems Concepts in the B-School— A Regional University Perspective

Dr. C. Steven Hunt
cstevenhunt@gmail.com

Dr. Elizabeth A. Regan
e.regan@moreheadstate.edu

Dr. Donna R. Everett
d.everett@moreheadstate.edu

Morehead State University
Morehead, KY 40351 USA

Dr. David Green
david.t.green@gmail.com
Governors State University
University Park, IL 60466 USA

Darla Hunt, MSIS, MBE
darla.hunt@kctcs.edu
Maysville Community & Technical College
Morehead, KY 40351 USA

Patrick Becka (ABD)
pbecka@technologist.com
Doctoral Student, University of Kentucky
Lexington, KY 40508 USA

Abstract

A quick look at today's business job postings and advertisements solidify that our future business graduates will be less likely to compete successfully or interview for the new corporate job openings without business process integration skills. Our credibility, reputation and visibility as an institution of higher learning is at stake—given that the business student is not only our customer, but also our product. To survive in the new global economy, it is paramount that we re-engineer our curriculum and update business offerings to incorporate business process integration. The students will be the true beneficiaries—through internships and immediate job placements—if they are more knowledgeable in enterprise systems, i.e SAP and integrated business processes.

Keywords: Enterprise Systems, Business Process Integration, IS Curriculum, Enterprise Resource Planning (ERP), business administration curricula

1. INTRODUCTION

In a rapidly, changing, globalized, and knowledge-intensive business environment, it is becoming increasingly difficult for companies to maintain competitive operations without a skilled business workforce and trained enterprise resource planning (ERP) specialists (Boyle, 2006). In short, as a former Kentucky Governor stated a few years ago, "...companies will choose to not only locate, but to remain, where there is an adequate infrastructure and a skilled workforce."

Consequently, it becomes increasingly important for business schools to offer a process-based curriculum to better reflect the realities of modern business (Magal, Word 2008). Considering the increasing importance of ERP, and its pedagogical value in demonstrating business process integration, several hundred universities already have started to reengineer curricula (Seethamraju, 2007).

To assist in this effort, SAP (www.SAP.com) has provided colleges/universities with an outstanding opportunity to provide students more knowledge about a process-centered architecture, using its Educational Curriculum Alliance Partnership.

2. REVIEW OF THE LITERATURE

Many experts view the ability to remain globally competitive as absolutely essential if the U.S. is to maintain its current economic growth and standard of living, (Stine and Matthews, 2008). In response to the hyper-competitive global marketplace, there has recently been an upsurge in academia's questioning of how to structure curriculums to meet challenges which come from the increasing integration of national economies into a worldwide trading system (Ahearn, 2007; Ragan, 2007). There is also a stronger focus on the emerging, declining, contracted and in-house competencies needed by the technology workforce (Caputo, 2005).

One such effort was AACSB's (2002) new emphasis on the integrated interrelationships between functional areas of a business, so as to provide students with a stronger holistic understanding of how businesses operate. In this regard, Enterprise Resource Planning (ERP) systems, by their multidimensional, integrative, and normative nature, offer the strength of functionality and breadth of assimilation required for running global operations of business organizations (Tomei, 2008).

Enterprise resource planning is important for business and is representing a significant amount of IT investment made by organizations in the United States. Many Kentucky companies and firms in bordering states have selected SAP as the enterprise systems software to help them integrate their core business processes using a single software platform. Having institutions, such as the University of Kentucky, Northern Kentucky University, Eastman Chemical, Brown & Williamson Tobacco, Toyota Tsusho America, Procter & Gamble, and others, nearby using SAP will provide excellent job opportunities for undergraduates. The jobs are in place for the IS graduate; we just need to market our curriculum and associated skill sets better to prospective students, states McGann, et al. (2007).

Other benefits of the educational curriculum alliance to our faculty/students include student/faculty access to SAP software, full technical support, access to training, support forums, workshops, and conferences (many of which are free), access to the ASUG (Association of SAP users) user group website, as well as access to pre-designed and classroom tested SAP curricula for classroom teaching.

This regional university's strategy is to integrate ERP concepts and principles where applicable in our business curriculum. In the first year, plans are to introduce the SAP enterprise solution from a business process perspective in selected courses, starting with the required Introduction to Business course using simulation tutorial. As faculty gain experience, our intent is to expand the use of SAP into the upper division courses. We

anticipate this will lead--over time--to significant curriculum change. In an effort to become leaner and more responsiveness to the customer in volatile economic times, organizations of the 21st century are putting more emphasis on process-centric approaches and consider this method as key to success in business process management. Numerous faculty have embraced specific SAP curriculum modules that are housed on SAP's Innovation Watch website for the purpose of better understanding the criticality and centrality of business processes as a value driver.

The integration of SAP into courses will result in a more rounded bachelor's degree, providing a living business laboratory for students. By producing "enterprise-wise" students, the college will be able to attract a wider range of companies to recruit graduates, whether or not those companies are using SAP.

3. DESCRIPTION OF SCHOOL AND COMMUNITY

The university setting is a public comprehensive regional university with an enrollment of about 9,200 students located in the Appalachian region of east Kentucky. It serves a predominantly rural population, the majority of which are first generation college students. It serves primarily the citizens of Appalachian east Kentucky through its main campus and eight extended-campus centers within a 160-mile radius.

The AACSB accredited College of Business (COB), consists of three academic departments—(1) Accounting, Economics, and Finance (2) Information Systems, and (3) Management, Marketing, and Real Estate. The major thrust of the college is to create lifelong opportunities and choices for individuals and organizations within the 22-county service region in Appalachia (a region that has experienced chronic economic challenges). The college wants to provide its students with the skills to create the economic opportunities and choices that will allow them to decide whether to pursue careers within the region as productive members in their hometowns, or to pursue careers in any job market in the world. The college faculty and staff are committed to helping its students to graduate from the

BBA, MBA, or MSIS programs with a significantly different set of career and economic opportunities available to them than when they arrived at the university. The COB also creates lifelong opportunities and choices for organizations within the region by providing a skilled workforce, intellectual services, and tangible resources to enhance the well being of businesses and other entities within the region.

In order to pursue the university's goal of *academic excellence*, the COB has built its undergraduate curriculum on a broad foundation of courses ranging from the liberal arts to business core and option courses at the undergraduate level, and has built its graduate curriculum on a solid base of courses that fulfill the needs of practitioners. The curriculum for all undergraduate and graduate business degree programs was developed in consultation with external and internal stakeholders and is in concert with the needs of our students and working professionals in its 22-county region. The curriculum emphasizes the acquisition of a broad range of business skills, as well as development of communications, globalization, cultural diversity, and ethical responsibility.

4. SUPPORTING THE MISSION AND VISION OF THE COLLEGE OF BUSINESS WITH SAP

The COB has experienced significant changes during the past five academic years—largely due to the creation of assessment processes that have improved the quality of the college's curriculum, programs, course delivery systems, and services.

The COB has established an operational mission statement and strategic plan to guide the college in providing opportunities and choices for students and stakeholders. The mission was used as a basis for creating the strategic plan that includes goals, objectives, and strategies. The usefulness of the mission stems from the rigorous and inclusive process used to create the college's strategic plan. Faculty, staff, students, alumni, and the Business Advisory Board participated in the revision of the mission and have endorsed the direction of the college. In April 2005, several SAP (2006)

Congress attendees from Morehead State University enthusiastically returned to campus and presented a draft plan for introducing our students to SAP. More than 50% of the tenure-track faculty attended the session and several have already begun to collaborate with others on methods to incorporate concepts into their disciplines. Also, after a three-day training workshop on Business Process Improvement conducted on site by The Rushmore Group, the undergraduate curriculum committee requested that the college strongly consider the integration of ERP concepts and fundamentals into the business core beginning at the freshman level.

5. DRIVING FACTORS BEHIND THE INITIATIVE

The driving factors behind this initiative are a core group of interested faculty and a growing awareness of the movement to a business process orientation in business with the use of enterprise systems. The core group of faculty has had sufficient business experience, exposure to enterprise systems and experience with business process reengineering exists. Serious discussions started when this university made a decision to implement an ERP package at the university. A number of faculty had an opportunity to meet with SAP account representatives to learn about SAP's University Educational Alliance Program and ten faculty attended the 2008 Curriculum Congress in Atlanta. One of our faculty members used his sabbatical leave to visit several companies that have implemented SAP. With these professional development activities, we have built a sufficient level of interest in the College of Business to integrate business processes into the business core as well as into the MBA and MSIS programs of study.

Developing a strategy for integrating a business process orientation and enterprise systems into the curriculum has been ongoing. The faculty continues to follow the prescribed AACSB timeline for meeting the Assurance of Learning standards. This includes curriculum alignment with program goals, defining student learning outcomes, measuring learning outcomes, and making curricular adjustments as necessary. As part of curriculum alignment process, faculty are

exploring best practices and the potential for integrating ERP concepts—given a scarcity of faculty resources and budgetary constraints.

6. DEVELOPMENT OF A STEERING COMMITTEE

The College of Business has established a project team of faculty members to make a recommendation regarding specific directions and a curriculum plan. Project team members who have given input to the integration process included faculty from each of the three academic departments within the College of Business. The project team members have been very active in the annual curriculum congresses and the SAP summer workshops on business process integration.

After the integration of ERP into the initial phase of courses and assessing results, the curriculum committees in each discipline will make recommendations about further curriculum revisions and additional courses that could integrate ERP concepts and practices using SAP. The faculty has written strategic initiative grants to help to defray costs associated with the SAP University Alliance. These funds have also been used to send faculty to the Curriculum Congress and support attendance for several faculty members to other SAP training sessions. Sustainability and ongoing funding is a concern, but the COB dean has been committed to support these efforts and to identify additional resources and university dollars. Faculty has been exploring the potential to seek funding support from local companies that have implemented SAP.

Faculty also is working directly with one business partner with this SAP initiative. This consulting firm has recently established a new information technology rural outsourcing business located in the Morgan County Technology Center, approximately 20 miles from the main campus. One of the core competencies it has identified for development is enterprise resource planning, specifically SAP programming competency. The technology center continues to look to the College of Business in its quest for providing entry-level employees and student internships for new upstart, high tech entrepreneurs.

7. PLANNING, DESIGN, AND IMPLEMENTATION FOR ENTERPRISE SYSTEMS

The SAP initiative will involve all three departments in the College of Business at Morehead State University. SAP will be implemented in undergraduate classes, as part of the Bachelor of Business Administration (BBA) degree program, as well as the Master of Business Administration (MBA), and the Master of Science in Information Systems (MSIS) graduate degree programs. We propose to employ a phased implementation approach. Phase 1 (2 years) will begin by introducing units, demonstrations, and simulations within the existing business curriculum during the first two years as part of the University Alliance. A limited number of courses will be identified in each department for SAP implementation during this first phase (see Table 1 below). Specific learning outcomes related to ERP systems will be identified for each course, and results of Phase 1 will be assessed in relation to the intended learning outcomes.

Phase 1 will provide an opportunity for all interested faculty to investigate the value of SAP in the current curriculum through observation of other faculty, training/workshops offered by the University Alliance's University Competency Centers, and attendance at the annual Curriculum Congress. The dean strongly encouraged the project team to include a variety of courses and faculty involvement during Phase 1. The courses were chosen based on their logical structure and ability to introduce SAP to support current learning goals. Forums will be scheduled for faculty using SAP in their courses to share and demonstrate their results.

Phase 2 will expand the number of courses that integrate SAP and, based on assessment results, expand the level of integration into some classes. Faculty anticipates that integrating SAP may lead to significant curriculum revisions in some courses—such as Accounting Information Systems. Curriculum changes would be handled through the discipline curriculum committees and follow the established university curriculum revision proposal

review and approval process. See Table 2 below.

Phase 3 has the ultimate goal of broader and deeper integration of SAP across the College of Business Curriculum in the core offerings. One of the considerations that has been discussed with the dean and some faculty is the potential of using a comprehensive case study that would be used in multiple courses across disciplines, such as the Global Bike, Inc. case study.

8. TECHNOLOGY AND INFRASTRUCTURE PLANS

Business students at this regional university have access to excellent computing facilities. The College of Business has several computer classrooms plus an open student computer lab available throughout the week. All classrooms are on the university's wireless network and are equipped with multimedia instructor stations. We also have a laptop computer leasing program available for students. All students are required to take a general education computing course to gain a basic foundation of technology skills.

The College of Business computer labs are supported by a full-time Instructional Technology Consultant and several graduate assistants. Plans are to assign one of the Information Systems faculty members as the primary contact with our assigned SAP hosting site. As part of that role, the faculty member will coordinate faculty training and technical problem resolution for the college. The existing discipline curriculum committees in each department will address curriculum planning and development related to integration of ERP/SAP concepts and practice. These curriculum activities will be coordinated through the existing College undergraduate or graduate curriculum committees as appropriate. During the initial roll-out phase of SAP, we plan to establish a forum for collaboration among the core group of faculty working with SAP. We can continue these efforts as long as faculty members feel a need, and then move to more informal collaboration among SAP users. Faculty is also interested in joining the SAP User's Group, and we will encourage faculty to use this avenue of support as well.

9. SUCCESS MEASUREMENTS FOR ERP CURRICULUM INTEGRATION

This regional university's College of Business has developed several objectives and measures to help determine the success of the SAP initiative on campus. Assessment of the SAP implementation will be integrated into the annual assurance of learning process that is conducted for AACSB accreditation and that is tied to the learning objectives for each course. One of the programs of study (Business Information Systems) in the Information Systems Department has the goal of displaying an understanding of business process integration and ERP fundamental concepts. Objectives for measuring success of the SAP University Alliance initiative include the following: (1) Integrating ERP (SAP) curriculum into the college's on-going assurance of learning goals and assessments, (2) Examining enrollment rates for the SAP integrated courses within the College of Business, (3) Tracking the ability of the College of Business to attract new companies to the MSU job fair and campus visits to recruit students with a background in ERP, (4) Obtaining survey feedback from alumni that measures their current work with SAP or other ERP systems and that the influence of the SAP education had on acquiring or pursuing their current job, (5) Tracking the number of classes that integrate SAP content, and (6) Tracking faculty involvement in workshops and training as well as successful recruitment of qualified faculty in this area.

10. SUMMARY AND CONCLUDING REMARKS

Our global economy is not the business world we knew five years ago. Many regional companies have expanded into national companies and these organizations have expanded into global companies. Consequently, many companies are turning to ERP tools and web services to help redesign their business operations for strategic advantage (Cameron, 2008). Our business students will not be able to compete successfully or interview for the new corporate job postings without business process integration skills.

The sustainability of being in the SAP University Alliance program is ensured when

a steady, interested, and qualified pool of candidates for positions in the College of Business presents itself. Potential faculty members will be drawn to the opportunity to become part of a college that has embraced and infused SAP into its programs. New faculty members who are content specialists and SAP trained and qualified will have an enormous effect on the curricula, course design, and reputation and visibility of the college.

To survive in the flat world, to be competitive, and to assist companies in this change, educators must re-engineer and update business offerings, as well as enhance their own professional development (Friedman, 2005). An increasing number of university faculty are very committed to this vision and believe a primary mechanism for enlightening business students to information technology and business theory is enterprise application systems, such as SAP. It's a new day for institutions, and we realize that the business student is NOT just our customer—they are our PRODUCT. Just one search on www.monster.com or other job search sites quickly solidifies and validates our efforts and vision. Our students will be the beneficiaries—through virtual internships, cooperative education, experiential learning experiences as well as immediate employment—if they graduate with current enterprise systems skills.

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Appendix A

**Table 1. Integration Curriculum Plan for the College
Phase 1: Initial Courses Planned to Integrate SAP**

Course Name	Course Number	Description	Core* or Elective	Semester Offered	Faculty
Accounting Information Systems	ACCT 391	Examination of accounting information systems within a context of contemporary technology. The course focuses on terms, concepts, and technology found within the accounting information systems environment; accounting cycles and control of accounting information systems; theory and practices relating to systems development; and reporting practices related to accounting information systems.	Elective BBA	Spring	R. Criscione
Business in Today's Society (Introduction to Business)	MNGT 160	An introductory required course designed to expose students to a variety of issues regarding management, marketing, finance, accounting, economics, technology, and business law. Through this course, students will develop an understanding and an appreciation of the interaction between the world of business using the Word/Magal (2008) simulation software on business processes.	Core BBA	Fall/Spring	K. Moore D. Everett
Information Resource Management	BIS 240	This information management course is being modified to emphasize ERP concepts—for two-year associate degree students.	Core for AAB Elective for BBA	Fall/ Spring	D. Hunt (2006) P. Becka (2008)
Management Information Systems	CIS 311	A study of fundamental information systems concepts and terminology. Intended to prepare future managers for the successful implementation and effective use of information technology in globally networked organizations.	Core BBA	Fall/ Spring	S. Hunt E. Kim H. Choi D. Green
Managing Information Technology	CIS 615	Conceptual foundations, structures, and developments of information systems; decision support systems and knowledge-based systems; management off information systems resources. This is an MBA core course requirement.	Core MBA	Fall/ Spring	E. Regan D. Kizzier S. Hunt
Selected Workshop Topics: Advances in	CIS699	Studies in Enterprise Resource Planning systems including SAP.	Elective MBA & MSIS	Alternate Semesters	S. Hunt

ERP Systems					
Strategic Management (Capstone)	MNGT 499C	Approaches for the integration of business functions and the development of strategies in managing domestic and global enterprises for competitive advantage. This course satisfies the integrative component for general education and is required for the BBA core.	Core BBA	Fall/Spring	A. Hassan
Strategic Management (Capstone)	MNGT 691	This course gives the student an opportunity to integrate and apply specialized disciplinary skills to practical business problems of company-wide scope.	Core MBA	Fall/Spring	A. Hassan

*Core courses are offered every semester.

Other Identifiers

Departments	Degrees
ACCT-Accounting BIS-Business Information Systems CIS-Computer Information Systems ECON-Economics MKT-Marketing MNGT-Management	AAB-Associate Degree in Business BBA-Bachelor of Business Administration MBA-Master of Business Administration MSIS- Master of Science in Information Systems

Appendix B

Table 2. Phase 2 Integration Plan

Course Name	Course Number	Descriptions	Core* or Elective	Semester Offered	Faculty
Customer Relationship Management Systems	CIS645	Strategies for using information systems for managing customer relationships.	Elective MBA & MSIS	Spring	S. Nataraj
Special Workshop Topics: Business Intelligence	CIS 699	Students will be introduced to SAP Business Analytics and Business Intelligence: getting first-hand experience on how to unify and integrate disparate data from SAP, third-party and custom corporate applications, legacy systems, as well as other external information sources.	Elective MSIS	Alternate Semesters	P. Becka
Supply Chain Management	MNGT	Course introduces the coordination of activities involved in buying, making, and moving a product through the distribution channel. ERP tools will be presented that augment this business process.	Elective	Alternate Semesters	Hassan
Production & Operations Management	MNGT 306	How Total Quality Management affects operations in manufacturing and service firms. Qualitative and quantitative means for evaluating alternatives for improving customer satisfaction by improving quality, speed and flexibility or by reducing waste are described and illustrated.	Core MNGT	Fall/Spring	G. Russell A. Hassan

*Core courses offered each semester.