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In this issue:

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

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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, SAP

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

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Abstract

A quick look at today's business job postings and advertisements demonstrate that future business graduates will be less likely to compete successfully or interview for new corporate jobs without business process integration skills. A university's credibility, reputation and visibility as an institution of higher learning is at stake—given that the business student is not only a customer but also a product of the business school. To survive in the global economy, it is paramount that business schools re-engineer their 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 (e.g. SAP) and integrated business processes. This paper details the rationale of a regional university's proposed integration of enterprise concepts into its business curriculum as well as the process, planning, and perceived challenges, issues, and concerns of the faculty in its effort toward ERP integration and continuing partnership with the SAP University Educational Alliance.

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

1. INTRODUCTION

In a rapidly changing, knowledge-intensive, global business environment, businesses are finding it increasingly difficult to maintain competitive operations without a skilled business workforce and trained enterprise

resource planning (ERP) specialists (Boyle, 2006).

Consequently, business schools are finding it increasingly important to offer a process-based curriculum to better reflect the realities of modern business (Magal, Word 2009).

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 and universities with an outstanding opportunity to provide students more knowledge about a process-centered architecture, using its Educational Curriculum Alliance Partnership. This paper details the rationale of one regional university's proposed integration of enterprise concepts into its business curriculum as well as the process and planning that took place to support its effort by joining the SAP University Alliance in 2008.

2. BACKGROUND AND RATIONALE

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). Historically, businesses have had organizational structures that separated the functional areas, such as Accounting or Human Resources, and business schools have been similarly organized, so each functional area has been taught as a separate course (Monk, Wagner 2009). Today however, many universities are changing curriculum and have begun to implement business process integration concepts.

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 run-

ning 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. A number of recent research studies also have focused on the complex process of innovation and change required by various types of organizations to incorporate ERP systems (Maheshwari, 2008; Jacobsen, 2008; Rowland, 2007; Haab, 2007; Thomas, 2007; Mu, 2007; Rienzo, 2007; Zhao, 2007; and Groman, 2007.)

As a regional university in Kentucky, it is important to better understand the businesses where graduates will be employed. 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 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 proposed strategy is to integrate ERP concepts and principles where applicable in our business curriculum. In the first year, suggested plans were to introduce the SAP enterprise solution from a business process perspective in selected courses, (especially the low-hanging fruit courses) starting with the required Introduction to Business course using a simulation tutorial. As faculty gain experience, the use of SAP will be expanded into the upper division courses. We anticipate this will lead--over time--to significant curriculum change. In an effort to become leaner and more res-

ponsiveness 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 is expected to 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 discussed in this paper is Morehead State University, 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 students 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 strives to create 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, global perspective, cultural diversity, and ethical responsibility.

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

The college 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. It has also 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 collabo-

rate 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 AN ERP TASK FORCE COMMITTEE

The Dean of the College of Business has appointed a project team of faculty members (and given a charge) to make a recommendation regarding specific future directions and a proposed 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 proposed 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 is working directly with one business partner with this SAP initiative. The business partner is a 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 involves all three departments in the College of Business at Morehead State University. If approved, SAP modules will be implemented in at least three 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 at a later time. A phased implementation approach was used. Phase 1 begins 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 Appendix 1 - Table 1). 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 provides 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.

If successful in the initial phase, other courses, such as a Supply Chain Management and Human Resource Information Systems course would be reviewed for possible SAP module integration and based on assessment results, continue to expand the level of integration into graduate 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 uni-

versity curriculum revision proposal review and approval process. See Appendix A. The ultimate goal of broader and deeper integration of SAP across the College of Business core is desired by a number of faculty. One of the considerations that has been discussed with the dean and some faculty is the potential of using a comprehensive case study or simulation 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. FACULTY CONCERNS AND ISSUES REGARDING THE ERP INTEGRATION

During the first-year of the SAP membership alliance, the faculty met to address not only the benefits but also the concerns and challenges that must be addressed if our business college was to become a university committed to ERP integration. A list of the issues and concerns follow:

FINANCIAL/BUDGET: Given a scarcity of faculty resources and budgetary constraints, faculty were concerned about the on-going, reoccurring dollars and financial support for membership in the SAP University Alliance. Financial support was directly related to faculty commitment to integrating ERP concepts in curricula. In addition to the site license, universities planning to integrate SAP, should appropriate funds for travel to the Curriculum Workshops, and summer training sessions.

FACULTY RELEASE TIME: As part of the implementation, faculty release time (each semester) for the SAP Coordinator was requested to work as a liaison with our assigned SAP hosting site. As part of that role, the coordinator would coordinate faculty training, and establish client requests for faculty/students. SAP technical problem resolution for the college would also be a job responsibility of this individual. Additionally, the individual in this role would be responsible for keeping faculty abreast of current trends and issues noted on the Innovation Watch website (secured Intranet site for SAP faculty/educators).

COMMITMENT AND SAP-DEDICATED FACULTY: Moving from awareness to a level of proficiency requires commitment, dedication, and SAP retooling/training for existing faculty and new hires. A number of units have not committed to the integration, given faculty shortages and impending retirements. However, at least one management faculty member, one accounting faculty member, and at three IS faculty member(s), have shown interest and a willingness to integrate ERP concepts into existing courses, including hybrid, web-enhanced venues. The specific courses (and associated faculty, with proposed year of integration) that were discussed by the ERP Task Force are included in Table 1. Also, the Introduction to Business was mentioned as a course wherein an over-

view of ERP concepts could easily be integrated—especially lectures and demo, but no SAP hands-on activities. After integration is successfully achieved during the first phase, other proposed courses were Supply Chain Management and Human Resources Information Systems.

However, current economic conditions and threat of budget cuts have created some uncertainty about the university's long-term commitment to supporting membership in the SAP Academic Alliance. This uncertainty is affecting the level of commitment on the part of faculty to invest the needed time and effort in learning and implementing SAP in the classroom.

SUSTAINABILITY: The sustainability of continued membership in the SAP University Alliance program will be ensured only if a steady, interested, and qualified pool faculty in the College of Business can be maintained. The taskforce noted that 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. Specific sustainability strategies included:

(1) A sentence in every new faculty job advertisement that references the integration of SAP into the College of Business at MSU noting the expectation that applicants must attend and participate continually in SAP professional development as long as SAP Alliance Membership is held by the college.

(2) The use of "courtesy" appointments on a semester basis in departments that are part of the MSU SAP alliance. Courtesy appointments would allow doctorally qualified faculty (both domestic and international) with specific expertise to be a part of the MSU alliance, provide opportunities for collaboration among MSU faculty in departments and colleges, and "globalize" the curriculum, and perhaps fulfill a need of international faculty desiring to serve in a sabbatical appointment with the college.

(3) Cross-disciplinary courses also could be enhanced and encouraged that would facilitate "courtesy" appointments in more than one department or college on campus.

(4) Advertise in national publications, for professionally and/or doctorally-qualified faculty, who may wish to teach SAP related content in the business school periodically, as an adjunct faculty member either online or web-enhanced/hybrid format.

(5) In addition, faculty have begun exploring new alternative resources in the event of budget cuts. For example, a recent text includes an SAP / ERP simulation that runs independent of the SAP software.

STUDENT EVALUATIONS: The college has limited student feedback regarding SAP integration to date. During the Fall 2008, one faculty member implemented an ERP simulation in an online graduate section of Management Information Technology. Positive remarks were made regarding the relevance of ERP content, but a number of students perceived the simulation to be very difficult and challenging in the online environment venue. Overall the students had positive comments about the value of the experience, but some experienced frustration with unanticipated problems. Students had a number of very constructive suggestions for improving the experience next time around.

BUSINESS PROFESSIONALS' PERCEPTION: Currently, only a limited number of COB or IS Advisory Board members have SAP/ERP knowledge. More qualitative feedback from this group would be extremely helpful in determining future direction and value for entry-level positions. Industry additions to the board—both College Advisory Board and IS Advisory Board, with SAP experience, was strongly suggested.

10. SUCCESS MEASUREMENTS FOR ENTERPRISE SYSTEMS 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 (if approved) would 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 currently has the goal of displaying an understanding of business process integra-

tion and ERP fundamental concepts. Additional objectives for measuring success of the SAP University Alliance initiative include: (1) examining enrollment rates for the proposed SAP integrated courses within the College of Business, (2) 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, (3) obtaining survey feedback from alumni that measures their current work with SAP or other ERP systems (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 desirous of teaching business process integration.

11. 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 pool of steady, interested, and qualified faculty can be maintained in the College of Business.. 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 ap-

plication systems, such as SAP. Just one search on www.monster.com or other job search sites quickly demonstrates and validates our proposed 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.

[Due to 2009 budgetary constraints and unexpected loss of faculty/staff positions (trained in SAP), our SAP Educational Alliance has been suspended for the current year.]

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Appendix A

TABLE 1. PROPOSED INTEGRATION CURRICULUM PLAN FOR THE COLLEGE

Course Name	Course Number	Description	Core* or Elective	Proposed Semester for Offering	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 in Acct and BBA program	Fall 2009	Cris-cione
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.	MNGT requirement and elective for other programs	Fall 2009	Russell
Information Resource Management	BIS 240	This information management course is being modified to emphasize ERP concepts—for two-year associate degree students. Not required in BBA options, elective only.	Core for AAB, Elective for BBA	Spring 2009	Staff
Advanced Topics in Information Systems	CIS 430	This course is a senior level IS course designed to provide a venue for introducing upper division students to emerging content and technology—not presented in other IS approved courses shown in catalog. Over the last two years the class has been devoted to Enterprise Systems & Applications.	Elective in IS; Available elective for all BBA options	Spring 2009	Hunt

*Core courses are offered every semester.

*Managing Information Technology	CIS 615	Conceptual foundations, structures, and developments of information systems; This is an MBA core course requirement and course for MAT program. ERPSIM simulation introduced in Fall 2009.	Core MBA	Fall 2008 Fall 2009	Regan
Selected Workshop Topics: Advances in ERP Systems	CIS699	Studies in Enterprise Resource Planning, Cases Studies & Applications. Proposed new Type II course CIS 675—Enterprise Systems & Applications (in development stages); Course proposed for a hybrid, web enhanced format.	Elective MBA & MSIS	Summer 2009 or Fall 2009	Hunt
Web Information Systems	CIS 625	Concepts fundamental to understanding Internet-based information systems. The course addresses a wide range of Internet/Intranet Applications. SAP enterprise architectures could be integrated—if course is web-enhanced and changed to a hybrid format.	Elective in MBA and MSIS	Fall Semester 2009	Wymer

TABLE 2. 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