

# SAP/ERP TECHNOLOGY IN A HIGHER EDUCATION CURRICULUM AND THE UNIVERSITY ALLIANCE PROGRAM

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## ABSTRACT

*SAP Enterprise Resource Planning (ERP) is the new solution to the business systems and provides comprehensive business functionality using Information Technology. The existence and use of ERP systems have a significant impact on the Information Systems (IS) in a business. Most Information Systems curriculums do not provide significant coverage of ERP concepts, and therefore the students are not knowledgeable about these systems and their impact on industry. This paper explains the importance of incorporating the ERP body of knowledge into higher education programs. The general spirit of the paper is to stress the need for ERP in an IS curriculum and review the specific use of SAP. This paper focuses on curriculum that is enriched through the hands-on experience gained by students working on a real ERP system, specifically SAP.*

**Keywords:** SAP, SAP University Alliance, SAPUA, ERP Education, Enterprise Resource Planning, Information Technology, Information Systems.

## INTRODUCTION

SAP stands a worldwide leader in Enterprise Resource Planning. It was founded in 1972 by five former IBM employees with headquarters located in Germany. It is the world's largest inter-enterprise software company and the world's fourth-largest independent software supplier [1].

SAP allows businesses to share information in real-time with employees, suppliers, and distributors, no matter what size the organization. This kind of streamlining has a direct and positive effect on productivity, customer service, overall quality, and profitability. Applications provide the capability to manage financial, asset and cost accounting, production operations and materials, personnel, plants, and even archived documents. The R/3 system

runs on a number of platforms and uses the client/server model [1].

SAP University Alliance is one of the largest academic/business collaborations in the world. This program membership is by invitation and consists of 500 universities around the world, and each year many thousands of top business and IT students gain their first hands-on experience of a real world business management application through the program.

The SAP University Alliance Program is designed to support classroom education by enabling faculty to reinforce core concepts taught in the classroom through simulation, business games, balanced scorecards and other means of using the SAP software. With University Alliance resources, the student experience is enhanced while interest in the application is increased. Student employability and starting salary is augmented based upon the knowledge and ability to use this tremendous application [2].

## SAP UNIVERSITY ALLIANCE

The SAP University Alliance program is a global education endeavor that provides university faculty members with all the resources to teach students about technology that can enable integrated business processes. The knowledge and skills obtained through this training provide added value to students attempting to enter a very competitive job force.

SAP America, Inc. sponsors a University Alliance program that includes the R/3 system, a training database associated with documentation material to assist the faculty, technical support and also faculty training. The university integrates its systems with the SAP R/3 such that it supports the curriculum and the students [1].

Alliances that have been formed with academic units at various Universities across the globe are each interesting and unique. With over 150 academic units in the United States, opportunities for collaboration and resource sharing are vast.

The University Alliance Program aims to be at the forefront of education and research in Enterprise Integration. By providing university students with access to state-of-the-art Enterprise software, they are also assisting them in building a solid background in the fundamentals of enterprise integration while exposing them to current technologies. This exposure and education will give students a competitive hiring advantage while giving employers access to well prepared graduates, skilled in the latest concepts & tools.

It is important to note that the program is NOT a training program for SAP software. The program will use SAP R/3 to teach fundamental concepts related to the engineering and management of supply chains and the use and management of enterprise information systems. The software is not only an excellent tool but the Alliance will help to incorporate the latest requirements and technologies in our curriculum development efforts.

This program also provides valuable services tailored to the needs of each country in which the program operates. Services can include:

- **Curriculum support** – SAP sponsors professional development and networking opportunities such as the annual Curriculum Congress. In addition, SAP continually funds new curriculum efforts in order to build a bank of faculty-developed course materials to be shared among member campuses.
- **Faculty training** – Faculty can take advantage of SAP-sponsored workshops designed to meet their needs, along with a variety of SAP customer training classes.
- **Access to dedicated Web site** – The Innovation Watch Web site provides the latest information on SAP events, research, and curriculum materials available for download.
- **Collaboration** – SAP encourages, reinforces, and rewards programs that foster collaboration and sharing.

Member schools of the University Alliance Program gain access to the SAP Business Suite family of

solutions, including SAP ERP. This ERP business software suite supports business, engineering, and information technology programs while helping students to put classroom theory into practice. Students are able to gain insight into how this technology can empower a business while learning in a hands-on environment. A training database for assignments approved and supported by this program allows students to perform transactions similar to those completed in an organization using the same software [1].

### **The Training Database**

The training database allows students to execute the preliminary and non-complex transactions such as post journal entries, assign costs to cost centers, place purchase orders, issue invoices, etc. and visualize actual results of their submissions. Assignments and related databases are created and shared among faculty members utilizing the SAP software in their individual courses [1]. Some examples of opportunities to educate and train with this data include:

- To analyze the performance of the company such as product line profitability, analysis, financial reporting, etc.
- To evaluate the structure of the business in the company.
- **Financial Accounting:** definition of and data for the company's organizational structure (subsidiaries, group units, business areas, functional areas, consolidated areas), general ledger chart of accounts and sub ledgers, customer credit limits.
- **Controlling:** Definition of controlling areas and operating areas for purpose of cost and profitability analysis. Cost and sales data, overhead and labor rates, actual costs.
- **Logistics General:** Definition of and data for inventory, plants, product lines.
- **Sales and Distribution:** Definition of and data for sales organization, customer master records, distribution channels (wholesale, retail, VAR's, etc.) shipping, quotations, and order processing.
- **Materials Management:** Definition of and data for manufacturing components, sub-assemblies, finished goods, bills of material, work centers (station on a production line), routings (sequence of production operations). Master production schedule, capacity planning, and plant maintenance.

- **Human Resources:** Definition of and data for personnel areas, employee groups, personnel master records, payroll, benefits administration, organizational development.

### **INTEGRATION AND IMPLEMENTATION CHALLENGES**

There are many challenges associated with integrating and implementing SAP into a University curriculum. Just a few areas include Human Resources, Financial Resources and Facilities [8]. Some specific challenges include:

- Formation of SAP faculty and staff team to determine how the ERP system is to be implemented along with the curriculum structure.
- Obtaining adequate funding to support necessary resources including technology, employees, equipment etc.
- Setting up technical infrastructure
- Managing the recruiting companies and students.
- Retaining the faculty that have SAP experience in the competitive market.

With the formation and consistent communication of a team of SAP faculty and staff, programs can not only be created, but continue to grow. This team of individuals will need to work together for continuous improvement of the program, support and technology while staying abreast of new updates in assignments, databases and software. The relationship with the University Alliance Program also provides opportunity for overcoming these challenges. This topic will be further reviewed in another paper.

### **SAP PROGRAM AT CENTRAL MICHIGAN UNIVERSITY**

Central Michigan University's SAP program began in 1997 with eight faculty members and now boasts 20+ faculty members from various disciplines with SAP expertise. Central Michigan University's alliance with a German-based company continues to place its College of Business Administration (CBA) students at the forefront among professionals knowledgeable in the primary business management software program used by companies such as Dow Chemical, DaimlerChrysler, IBM, Coca-Cola, and, most recently, the U.S. Postal Service.

SAP knowledge and experience are highly sought after by both users of SAP and by large professional services and consulting firms. However, SAP experience is extremely difficult to obtain prior to graduation. At CMU students are able to enrich their understanding of the crucial issues facing business management today, while simultaneously gaining experience of a world-class business application that will make them valuable employees to the many thousands of global enterprises that employ SAP to manage their businesses.

By incorporating SAP into undergraduate and postgraduate programs within the University, students have to opportunity to gain valuable experience by using the world's principal enterprise management software to reinforce concepts taught in the classroom. Internships and cooperative studies with companies using SAP also provide students with the experience necessary to be competitive upon graduation.

Many CBA students gain an exceptionally realistic experience using SAP - Systems, Applications, and Products in Data Processing, the market leader in Enterprise Resource Planning (ERP) software, while running a mock international company in their classroom atmosphere. This experience with true data allows students the opportunity to see the results of their transactions in an actual system.

In addition to introduction, programming and configuration courses, Central Michigan University supports the education of many functional business areas. Courses taught in supply-chain management, human resources, finance, marketing, information systems, and accounting use the SAP software and database provided by SAP America. Any time a transaction takes place within the company, it is made available to all areas - and in the classroom to all students - allowing them to see how the decisions of one division within a company affect another division within the same company.

Chosen as one of the first five universities in the nation to begin educating students on SAP, CMU was also one of the first universities in this country selected to offer the SAP Process Integration Certification Academy, a multiple-week academy certification program for students in the SAP University Alliance Program. SAP America has chosen CMU to host the academy since 2000. This past May, CMU conducted three concurrent academies with 30 undergraduate students, 34 graduate students and 4 faculty members all

successfully completing the course and receiving certification.

### CURRICULUM OVERVIEW AND SALARIES

Students in both the undergraduate and graduate programs at Central Michigan University have an opportunity to specialize in SAP by studying at least three of the available four SAP specialized courses offered in the Business Information Systems Department.

SAP experience gives many CMU students significant advantage in a very competitive job market. Students learn SAP software in simulation of an actual business and see the results of the transactions and configurations they perform.

According to the study on salary conducted by Dr. Frank Andera, Director and Professor SAP University Alliance Program, CMU students who took SAP R/3-supported classes received starting salaries as high as \$10,000 more than those without SAP training [2].

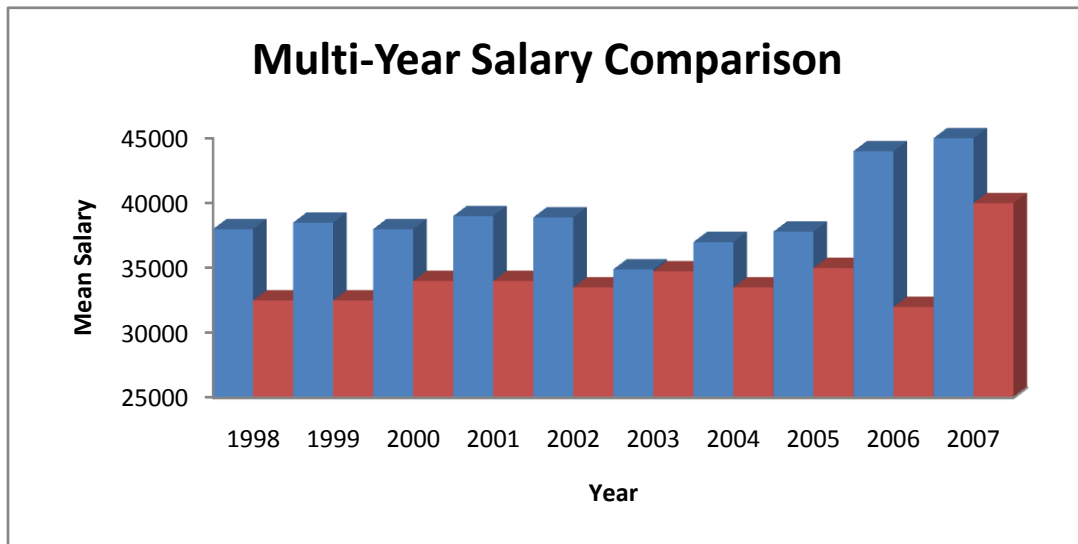
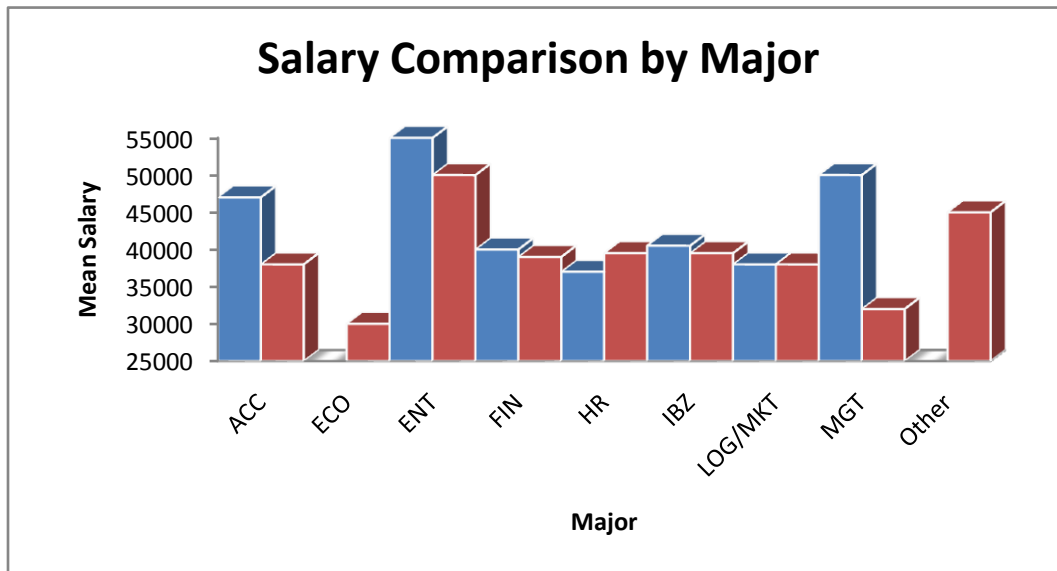


Figure 1. Salary Comparison of Business Graduates: SAP vs. Non-SAP 1998-2007

Figure 1 from Dr. Andera's study shows the starting salaries for SAP graduates consistently remaining greater than the non-SAP graduates for all ten years,

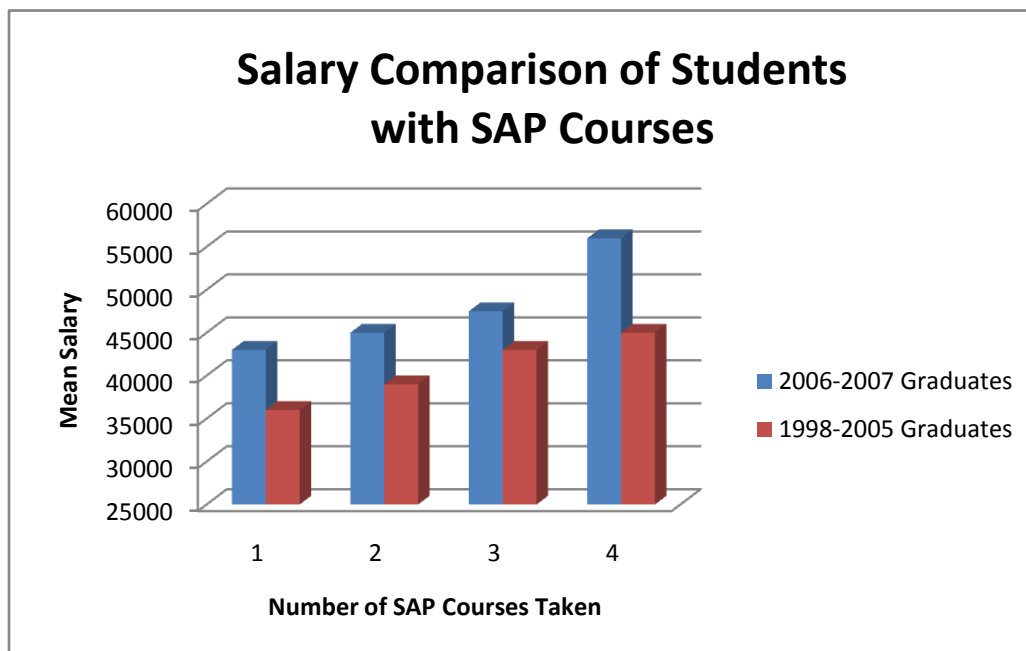
1998-2007. The greatest differential (\$11,000) between SAP and non-SAP graduates was in the year 2006.



**Figure 2.** Salary Comparisons of Business Graduates by majors: SAP vs. Non-SAP 2006-2007

In addition, Dr. Andera provided a similar comparison of College of Business graduates by their major. This study showed that of the 2006-2007 graduates who reported their starting salaries, the majority of individuals graduating with SAP experience received higher starting salaries than their peers without this experience [2]. Figure 2 from Dr. Andera’s study displays this comparison.

The results of Dr. Andera’s study reflect that the greatest differential (\$16,717) between SAP and non-SAP graduates within a major was the Management major. The average starting salary for the SAP Management major was \$50,250 and for the non-SAP Management major, the average starting salary was \$33,533. The Management Information Systems major did not record a Non-SAP average salary as these students all had SAP experience [2].



**Figure 3.** Salary Comparison of Graduates by Number of SAP Supported Classes

In Figure 3, further results indicate that as students take additional SAP course work, their average starting salary increases. The average salary of graduates who have taken one SAP supported class was \$37,214, for two classes taken the average salary was \$39,827, for three classes taken the average salary was \$43,498, and for four classes taken the average salary was \$48,800 [2]. Some individual salary reports of students since this study are even 15-20% higher.

### CONCLUSIONS

The paper concludes presenting the importance of SAP ERP in the higher education curriculum and its benefits to both the university and students. The success of those students with SAP experience is a direct reflection of the relationship between universities providing these courses and the SAP University Alliance Program. Without this relationship, the success of the programs and students would not be realized.

The student demand for the SAP courses is so competitive due to industry requirements and ERP learning experience in the classroom. Students who graduate and leave the program set an inspiration and example for those still studying. Their higher salaries and deeper understanding of business integration is proof of the success we strive for. This demand for SAP knowledge serves as continued encouragement that we are preparing these graduates for a successful career. Thus, this paper emphasizes the benefits and success of SAP's University Alliance Program and the curriculums it supports.

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