ERP Integration in the Accounting Curriculum

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EXECUTIVE SUMMARY

Enterprise resource planning (ERP) systems present opportunities for companies to improve efficiency, increase revenue, and control costs. A national survey of industry managers indicated that ERP is a part of industry today and the knowledge to use ERP systems is necessary for many accountants to remain competitive and succeed in their careers. So, the question is, are universities meeting this need? This research reviewed the accounting programs of U.S. universities to assess the coverage of ERP systems in accounting curriculums and found a gap between industry needs and ERP coverage. Methods to include ERP training in accounting programs are proposed.

Keywords: ERP, Accounting curriculum, ERP training, National survey

ERP INTEGRATION IN THE ACCOUNTING CURRICULUM

Enterprise resource planning (ERP) systems present opportunities for companies to improve efficiency, increase revenue, and control costs. However, ERP systems require a different mindset and often different skill-sets from employees used to working with standalone databases, legacy systems, or manual systems.

Two of the primary benefits of ERP systems, eliminating duplicate files and redundant data entry, are enabling accounting departments to perform more accurately and efficiently (Walker, 2008; Chang et al., 2008). In addition, when ERP systems processes are implemented and used correctly, they can "demonstrate consistency and compliance to external auditors" (Walker, 2008). Due to their knowledge of financial information and need to meet extensive government rules and regulations, accountants play a major role in implementing and maintaining ERP systems (Chen et al., 2012; Jean-Baptiste, 2009; Turner et al., 2009). Accountants typically have not needed such extensive knowledge of information technology; however, to be successful in companies with ERP systems, they must become knowledgeable in information systems development, design, and application (Ariel, 2003; Jean-Baptiste, 2009).

Industry managers know what level of performance and which accounting applications their company needs to perform well. To prepare future employees to fit into that ERP/accounting world, academia needs to be aware of those industry needs and provide students with the foundation to easily transition to the work world. At this point, however, there is little research evaluating industry needs and academic coverage to ensure that the needs are being met.

To assess the extent that academia meets industry needs, this research evaluates industry demand and academic coverage of ERP systems to determine if coverage in accounting programs is adequate or if there is a gap. In addition, where academic coverage is lacking, the research presents recommendations to enhance ERP education in the accounting curriculum.

INDUSTRY DEMAND

A national survey concerning ERP software usage was conducted. The purposive sampling method was used for this study. The purposive sampling method searches for a specific profile based on target respondent definition for the concerned

survey. The target respondents for this study were managers from any industry who were also ERP users. A total of 557 usable responses were obtained from the national survey.

Table 1 displays the number of participants from across different industries throughout the nation. Respondents included representatives of many industries including aerospace, chemical, healthcare, high tech, and the public sector. Participants were asked to indicate the type of ERP system their company uses.

TABLE 1
Participants in the National Survey

Industry	Number of Respondents	Percent of Respondents
Aerospace and Defense	29	5.2
Apparel and Footwear Solution	1	.2
Automotive	11	2.0
Chemical	47	8.4
Consumer Products	18	3.2
Healthcare	77	13.8
High Tech	45	8.1
Media	4	.7
Mining	2	.4
Oil and Gas	36	6.5
Pharmaceuticals	6	1.1
Professional Services Providers	42	7.5
Public Sector	44	7.9
Retail	14	2.5
Telecommunications	27	4.8
Utilities Industry	11	2.0
Wholesale Distribution	11	2.0
Others	132	23.7
Total	557	100.0

Based on the national survey, SAP R/3 is the most popular ERP program in the United States followed by in-house developed systems and Oracle ERP systems. Table 2 lists the types of ERP systems in use by companies participating in the survey.

TABLE 2
Types of ERP Systems in Use

Type of ERP Systems	Number of Respondent Companies Using System	Percent of Respondent Companies Using System
SAP	149	31.2
In-House Developed System	112	23.4
Oracle – PeopleSoft	102	21.3
Oracle – JD Edwards	20	4.2
Oracle – Siebel	15	3.1
Horizon – MRP Plus	5	1.1
NetERP	4	.8
Others	71	14.9
Total	478	100.0

Table 3 lists the ERP applications which were used by the surveyed companies based on percentages. The most popular applications across different national industries and used by more than 50% of the respondents include Human Resource Management (72%), Information/Data Warehousing (69%), Accounting (64%), Inventory Management (62%), Procurement (61%), Financial Management (59%), Strategic Management (53%), and Self Services (53%). All ERP applications were used by a minimum of 28% of the respondents. Clearly, a variety of ERP applications are used by many industries.

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TABLE 3
ERP Applications Used

ERP Application	Percent of Respondent Companies Using Application
Accounting	64
Analytics	42
Business Process Outsourcing	28
Capacity Planning	39
Compliance & Governance	46
Customer Relationship Management	43
Demand Management	32
Financial Management	59
Human Resource Management	72
Information/Data Warehousing	69
Inventory Management	62
Procurement	61
Product Life Cycle Management	43
Production Planning & Control	46
Resource & Portfolio Management	42
Sales Management	45
Service & Asset Management	28
Strategic Management	53
Supplier Relationship Management	42
Supply Chain Management	47
Self Services (Employee Self Services and Manager Self Services)	53

When the participants were asked which ERP applications should be taught in the business curriculum, the answers were consistent with the data given in the prior table. Table 4 provides the responses to this question. Industry managers ranked the following as important or critical applications to be included in the business curriculum: Financial Management (78.1%), Accounting (76.5%), Information/Data Warehousing (71.5%), Inventory Management (70.6%), and Analytics (71.2%). In addition, all applications were rated important or critical by more than 50% of the respondents. Clearly, industry representatives desire university business schools to include ERP in the curriculum.

TABLE 4
Applications that Should be Taught

ERP Applications	Percent Unimportant	Percent Neutral	Percent Important	Percent Critical
Accounting	2.4	21.1	38.9	37.6
Analytics	2.4	26.3	47.0	24.2
Business Process Outsourcing	4.3	43.0	39.6	13.1
Capacity Planning	3.4	33.1	42.9	20.6
Compliance & Governance	2.0	29.8	43.6	24.5
Customer Relationship Management	2.5	28.7	40.7	28.1
Demand Management	3.4	37.2	41.7	17.6
Financial Management	2.6	19.3	36.2	41.9
Human Resource management	4.0	28.8	40.4	26.7
Information/Data Warehousing	2.6	25.8	38.9	32.6
Inventory Management	2.0	27.4	40.4	30.2
Procurement	2.6	31.1	40.5	25.8
Product Lifecycle Management	3.7	39.4	42.3	14.6

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Production Planning & Control	1.8	28.3	47.8	22.0
Resource & Portfolio Management	3.9	38.1	42.5	15.5
Sales Management	4.8	32.0	44.3	18.9
Service & Asset Management	3.6	31.5	44.2	20.6
Strategic Management	3.2	28.9	45.2	22.7
Supplier Relationship Management	6.2	31.4	44.6	17.8
Supply Chain Management	4.3	31.3	41.7	22.8

Another question asked in the survey concerns the extent that participants want recent business graduates to know ERP software. The results for accounting and finance majors are given in Table 5. The results indicate that 43.8 % of the respondents believe that accounting majors and 46.6% believe finance majors should have a strong working knowledge of ERP structure and at least some familiarity with coding. An additional 26.2% believe accounting majors and 23.5% believe finance majors should have at least a working knowledge of ERP.

TABLE 5
Extent of Desire of College Graduates to Know ERP (Percentage Responses)

Business Major	Familiar with ERP structure	Basic working knowledge of ERP	Moderate working knowledge of ERP	Strong working knowledge and familiarity with coding	Strong working knowledge and moderate familiarity with coding	Strong working knowledge and strong familiarity with coding
Accounting	12.0	18.0	26.2	18.9	16.1	8.8
Finance	10.8	19.0	23.5	21.8	15.3	9.5

ERP IN THE ACCOUNTING CURRICULUM

As the results of the survey indicate, ERP is a part of industry today and the ability and knowledge to use ERP systems is necessary to many accountants to succeed in their careers. So, the question is, are universities meeting this need? Approximately 150 U. S. colleges and universities are part of the SAP alliance. The website of each of the alliance schools was reviewed and the accounting curriculum scrutinized. Only nine universities (approximately 6%) in the SAP alliance noted inclusion of SAP in some capacity in the accounting curriculum. Approximately 20 additional U.S. colleges and universities have access to Oracle E-Business Suite Financials, the financial module of Oracle's ERP package. A review of the accounting curriculum of each of these universities indicates that no coverage of ERP software is being included in the accounting curriculum.

IMPLICATIONS AND LIMITATIONS

Based on the findings of this research, university accounting programs are not providing the necessary education in ERP systems desired by industry managers. One of the conflicts faced by accounting academicians is how do we train students for various accounting careers and at the same time gear the course work to help them pass the CPA exam? The answer for many schools is we train them to pass the CPA exam and with the certification they will find success. At this time, ERP systems are not tested on the exam and therefore receive only minimal or no coverage in accounting programs.

Another issue is university resources. Some large programs can offer dual tracks, one for those who wish to pursue industry immediately out of college and one for those who wish to pursue public accounting. Most mid- and small-sized universities offer one track with only one or two electives making it difficult to offer courses that are not integral to passing the CPA exam.

So how can ERP training become part of the accounting curriculum? For mid- or small-sized accounting programs perhaps one course could be offered exclusively to the study of ERP systems. Another possibility is to include some ERP components in several different classes such as systems and cost accounting. Yet another option would be to offer ERP training as a lab component to one or more courses. All of the options should be explored by university accounting programs that currently provide no coverage of ERP systems. Finally, the ultimate ERP learning experience would be to include the appropriate ERP module in each business course as part of the curriculum.

The results of the survey clearly indicate that industry managers want accounting graduates with ERP knowledge (Table 5) and at this point, accounting programs are providing little training. A limitation to the study is that no analysis was conducted to determine if students are exposed to ERP systems in other classes such as in management information systems.

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