Flying in the Face of Outsourcing

Jerry Chin

Southwest Missouri State University
Springfield MO 65805
417-836-4131 Fax: 417-836-6907
jerrychin@smsu.edu

Sheryl Brahnam

Southwest Missouri State University
Springfield MO 65805
417-836-4131 Fax: 417-836-6907
shb757f@smsu.edu

Mary H Chin

Southwest Missouri State University
Springfield MO 65805
417-836-4131 Fax: 417-836-6907
marychin@smsu.edu

ABSTRACT

The current interest and impact of outsourcing in IT has impacted the source of many of the new knowledge workers – the academy. Curriculums are a reflection upon a department's profile with respect to industry ties, expertise of the faculty, and commitment to growth and relevance. This paper attempts to describe a department's recent experience in the development of curriculum and new programs.

INTRODUCTION

The light on the dashboard begins to blink. The icon of an oil can indicates that the oil level has dropped low enough to engage the warning system. Normally adding a can or two of 10W-30W solves the problem. The light goes off and stays off. All is well. The in-house project is done. Two days later, after adding two cans of oil, the oil light begins to flicker - again. The familiar neighborhood car mechanic finds more oil in the driveway. He mentions terms like valves and seals. There are no tools. The expertise is nowhere to be found. The car is towed to car service – across town. An appointment is made. A cost estimate is agreed upon. A stranger starts to bang on the side of the engine. Welcome to outsourcing.

To purchase a car lift and all the automotive tools would not be cost effective. The two options are Do-It-Yourself or hiring the expert team. The expertise to lift out the engine and replace parts

and adjust systems is what an experienced auto repair garage offers. Most people opt for the expert team and leave the Do-It-Yourself experience to the cable TV channel.

WHEN AND WHY?

An in-house-development versus off-the-shelf decision depends upon the company and the project in question. Company needs, internal resources, and degree of risk and difficulty are issues on the board room table.   Hayes (2004) suggests reviewing the following:
- Competence to develop the system
- Time table
- Lack of in-house expertise
- Willingness to look at one-time expertise
- Cost savings – initially off-shoring cost are less

The website "Offshore IT Outsourcing Benefits" suggests other benefits are:
- Commit resources to the core business – "What are do we do best?"
- Redirection of remaining staff for other problems
- Management and outsourcing integration brings experience for the next time

The time-table issue suggests that the size of the business dictates the approach to outsourcing. The smaller the business the harder the recovery from a mistake becomes (Progent).   In addition, small business faces the first and last issues: expertise and cost.   What small business is a good candidate? The company has a progressive view of IT, but has growth outpacing its IT resources. The company views IT as a strategic advantage.   The company is looking for a transfer of knowledge from consultant to client.

THE CURRICULUM

There has been a change in the recent IT market attributable to a number of factors such as the economy, product growth, and outsourcing. Figure 2 shows a recent snapshot of the IT market as derived from the Bureau of Labor Statistics.   We note in particular the rise in analyst positions as well as the decline in programming jobs.

2000-04	Change in jobs
Computer and information system managers	-6.16%
Computer and information scientists, research	-10.04%
Computer programmers	-18.67%
Computer software engineers,, applications	4.67%
Computer Software engineers, system software	7.99%
Computer support specialists	-7.57%
Computer System analysts	2.48%
Database Administrators	-6.58%
Network and computer Administrators	1.68%
Network systems and data administrators	24.17%

Figure 1: IT Jobs

The IT outsourcing experience happens because it is cheaper to develop the project in India, China, Poland, or Ireland. Not all jobs can be or should be outsourced abroad. It is important to keep core managers in the U.S. where the knowledge of the business core, marketing teams and customer base is current and easily accessible. Those jobs, unlike tax preparation and insurance claim processing, that require complex analysis and that are not easily mimicked by ruled based decision trees are not candidates for outsourcing. What job characteristics suggest or prohibit outsourcing?   As a start, we offer Figure 2 which categorizes jobs relative to skills and proximity.

Because teachers or professors are required in the classroom and be classified as high skilled and high proximity, they are not good candidates for outsourcing. Ironically distance education could be used to outsource education, that is, teachers. But, this case is actually part of a solution and will be addressed later. A programmer, one of the most publicized candidates for outsourcing, is highly skilled, but for some development projects, not required to be on the premises.
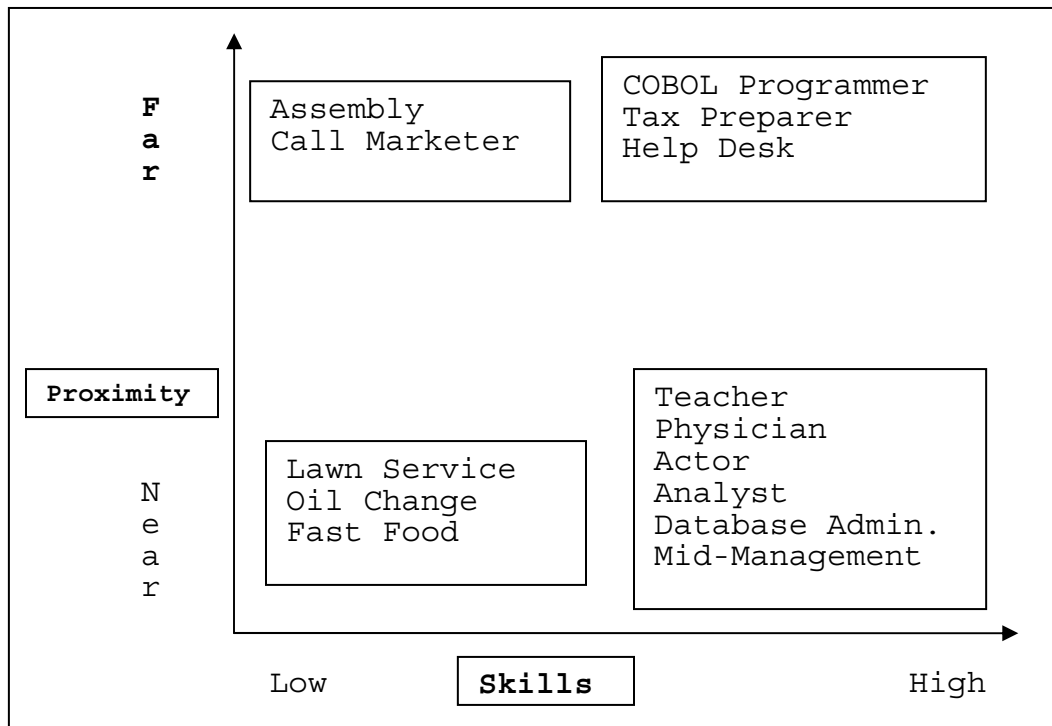
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        ^
   F    |    +----------------+      +----------------------+
   a    |    | Assembly       |      | COBOL Programmer     |
   r    |    | Call Marketer  |      | Tax Preparer         |
        |    +----------------+      | Help Desk            |
        |                            +----------------------+
 +-----------+
 | Proximity |
 +-----------+                       +----------------------+
   N    |                            | Teacher              |
   e    |    +----------------+      | Physician            |
   a    |    | Lawn Service   |      | Actor                |
   r    |    | Oil Change     |      | Analyst              |
        |    | Fast Food      |      | Database Admin.      |
        |    +----------------+      | Mid-Management       |
        |                            +----------------------+
        +----------------------------------------------------->
            Low        +--------+              High
                       | Skills |
                       +--------+
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Figure 2: Job Proximity and Job Skills

Based on the above observations, we address outsourcing by curriculum and degree program. We address the curriculum issue first.

THE CURRICULUM

Student Alpha is from New Delhi with a computer science degree and some work experience in network administration. U.S. companies would be interested in any student with a similar background and with an U.S. accredited university transcript. American companies recruit on American campuses because the educational process is a filter that insures that the pool of candidates match a desired profile that their IT departments and managers require. While there are many IT professionals without traditional university IT/IS degrees that can do the work, it appears that finding the next wunderkind of the information systems is not worth the risk or cost of a failed search. Student Alpha needs IT coursework on his/her transcript, but should not start at ground-zero. Earning credits in advanced courses places the necessary tick-marks on the transcript in addition to providing evidence of having been through a current curriculum. In addition, the student needs the foundations of the business school core, that is, American business practice. The remedy is a "Techno-MBA." The curriculum should expose the student to the IT areas as outlined below.

Analysis & Design: Understanding and specifying what the information system should do. An analyst should understand the problem and be a problem solver. This means knowing and understanding the business processes and other existing organization systems. In short, the analyst must know the business. (Satzinger, 2004)

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Database: The design of a database and development requires that the analyst understand the user requirements. Implementing the design requires the technical engineering skills of the analyst. (Kroenke, 2004)

MIS: The analyst needs to be well grounded in the theory and practice of information systems in order to create competitive firms, manage global corporations, add business value, and provide useful products and services to customers. Ideally, in today's digital firms, information to support business decisions should be available anytime and anywhere in the firm. (Laudon & Laudon, 2004)

Programming languages: Software applications are created to perform tasks within a firm that may be very complex, large in scope, or very repetitive. In any case, it is more efficient and productive, to perform the task rather than scores of human beings. Examples of such systems are systems in accounting, inventory, and e-commerce. The analyst should have a basic knowledge of languages, their capabilities, and their limitations in order to properly place them in the system development cycle.

Project Management: "Project management is a carefully planned and organized effort to accomplish a specific (and usually) one-time effort, for example, construct a building or implementing a new computer system. Project management includes developing a project plan, which includes defining project goals and objectives, specifying tasks or how goals will be achieved, deterrming what resources are need, and associating budgets and timelines for completion. It also includes implementing the project plan, along with careful controls to stay on the "critical path," that is, to ensure the plan is being managed according to plan." (McNamara)

Foundations in business: This includes the traditional MBA core classes such as accounting, economics, finance, management, and marketing. The typical MBA graduate student should understand that the MBA is actually a professional degree that was initially designed for neers – professionals with little or no formal business education.

Student Beta is a rece onors graduate in chemistry. Having decided that a graduate degree was not in the cards, the student is now faced with doing the undergraduate experience again, but questions re-plowi old ground. Student Beta has a respectable GMAT score and sets a goal of entering the Techno-MBA program. This student is faced with a three-prong assault:
1. Undergrac e business core (required for MBA)
   a. Accounting, Marketing, Management, Finance, CIS
2. Selected undergraduate CIS courses
3. MBA program

Requirement #1 can be addressed by a "500" series designed especially to accelerate the program. For example, CIS 500 is a course deigned to prepare the student for the graduate level MIS cours f course, the student can opt to take the undergraduate business core.

The selection of the undergraduate CIS courses has been determined by a number of factors:

1. Employment location after graduation. Currently, the IT community around the university has requested students that fit the needs of the company. For example, one NYSE listed company wants RPG language experience. Students heading for larger metropolitan areas such as St. Louis, Kansas City, or Memphis tend to lean toward Java, C family of languages, and analysis.
2. Type of employment. Most students are looking for the traditional programmer/analyst positions with the hope of leaving code writing for management positions.
3. Ability. Just as programmers are not the same, not all students are the same. Student interests range from programming to Web development to database to analysis.
4. Personal profile. Many of the Techno-MBA students are non-traditional, married with children, and driven by their former professional life into looking for a new start. Time, budget, age, and personal goals all play an important part in student schedules.
5. Internships. Many of the students participate in summer internships or co-ops. These opportunities are important because they provide the company a pool of potential employees as well as the students' opportunity to test the waters of information systems.

Judicious choice of CIS courses can result in "twofers" – courses that come from the undergraduate CIS curriculum and that also count towards the MBA with a concentration in CIS. The courses marked by * are sufficient for the CIS concentration.

A Student Alpha course selection might look like:

CIS 360 Java III
CIS 431 Adv Analyses and Design
CIS 528 Oracle *
CIS 596 CIS Topics *
CIS 690 Seminar *
CIS 694 CIS Internship *

Student Alpha completes the concentration in CIS with a minimum of CIS course back tracking.

A Student Beta course selection might look like the following :

CIS 260 Java I
CIS 270 Java II
CIS 321 Analysis & Design
CIS 326 Database Concepts
CIS 360 Java III
CIS 431 Adv Analysis & Design
CIS 528 Oracle Database *
CUS 596 CIS Topics *
CIS 661 Management Information Systems

CIS 690 Seminar *
CIS 694 CIS Internship *

What should a Techno-MBA do to minimize the chance of outsourcing reaching his cubicle? Analysts should be "close" to the system. There is a high need to have these employees present in the office because management and business skills are at a premium and cannot be shipped offshore.

Note that in either case above, students may take fundamental graduate level courses in MIS in addition to analysis and database courses. This strategy is directly related to the fact that outsourcing usually occurs in a situation where knowing the business and its culture is at a minimum. Analysts play an essential role in the planning and implementation of new systems that are designed to meet the individual needs of an organization or business. The FedEx mission and business is different than the mission and business of Boeing although both definitely have ties to aviation. Within a business, the system classification of specialty can run deeper. Accounting, engineering, inventory, or human resource systems make these specialists system architects.

Systems analysts work directly and closely with managers and users to determine system problems and corresponding solutions. Through data modeling, information engineering, mathematical modeling, and cost-benefit-ROI analysis, the analyst attempts to determine what solutions are financially and mission feasible. These are system characteristics that do not support outsourcing.

Analysts insure that new systems "fit" into existing company systems. System fit requires that systems are able to share and exchange information. The hardware and software requirements must take into consideration the computing environment which may have any combinations of mainframe, desk tops, Web sites, and databases.

A PROGRAM

With a weak economy, a limited number of H1B Visas, and outsourcing, what should a program do to preserve a critical mass of IS/IT students? Consider the development of a graduate IS program where IT and its relation to business is part of the mix.

A survey of companies indicates that a CIS graduate program should not be technical as the employees are currently in technical positions. The consensus is a program that emphasizes the business of technology such as the following list implies:

- Information Systems Planning
- Staffing the Information Systems Function
- Network Planning and Administration
- Information Systems Project Management
- Comparative Systems Development Methodologies
- Management of End-User Computing
- Data Modeling and Database Administration

- Information Systems Resource Acquisition
- Information Systems Management
- Organizational Transformation
- IT Legal Issues
- Special Topics in Information Systems (variable topic*) - e.g., E-Commerce, Knowledge Management, Customer Service

To attract a working IT professional, a model is created to be completed in two years. The students are screened for three years of IT experience, which does not necessarily mean programming. System analysts for accounting systems, database administrators as well as managers in technical support are welcome. AACSB requires a GMAT score as well as qualified faculty. Because the key target is "working professional," a one week campus residency is required where some sixty contact hours of three courses are accomplished. The students return home for a week of rest and then begin the distance learning portion of the term. Pre-arranged projects, papers, and class topics along with a asynchronous on-line discussions fill the rest of the term. The staggering of the courses is shown in Figure 3.
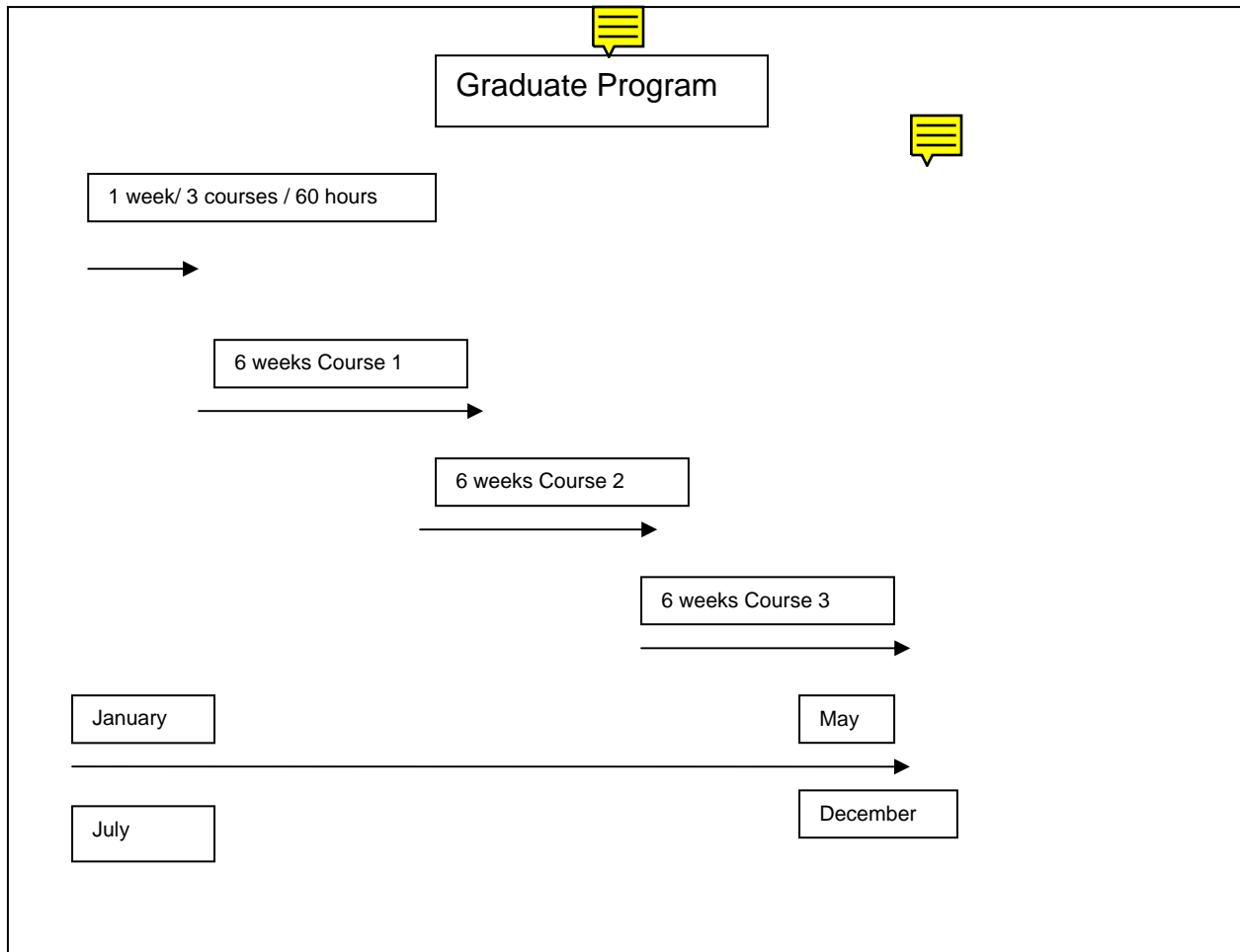
Graduate Program

1 week/ 3 courses / 60 hours

6 weeks Course 1

6 weeks Course 2

6 weeks Course 3

January

May

July

December

Figure 3: Schematic of Course Timings

The logistics of such a program involves the daily campus activities during the campus residency. Breakfast and lunch are also served with the dinner served if classes are scheduled past 5 PM. In addition, activities such as Executives-in-Resident workshops are held during the week. The cost of tuition coves the cost of books and meals. Students are directed to nearby hotels or may use the campus dorms. Resident week is always held during Christmas break or the week before the regular summer school session begins. Grades and finals follow in concert with the rest of the campus academic schedule to facilitate the processing of grades, tuition, and to allow for external faculty from other universities.

ADAPTING THE MODEL FOR AN OFF-CAMPUS SITE

The distance learning scheme above can be altered so that it is the faculty who travel and the students remain on site. For example, if Company X wishes to encourage or support its employee graduate education, the faculty could travel to the company site. If the site is another country, the faculty would travel to the country. Because the residency time frame was scheduled during semester breaks, faculty can travel and be back in time for their assigned classes. This feature is particularly helpful in light of September 11 restrictions and limited visas to the United States.

Therefore, the proposed program incorporates the business foundation courses as related to the mission. In addition, where face-to-face residency is required and desired, either students or faculty may travel.

CONCLUSION

Y2K is over; the economy left the technology sector as quickly as dotcoms appeared on the scene. Taking a sector when it was down, outsourcing appeared on the horizon, casting a long shadow on careers and job security. For the right reasons outsourcing – in other sectors of the economy – was an acceptable inevitable event in a market economy. But, once the untouchable technology sector began to feel the drain, panic and despair spread almost as fast as any virus.

Fewer jobs translated into fewer students who now looked into other hot fields of the day. However, upon inspection, not all companies were going off shore and not all positions were outsourced. Students with profiles not entirely defined by programming began to drift into other areas such as accounting – thanks to Sarbanes-Oxley.

In summary, curriculums and programs which offered new skills, business understanding, and analysis can prepare a student for the new IT landscape. But this is not new. Career paths now reflected the global economy changing as fast as the underlying technology.

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