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The Future Job Market for Information System Graduates

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ABSTRACT

The rapidly changing IT field demands constant reevaluation of IS curriculum. Two recent phenomena add to the complexity of what IS programs should teach. First, Nicolas Carr (2003) claims that IT is no longer a source of strategic advantage. He suggests IT is now a commodity and should be managed as such. Second, offshore outsourcing has generated a growing concern over the loss of technology jobs. Many of them, the jobs for which current IS graduates compete. Thus, academicians face many questions. Such as: What jobs will be available for future IS graduates? What should we teach to best prepare them? What skills should they possess?

This paper surveys recent literature on IT commoditization and offshore outsourcing. It contributes to the discussion about IS career path issues in the context of IT commoditization and offshore outsourcing. Further, it suggests areas of opportunity that exist and possible actions that the academy might take to better prepare students to compete for the IT jobs of the future.

Keywords

IT Outsourcing; IS Curriculum; Entry-level Jobs; Commoditization of IT.

INTRODUCTION

One thing that has not changed in recent years in the field of Information Systems (IS) is the fact that it changes rapidly. Some suggest the rate of change is increasing (Benamati and Lederer 2001). Many examples are available, but the most evident is the dramatic revolution in the role that internetworking plays in corporate strategy.

The rapidly changing nature of the IT field creates a moving target for both business leaders and educators. Businesses struggle with the best processes, technologies and methodologies to employ in the face of accelerating change. Academicians face the same struggles with the proper content and direction for IS curriculums.

Two new complexities have increased the dilemma about how undergraduate IS programs should best prepare not only IS but other business majors for the careers ahead of them. First, a recent Harvard Business Review article by Nicolas Carr (2003) stated that IT is no longer a source of strategic advantage. He argues, IT is becoming a commodity akin to electricity and should be managed as such. The second is the growing concern over the loss of entry level technology jobs to cheaper offshore markets (Maney 2004). These are the jobs for which most IS students compete.

Fundamental changes in the way business managers view IT expenses could have dramatic changes on the IS job landscape. If there is a shift in IT from an area of potential strategic advantage to one of minimizing costs, then the future careers of IS students may change. Coupled with the trend toward offshore outsourcing, academicians face the question, "What should we be teaching our students?" If IT has lost its competitive edge and IT managers and CIOs are looking to reduce costs, perhaps through offshore outsourcing, then what skills should future IT graduates possess? And what jobs will they be doing?

Recent literature addressing both of these potential problems indicates a lack of agreement that either problem is imperative to address. The purpose of this paper is to survey recent literature on both of these fronts with several underlying goals. 1) to raise awareness among academicians regarding the attention these issues deserve; 2) to initiate an informed discussion about IS career path issues in the context of offshore outsourcing and IT commoditization; 3) to suggest opportunities that exist and propose actions that we the academy might take to both embrace the unavoidable change and better prepare students to compete in the future.

THE COMMODITIZATION OF IT?

Nicholas Carr (2003) stirred considerable debate with his Harvard Business Review article, "IT Doesn't Matter." Carr claimed that IT has become a ubiquitous commodity and thus is no longer a source of competitive advantage. Carr claimed the core functions of IT (data storage, data processing, and data transport) are available to all organizations at virtually the

same costs. Thus, managers should view IT as a cost center. They should minimize costs and risks instead of trying to exploit IT for strategic advantages. According to Carr, “When a resource becomes essential to competition but inconsequential to strategy, the risks it creates become more important than the advantages it provides” (2003, p. 48). He believes companies are spending too much money on IT with false hopes that greater benefits to follow.

Carr acknowledges that IT is the backbone of commerce and that companies still need to spend money on IT. He believes innovation will continue and that such innovation will benefit entire market segments, but not individual companies. He believes that innovation primarily will be made by vendors and readily available in the marketplace to all competitors.

Many of Carr’s critics have presented contrary views (Evans 2003). They say Carr is wrong to believe IT is unimportant (Schrage, 2004). Carr brought much of this criticism on himself with the title of his article, “IT Doesn’t Matter.” This unfortunate title did not clearly convey the message of his article. In fact, Carr says IT does matter for business, but it doesn’t matter from a strategic edge or competitive advantage perspective.

Carr’s position can be justified when IT is considered to be the Internet, e-mail, the World Wide Web, and office automation suites. Just as companies cannot differentiate themselves by the way they use the telephone networks, companies can no longer differentiate themselves based on their use of technologies such as the Internet, e-mail etc. These technologies may indeed have become commodities, just as Carr suggested. Is it accurate however, to suggest that all IT is becoming an ordinary part of doing business?

Perhaps IT is less glamorous than in the past; it has become more like accounting and manufacturing. You cannot run a company without accounting, but they perform pretty much the same function in all companies. Because it is standardized, it can be outsourced to a low-cost provider. Likewise, some IT capabilities are becoming commodities. As such, companies can easily outsource some IT functions. For the last two decades, companies have been outsourcing their data center operations. Data centers were viewed as a cost and a risk to be minimized. Managers realized cost savings by outsourcing this function to low-cost providers. According to Carr, this now holds true to other areas within IT.

OFFSHORE OUTSOURCING AND THE LOSS OF ENTRY LEVEL JOBS IN THE UNITED STATES

The recent growth of offshore outsourcing is phenomenal (Seeley 2004). The primary lure is the fractional cost of labor offshore. In recent years the focus of many companies has been to improve the bottom line. Cost reduction is one way to achieve this. Hence, the appeal of moving IS work offshore. There is no doubt it is happening. A Forrester research report predicted 472,000 IT jobs will move offshore by 2015 (Anonymous 2003). This has serious ramifications for the IT job market. This is already apparent in coding positions. Coding was the IT job category with the highest unemployment rate in 2003 at 7.1% (Murphy and Chabrow 2003). Even the recent economic recovery has been termed a jobless recovery in the technology sector (Lundquist 2004).

The severity of the problem is a topic of hot debate. Some claim the offshore migration of tech jobs is a serious economic challenge that requires immediate attention (Zuckerman 2004). Others feel that the tech job market will make a comeback. They tend to agree however that the nature of the tech jobs in the US will be of greater complexity (Weisman 2003) and that more attention must be paid to educating the future tech workforce (Frauenheim 2004). Companies will still need IT managers with strategic vision and process knowledge, and according to Gartner, skills such as application design and integration, enterprise architecture, information management, client-facing business process management, and integration will remain in house (Traylor 2003).

What does this mean for IS majors? The best graduates often land in positions that might remain in house such as those described above. Many of the jobs being sent offshore, however, are the entry-level jobs that IS graduates historically filled. Programming, help desk, technical support, call center, etc. are entry-level jobs where green recruits cut their teeth and are groomed for more complex positions. Now, many of these jobs are being outsourced.

The jobs predicted to remain in house require broader experience. These positions often require years of real-world experience and seasoning. To be prepared to work at these higher level positions, students must acquire a firm understanding of IT and IT management issues as well as a broader understanding of the firm. In the past, the understanding of the firm was developed while working in an entry-level position and “growing up” in the firm. Somehow this must be circumvented for future graduates to compete.

Many questions remain unanswered. Which jobs will be available for future IS graduates? How can they gain the experience and knowledge necessary to be qualified for the more complex jobs that will remain? With many entry-level jobs being sent offshore, what is left for the entry-level domestic workforce? What is their career path?

There are no straightforward answers to these questions, but the job loss is happening. We all feel it and some of us are starting to acknowledge it. The academy could sit back and say the IT job market is cyclical and will come back. The question is in what form will it come back and how can we best prepare students for whatever it will morph into?

The answer is not obvious and actually becomes even more complex when you combine the offshore job migration with Carr's assertion that IT is no longer important anyway.

PROBLEMS AND OPPORTUNITIES FOR INFORMATION SYSTEMS PROGRAMS

Given that a degree program has a limited amount of time to devote to any topic, IS programs cannot teach every skill that may be needed during a career. So, how should we best prepare our students for entry-level positions three to five years from now? This is the million dollar question. Even if a solution is found, how can we quickly turn the battleships that we all work for to respond. Even worse, today's "solution" will probably be inadequate in 3-5 years, because the evolution will continue. We need to not only change, but change the way we change. We must adapt to meet the rapidly evolving needs of the business community. If we do not fix this, IS may indeed not matter as Carr suggests.

Carr's advice to managers, to reduce the costs and risks associated with IT, combined with the projections of the skills that will remain onshore may provide insight into future demands in IT jobs. Managers who are looking to reduce the risk of IT are concerned with business continuity planning, security, system and network reliability, and audit and control. The demand for these positions is increasing in the IT job market. Perhaps these are the entry-level jobs of the future.

Perhaps, academic programs should respond to these business needs by offering courses in these areas. This would produce IS graduates with a more solid foundation in IT security, audit and control principles. Students would learn how to analyze a system for potential security holes and how to address these security risks. Students need to learn how to develop and implement a disaster recovery plan and the managerial and political risks associated with such a plan.

Managers can achieve IT cost reduction in many ways. One may be to extend the length of time a technology is used before replacing it. For example, PCs may be used longer before they are replaced. This would increase the need for IT workers who can upgrade desktop hardware and software, such as adding memory and replacing disk drives. Hence, the demand for on site technical support could increase in the future. Thus, academic programs might seek to better prepare IS students for these types of jobs.

The commoditization of IT may shift managers' focus to continue to lower costs and risks through offshore outsourcing. This will decrease the demand for current entry-level positions and increase emphasis on higher level "business-oriented" IT jobs. Demand may indeed increase for application design and integration, enterprise architecture, information management, client-facing business process management, and integration (Traylor 2003). The growing interest in supply chain integration and the need for project managers for the now global IT projects can not be overlooked as the questions about the "best" curriculum are addressed. Students may need to understand how to manage project teams, especially geographically and ethnically diverse teams.

To excel at these higher level positions requires IT workers that understand both the technology and how their organization conducts business. There will be more focus on interfacing with functional areas in the organization. As programming tasks are outsourced, requirements gathering and documentation will become more important. Academic departments need to ensure IS majors have a solid grounding in general business knowledge as well as business process analysis and requirements definition.

FUTURE RESEARCH OPPORTUNITIES

Although the discussion and research into IS curriculums is not a new topic, the potential commoditization of IT and the loss of entry-level jobs offshore are two relatively new variables in the discussion that are ripe for research. There is a rich stream of research evolving on outsourcing, and the economic implications of the offshore migration of IT jobs are now getting some attention.

What has not been done is the synthesis of these two streams of research in terms of how the academy should evolve in light of these two possibilities. It is important to not lose sight of the fact that the rapid evolution of IT will continue.

This debate and new research stream about curriculum is important to the future of our field from an academic standpoint. Perhaps it is time for empirical study of industry expectations and how well we meet those expectations. We might be disappointed with what we find or that we are on the mark with our current directions. Given the big looming changes discussed in this manuscript it is imperative that we know.

CONCLUSION

Either Carr's proposition or the loss of entry-level jobs offshore alone should prompt IS academicians to self assess how well we can meet the future demands for our graduates. Combined, they may raise a red flag. Academic programs in IS must evaluate the curriculum offered in light of these two possibilities. Additionally, as the needs of the IT marketplace continue to evolve, IS programs must be prepared to keep up.

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