



“Changing IT Courses for the New Business Environment: Defining Project Management skill sets”

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Abstract

Businesses have recognized the need for technology to play more than a supporting role in their strategic initiatives; indeed, technology is often a driver of strategic change and innovation. U.S.-based enterprises continue to claim the need for off-shoring and increasing H1-B visa limitations due to the lack of qualified talent within the U.S. Employees with project management skills are particularly difficult to find due to the interdisciplinary nature of the required skill set. Has higher education adapted current information technology/systems programs and courses to meet these changing needs? Even as more technical work is off-shored to foreign countries, project management skills are increasingly sought-after since it is those positions which will manage the project and the relationship with the off-shore enterprise. Higher education will need to address these changing needs in their curriculum. This study, which is in the early stages, uses interviews with Chief Information Officers (CIOs) and Project Management Office (PMOs) directors to ascertain the skills that they would like to find when they are hiring Project Managers (PM). The field research is supplemented with reference from both trade and academic literature.

Methodology

The disconnect between corporate and academics is often the 800-pound gorilla in the room which is best left ignored. This research aims to integrate the existing research, from both business and academic arenas, by reviewing the literature and comparing it to interviews with CIOs and PMOs which will provide insight into the type of skills they are looking for when they hire project managers. The field research is in beginning stages and the early results should be interpreted with the caution associated with a relatively small sample group. Research is expected to be completed by fourth quarter of 2007.

The current state of technology employment needs

One of the most hotly debated issues in business technology is the topic of H-1B visas. The current visa cap stands at 65,000 which is substantially lower than its high three years ago at 195,000. Within two days of the U.S. government opening up applications for these work visas, the U.S. Citizenship and Immigration Services cut off accepting new applications because they had already received 133,000 – nearly twice the limit.¹ U.S. businesses clearly have job vacancies that they have not been able to fill with candidates from the existing U.S. citizenship.

The lack of qualified candidates is fueled by the decrease in undergraduate level study of science, technology, engineering and mathematics (STEM) categories. Even though overall college enrollment in the U.S. is growing, the proportion of students graduating with degrees in the STEM categories has fallen to 27%.²

The current state of technology education

A great deal of discussion, debate and angst is given to the topic of the competitiveness of American education at all levels. No where is the concern more evident than in the technology discipline itself. Since technology supports all areas of learning, it is the backbone of all efforts to improve the educational system. Educators disagree amongst themselves as to best practices and academics as a whole often disagrees with the corporate world as to how to best prepare students for entry into the 21st century workplace. The need for theory-based learning is espoused by many; however, the practical needs and application of theory are mandated by the corporate entities. The need for model curriculums in technology education focused on the skills and abilities of a 21st century workforce has been called for by many authors in the popular press as well as enterprises devoted to educational reform (3, 4,5)

The Problem

Industry desperately needs more technology-literate workers with solid understanding of the business in which the technology resides. This need may be unmet due to two reasons: 1) students are not attracted to undergraduate studies in information technology and 2) those students who graduate with technical degrees lack the soft or business skills which is needed to fulfill the requirements for the available jobs here in the U.S.

Initial findings of the research

While it is unwise to generate trends or draw conclusions from an incomplete study, the findings to date corroborate the issues that are being abundantly presented in the popular press:

- 83% of respondents did *not* have an “entry level” position for project managers. They only hired experienced project managers making it difficult for a new

college graduate to find a starting position with a career path for project management.

- None of the firms had any means for sharing knowledge between project managers which also steepened the learning curve for current employees who were looking to advance in the project management ranks.
- When asked to describe a good project manager, technical skills were *not* mentioned by any of the interviewees. Descriptions included: good communicator, results driven, flexible, intuitive, conceptual thinking ability, good motivator. Conversely, technical skills are the core of the curriculum for most information technology majors indicating a disconnect with the skills that are required for project managers in the corporate world.
- Interviewees were given a list of business and technical skill sets which are associated with good project managers and asked to rank them in terms of importance. The data is incomplete, but the indication is pointing for a need to introduce business level skills into the typical technology curriculum. The top three skill sets as seen from the data currently compiled are:
 - Willingness to change
 - Leadership
 - Ability to build a network with management, peers and the project team

Areas of interest from the initial data

The growth of technology jobs in the U.S. has not equaled the number of U.S. students prepared for these roles not only because the number of students has decreased as seen by the statistics presented by the House Committee on Education and the Workforce. The students who do graduate with technology degrees do not have the required skill sets that businesses are seeking. The increased outsourcing of commodity level technology work has focused more attention on the need for project managers and the relationship and leadership skills associated with that role. Grass roots initiatives for changes to education have focused on elementary and high schools; it is now time to continue those efforts with attention to the college curriculums which prepare the next generation of students for the critical changes which have taken place in U.S. business. The most urgent need is to integrate the courses which address the needs voiced by CIOs in both the existing literature and in this initial interview study. The need to adapt information technology curriculums to include communications, leadership and other business skills is critical.

¹ McGee, Marianne, "The H-1B Limit", Informationweek, April 9, 2009 p.29-31

² Ashby, Cornelia, Director of Education, Workforce and Income Security Issues, U.S. Government Accountability Office, "Science, Technology, Engineering and Mathematics Trends, and the Role of Federal Programs", testimony before the House Committee on Education and the Workforce, May 3, 2006; <http://www.gao.gov/new.items/d06702t.pdf>.

³ Partnership for 21st Century Skills, October 2, 2006

⁴ How to Buils a Student for the 21st Century, Time Magazine, Dec. 18, 2006.

⁵ Tucci, Linda, "Tech Skills Not so Important Anymore, says CIOs", www.cio.com, May 16, 2007