Competency Models In Action:

Developing New Direction in Information Technology Education

January 2014

➢ Using the Information Technology Competency Model to build support for addressing workplace knowledge and skill needs
➢ Developing industry-informed career pathways to IT occupations
➢ Working with industry and educators to provide value to employers and workers

Introduction

Broadening Advanced Technological Connections (BATEC), a center funded by the National Science Foundation Advanced Technology Education project, is one of the champions for the Information Technology Competency Model (ITCM).   BATEC uses the ITCM as a conceptual framework to connect industry, educators and students in an ongoing discussion about the future of Information Technology education.

The Workforce Need

The Bureau of Labor Statistics projects that computer and information technology occupations will grow by 18% between 2012 and 2022, with an estimated 124,000 jobs available each year, including 65,000 new positions. All computer-related occupations typically require at least some college education for job entry.[1]

The mandates are straightforward. Information technology employers need skilled workers. Students pursuing IT-related degrees need jobs after graduation. Educators need to teach the IT competencies that employers identify as critical for their workforce, particularly those at the middle skill level.

Approach

As Executive Director of BATEC, Deborah Boisvert is committed to meeting the workforce need for skilled IT workers. She helped in the creation of the original ITCM and participated in the update validation. She serves as an IT consultant to the Massachusetts Technology Leadership Council, a professional association of technology employers, and to the Massachusetts Community Colleges and Workforce Development Transformation Agenda (MCCWDTA), a TAACCCT grant recipient focused on the development of competency-based certificate programs in six industry sectors, including IT.

One of the four overarching goals of BATEC is "to define, extend and strengthen computing pathways and career opportunities for the 21st century IT professional."[2] In support of that goal,
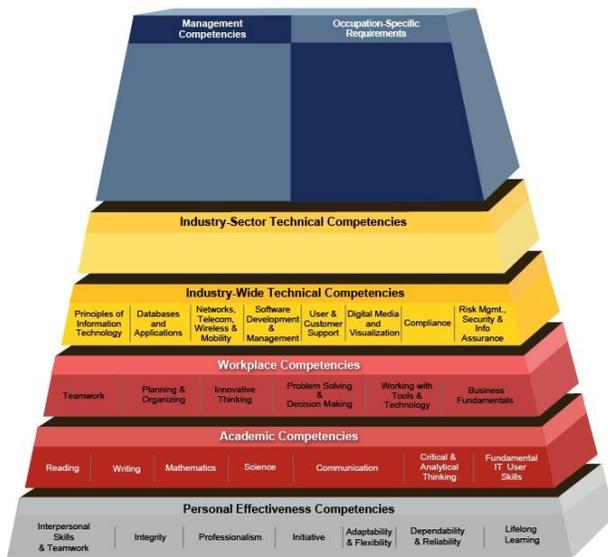
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[1] Bureau of Labor Statistics, Employment Projections, **Table 1.7 Occupational employment and job openings data, projected 2012-22, and worker characteristics, 2012** (http://www.bls.gov/emp/ep_table_107.htm)
[2] http://batec.org

Ms. Boisvert used the ITCM in her conversations with educators and employers, initially focusing on networking and desktop support occupations.

"We conducted two industry forums with major employers, including Raytheon, Cisco, and Harvard University, asking them to identify the skill sets they were seeking in their workforce," says Ms. Boisvert. "The ITCM fared very well in these forums. Employers were particularly positive regarding the listing of specific competencies within the tiers, and the inclusion of foundational skills. Concurrently, we met with IT educators, including representatives from MCCWDTA, seeking to identify the relevant competencies in their curricula. We asked them to conduct a gap analysis of what they were teaching in their courses as compared to the ITCM and industry feedback on job seeker requisites."

As a result of this research, BATEC has made significant progress in creating and modifying curriculum that closely aligns with industry skills while employing innovative teaching methodologies that explicitly integrate analytical and employability skills to develop student competence in broader workplace knowledge and capabilities. Summits with business and industry partners identify key elements and drivers that need to be addressed in various technical areas. Faculty members across partner institutions then integrate these concepts within their curriculum; develop modules, reusable learning objects and other resources to be shared across institutions; and exchange best practices.[3]

Next Steps

"We do a lot of research in the workplace space, trying to identify where the IT job opportunities will be, what exists, and what needs to be done where. We have just released a report conducted in partnership with Monster Government Solutions that analyzes middle-skill employment opportunities in Computer Systems Analyst, Health IT, Web Development and Database which is freely downloadable on our website. " says Ms. Boisvert. "BATEC also has a license with Burning Glass for Labor Insight, a labor market intelligence tool. It gives us real-time data on how many jobs are available by pulling data from job postings, including educational requirements. This segues to our work with faculty on aligning curriculum with industry based needs, in particular stackable credentials."
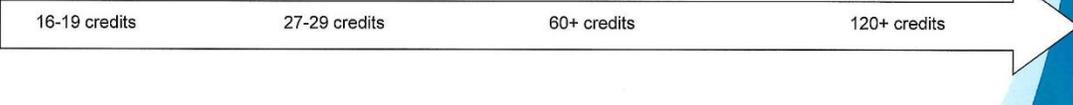
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[3] http://batec.org

Stackable Credentials

Workforce Certificates:	Career Certificates:	Associates Degrees:	Bachelor's Degree
• PC Hardware Support	Computer Support Specialist	Networking and Computer Support	Systems Administration
• CCNA Networking	Networking Technology	Networking and Administration	Systems Administration
• Data Management*	Data Management /Storage*	Data Management and Analytics	Business Intelligence
• Mobile App Programming	OO Programming	CS or Technical Programming	Computer Science
• Database Technologies	Database Programming	Database Administration	Information Architecture
• Security+	CyberSecurity	Information Security	Information Security Assurance
• Health IT Support*	Health IT Specialist*	Health Informatiics*	Health Analytics/MGT*
• Computer Forensics	Digital Forensics	Digital Forensics & Investigations	Computer Forensics
• Data and Accounting Support*	Data Analytics*	Data Analytics/Informatics*	Information Systems
16-19 credits	27-29 credits	60+ credits	120+ credits

Related Links

BATEC
http://batec.org

Massachusetts Technology Leadership Council
http://www.masstlc.org

MCCWDTA
http://www.masscc.org/partnerships-initiatives/redesigning-community-college-education-and-training