Board 28: Working with Business and Industry to Update Nationwide IT Skill Standards

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Mark Dempsey joined Collin College in 2012 as program manager for the National Convergence Technology Center. In his current position as Assistant Director, he plans and manages the CTC’s special programs and events as well as provides administrative and operational support to the CTC’s Principal Investigator. Prior to Collin College, Mark worked for eight years at UCLA Extension, the continuing education division of UCLA. There, he worked first as an assistant to the director of UCLA Extension’s Entertainment Studies & Performing Arts department, helping coordinate academic projects and special events, and later as a program representative, managing domestic and international custom-designed seminar programs. For several years during his tenure at UCLA Extension, Mark also served as a co-instructor for the capstone online class “The Business of Hollywood,” which employed a unique role-playing element to explore strategies of film financing and negotiation. Before joining UCLA Extension, Mark was a development executive at an independent feature film production company, Echo Lake Productions. He has also worked as a freelance script analyst for Silver Pictures. Mark holds a BA in Cinema from Southern Methodist University and an MFA from Loyola Marymount University.

Ms. Ann F Beheler, Collin County Community College

Ann Beheler has been in the Information Technology industry for over 30 years, and she is now responsible for Emerging Technology grants at Collin College. In that capacity she leads the National Convergence Technology Center, a five-year $4 million National Science Foundation grant. The work of the National CTC builds on a previous four-year $4.4 million National Science Foundation grant. From 2011-2015, Ann also led the National Information, Security, and Geospatial Technologies Consortium, an almost $20 million Department of Labor TAACCCT grant.

Ann has corporate experience at Rockwell, Raytheon and Novell; and she has led her own consulting firm, created and taught in one of the first networking degree programs in Texas, and previously managed IT-related divisions and grants ranging $1-$20 million in community colleges in Texas and California. Prior to her current position, she was Vice President of Academic Affairs for Porterville College, responsible for all instruction at the college, and prior that she was a Dean at both Orange Coast College in California and at Collin College.

Among other things, Ann is known for effectively bringing together business and industry using a streamlined process to identify with them the knowledge, skills, and abilities (KSAs) they predict will be needed by “right-skilled” job candidates in the future. She then works with faculty to align curriculum such that those who complete certificates and degrees in IT have the knowledge, skills, and abilities that will make them readily employable in high-paying IT positions. Ann holds a PhD in Community College Leadership from Walden University, a MS in Computer Science from Florida Institute of Technology, and a BS in Math from Oklahoma State University.
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The National Workforce Center for Emerging Technologies (NWCET) – based at Bellevue Community College in Bellevue, Washington and funded by the National Science Foundation – published a 205-page, comprehensive book of IT industry skill standards in 2003. That publication was based on extensive collaboration with dozens of IT experts in business and industry across the country. The report was written with the belief that skill standards provide “efficient foundation tools” for developing curriculum and creating a “common-language framework” among educators and employers for training students and incumbent workers [1].

Sixteen years later, in 2019, the IT landscape has completely changed. Back in 2003, the technology industry was a vastly different place: Google was still a private company, the Apple iPhone was years away from release, MySpace was the new social media platform [2], Amazon just launched what would eventually become a major cloud service provider called Amazon Web Services [3], and Skype had just released its Beta communication software using VoIP [4].

The NWCET list, thorough as it was in 2003, has by 2019 become outdated. But even though the list is no longer reflective of the realities of the IT workforce, some educational institutions still use them as a reference point. An updated and future-facing revision is essential. The “IT Skill Standards 2020 and Beyond” (ITSS) project, funded by the National Science Foundation’s Advanced Technological Education program, will provide that revision by creating an updated set of employer-led, future-facing, and verified IT skill standards for 8-10 of the most critical contemporary IT job clusters.

The ITSS project goal is to widen the pipeline of qualified IT workers by supporting curriculum that’s better aligned with workforce realities, thereby meeting the rising demand from employees. The Bureau of Labor Statistics predicts thousands of new IT jobs will be created between now and 2026, whether it’s database and system administrators and network architects (48,200 new jobs by 2026), computer support specialists (88,500), computer and information analysts (82,900), or software developers and programmers (3,056,000) [5]. CompTIA recently announced in an analysis of employment activity that more than 282,000 “emerging technology” positions – in categories like blockchain, AI, and big data – were posted in October 2018 when compared to that same category in October 2017 [6]. This ongoing demand for workers has made it “increasingly difficult for businesses to attract new talent and retain their existing employees” and “put companies’ technological infrastructures at risk due to the need to frequently train incumbent workers” [7].

Clearly, demand for IT workers is high and will only grow, but there is a concern that colleges and universities are not teaching the skills students need. Consider a recent Express Employment Professionals survey of over 1000 businesses that ranked education as one of the least important elements they consider when making a new hire [8] or Forbes’ Josh Bersin’s claim that education institutions are not staying current with “general skill needs of the 21st century workforce” and must “learn about the needs of business” [9]. Further, a Gallup/Lumina Foundation poll reported that while 98% of colleges are confident in their ability to prepare students for workforce success, only 11% of business leaders agree that new graduates have the skills business needs [10]. It is this mismatch between what employers need and what educators
teach that makes the ITSS project’s mission to create a comprehensive and updated list of job skills so important.

Similar to the authors of the 2003 skill standards book, the ITSS principal investigators define “skill standards” as a blueprint for how IT workplace knowledge, skills, and abilities (KSAs) are organized and how the individual roles of employees contribute to an enterprise’s overall success. As such, updated skill standards have multiple beneficiaries. For one, educators use skill standards to create relevant curriculum that prepares “workforce ready” students. Only if educators clearly understand the needed KSAs can they successfully teach them to their students. Second, employers use skill standards to better understand and address current and emerging IT needs. That understanding can help employers improve communications about job openings so they can hire the most qualified candidates, improve employee training and development, and develop meaningful employee performance review processes. Finally, students and graduates use skill standards to better understand the realities of the job market, the know-how needed to get hired, and the performance they’ll have to deliver to stay employed.

The ITSS project builds on a successful business engagement model developed by the National Convergence Technology Center (CTC), based at Collin College in north Texas. This model – known as the “BILT” (Business and Industry Leadership Team) – puts business and industry leaders in a co-leadership role, rather than an advisory role, that allows them to make continuous recommendations on program curriculum to ensure it aligns with workforce needs. The BILT flips on its head the more traditional “business advisory council” model that can often carry the connotation of a rubber stamp by convening business leaders that approve without question whatever curriculum faculty proposes. In a BILT, the business group helps steer a program by making active curriculum recommendations. By making sure classroom coursework matches what employers need, students become more employable. This is just the sort of proactive process that the Harvard Business Review calls for when it suggests that business leaders must collaborate with educational institutions to “design and fund initiatives” that better give middle-skill workers like IT technicians “opportunities to apply new concepts and skills” [11]. Patty Alper, board member of US2020—the White House initiative to build mentorship in STEM careers – perhaps put it best: “I believe educators should listen more intently to business leaders and understand the trajectory of change they are bearing witness to [12].” If business and education can work together, “schools will have greater placement opportunities for graduates, and students will have far more employment and career options [12].”

The CTC’s BILT – which includes IT experts from national companies based in regions across the US – convenes quarterly to discuss emerging industry trends and provide program guidance to faculty attendees. The CTC has found that only through frequent regular meetings can a strong relationship develop between business and educators. Each spring, the CTC’s BILT uses a unique voting system to rank and update a list of IT knowledge areas that entry-level IT workers need to know in the next two years. That updated list is shared with 69 colleges nationwide that are members of the CTCs community of practice. Those schools update that list with their local BILTs to keep curriculum aligned with regional workforce needs, making course adjustments as needed to fill any knowledge area gaps. This process fosters a sense of program ownership among BILT members, which then usually encourages engagement outside of the meetings. That support can include, among others, visiting classrooms as guest speakers or
critiquing student presentations. The best result, of course, comes when the BILT members understand the quality of a program and start hiring its graduates.

The ITSS project expands on this BILT model of employer co-leadership. This February via virtual meetings, at least 50 IT strategists (from organizations that include Alaska Air, Cisco, Comcast, Comerica Bank, CVS Health, the Department of Labor, Raytheon, and Verizon Wireless) will finalize a preliminary pro forma list of the most critically-needed IT job clusters created with recommendations from the CTC’s BILT and workforce data from analytics company Burning Glass Technologies. These 50 “thought leader” strategists all have a broad and future-focused view of the IT landscape. The final job cluster list will be vetted by at least 150 other IT business experts. Cluster work will be completed by spring 2019.

Once the job cluster list is finalized, individual job cluster BILTs will be assembled one by one. Each cluster BILT will feature at least 40 IT experts. The first job cluster BILT will convene in late spring 2019. The cluster BILTs will work together, first through smaller focus groups to develop a list of essential skills for the cluster and then later with larger groups of 150 to finalize and refine the list as needed through a modified DACUM voting process. Along the way, at least 20 IT educators will be recruited for each job cluster to answer pedagogical questions as they arise. The educators will also map the final job cluster skills to representative two-year and four-year degree outcomes. For every virtual meeting in this process, the cluster BILTs and cluster educators will be able to select from one of three meeting times to make participation as easy as possible, especially for small and medium-sized institutions.

The ITSS project will incorporate existing skill standards such as those from NICE and NIST. There is no need to reinvent the wheel and repeat the work of other organizations. But the ITSS principal investigators note that many of those existing standards can be complicated and overwhelming, especially for smaller community colleges with limited faculty. The ITSS skill standards update, therefore, will be created and organized with an eye to making the material as user-friendly and easy to use as possible.

There will be no published book like the one created in 2003. The rapid evolution of the IT industry and the urgent need to widen the pipeline of qualified workers requires a more dynamic approach to dissemination. As a result, the updated IT skill standards will be posted online for comment as soon as each cluster BILT has completed its work. Further, the ITSS project will pilot a program to develop a process – based on an online crowd-sourcing approach – to keep the standards current far beyond their online posting date through the feedback and input of industry experts. Further dissemination will be provided through educator conference presentations and e-mail blasts.

Ken Cook at Business Journals recently noticed with approval that many states have increased support for programs “more focused in their curriculum, aligning the education with the economic need” [13]. Close collaboration between the industry board room and the college classroom remains an essential element to filling those many IT jobs in the coming years. The ITSS project will help those efforts by using a thorough evaluation process to provide current, updated skill standards for the most in-demand IT job clusters. This will arm educators and employers alike with expert-approved, future-facing skills and curriculum.
References


