Introducing a New Toolkit to Help Engage Employers and Make Graduates Workforce Ready

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MAJOR GOAL for All Technical Programs

• STUDENTS completing certificates and degrees are well-qualified for ready employment

• BUSINESSES are highly engaged
Business and Industry Leadership Team

- Developed/refined by National Convergence Technology Center National Science Foundation (NSF) Advanced Technological Education (ATE) Center led by Collin College
- Business Advisory Council “on steroids”
- New, very detailed BILT Toolkit maybe be downloaded at bit.ly/BILTtoolkit
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- Different flavors
  - Local BILT advising a single college or college district
  - Regional BILT advising multiple colleges
  - National BILT advising colleges coast to coast
  - Project-specific BILT advising a particular initiative like a big grant
Developed “toolkit” in conjunction with CORD (Center for Occupational Research and Development)

Sections
- Benefits
- Essential elements
- Identifying members
- Preparing to meet
- The KSA vote

Implementing the BILT Model of Business Engagement
A Guide for Strengthening Industry Commitment for Technical Programs

Background

Almost all community and technical colleges are required to hold business advisory committee meetings annually or semi-annually to obtain business input on their associate of applied sciences programs. However, these meetings could often be described as “rubber stamp” events during which faculty tell business members what they are doing in the program rather than asking business members what they should be doing in the program. This one-sided approach often results in graduates whose are not best-aligned with business need and therefore not as employable as they could be.

The Business & Industry Leadership Team (BILT) model, originated by the National Science Foundation Convergence Technology Center of Excellence based at Collin College, puts businesses in a co-leadership role for college technical programs so they have direct input into the knowledge, skills, and abilities (KSAs) that program graduates should possess 12-36 months into the future ultimately producing candidates the businesses are much more likely to hire. Because members must be Subject Matter Experts (SMEs) to truly know what KSAs are needed, BILTs should focus on a single sub-discipline rather than all the programs in a division. While it is not essential for colleges adopting the BILT model to retitle their new and improved business advisory committee a BILT, doing so can help signify to employers, faculty, and administrators the importance of the group’s shift in mission and process.

Business engagement is also improved if the process used by the BILT for evaluating the KSAs is structured, including both discussion of and voting on each of the KSAs. A structured process removes much of the subjectivity that can occur when the KSA evaluation relies totally on discussion.

The table at right illustrates some of the differences between a traditional business advisory model and the more engaged, business-led BILT model.
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BENEFITS

- Win-win-win for students, faculty, and BILT members
ESSENTIAL ELEMENTS

#1 Divide your BILT by sub-disciplines.
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ESSENTIAL ELEMENTS

#2 Convene your BILT more than once a year, preferably four times a year.
In-person meeting

Conference call
web meeting
#3 Always allow time on the meeting agenda for the BILT to discuss their perspective on future industry trends.
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ESSENTIAL ELEMENTS

#4 Invite all of your faculty to attend BILT meetings so they can hear first-hand the discussions of trends and job skills.
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ESSENTIAL ELEMENTS

#5 Once a year prioritize a detailed list of the knowledge, skills, and abilities (KSAs) the BILT wants graduates to have 12-36 months from now.
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ESSENTIAL ELEMENTS

#6 Ask faculty to map the prioritized list of KSAs to current curriculum to make sure it aligns. If there are gaps, make adjustments or be prepared to discuss why adjustments can’t be made with the BILT.
ESSENTIAL ELEMENTS

#7 Give regular feedback to the BILT regarding the implementation of their recommendations. If you can’t do what they ask, explain why you can’t. The BILT can sometimes find solutions.
IDENTIFYING BILT MEMBERS

- Right people on the BILT need to be able to predict their future needs and the future of the IT/Cyber industry
  - High-level technical executives
  - First-line hiring managers
  - Technicians (some)
  - HR representatives, as long as they are not the sole reps for a company

- Helps to have a chairperson – you select this person, but not until you’ve identified a business person who has the fire to do it
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**IDENTIFYING BILT MEMBERS**

- Work with area groups that work with employers
  - College President and Board of Trustee members
  - Chambers of Commerce
  - Economic Development Corporations
  - Discipline-specific professional associations

**AND**

- Simply create a value proposition script and make cold calls or
- Include the value proposition in a printed letter than you mail out and follow up with phone calls
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PREPARING FOR YOUR MEETING

- Logistics
  - Timing (8:30 am on a Tuesday, Wednesday, or Thursday works best for the CTC)
  - Feed them well (meals and snacks/beverages, but perhaps not a full breakfast – coffee is essential)
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PREPARING FOR YOUR MEETING

- Invitations
  - Do not use e-mail – it’s too easily ignored
  - Phone calls or hand-addressed, stamped letters

- Value proposition for the prospective BILT members (“WIIFM”)
  - Outline their involvement
  - Specify the minimum time commitment (Est. <10 hours per year initially)
  - Request an RSVP
  - Follow up
THE KSA VOTE

- “KSAs” = knowledge areas, skills, and abilities
- Modified DACUM to identify KSAs needed in graduates 12-36 months into the future (Typically a 4-6 hour meeting)
- BILT discusses knowledge skills, not courses – faculty will map to the courses
- Vote captures all of the perspectives
- Discussion is also recorded and reviewed for information not captured in the KSA votes
THE KSA VOTE

Meeting process:

- Start with a pro forma list, not a blank wall
- Employers discuss and rank the job skills on a scale of 1 to 4 (1 = least important, 4 = most important)
- Discussion and vote together in real time
  - Resist the urge to conduct the vote with emails or surveys
- Consensus is not the goal
- Record the votes
- Focus on skills needed for an entry-level employee 12-36 months out
KSA RANKINGS

4 The KSA must be included in the curriculum

3 The KSA really should be included in the curriculum

2 It would be nice for the KSA to be included in the curriculum

1 The KSA can be left out of the curriculum entirely

This 1-4 Ranking Criteria 1-4 considers the following together:
- Importance
- Level of proficiency
- Time spent doing the skill
- Difficulty – how difficult is the skill to learn?
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THE KSA VOTE

- Meeting roles:
  - Facilitator – process expert keeps the meeting running
  - Recorder – enters the votes in real-time into a spreadsheet and prepares the meeting minutes
  - Subject matter experts
  - Faculty – attend as observers
  - Set the room in a “U” for discussion
<table>
<thead>
<tr>
<th>Infrastructure KSA</th>
<th># votes (4 = most important)</th>
<th>Avg</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K-1 Knowledge of computer networking concepts and protocols, and network security methodologies.</td>
<td>11</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>K-2 Knowledge of risk management processes (e.g., methods for assessing and mitigating risk).</td>
<td>7 1 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K-3 Knowledge of laws, regulations, policies, and ethics as they relate to cybersecurity and privacy. (e.g., PCI, PII, PHI, GDPR)</td>
<td>8 4 1 0</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>K-4 Knowledge of cybersecurity and privacy principles.</td>
<td>7 4 1</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>K-5 Knowledge of cyber threats and vulnerabilities.</td>
<td>3 6</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>K-6 Knowledge of specific operational impacts of cybersecurity lapses.</td>
<td>4 3 2</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>K-7 Knowledge of communication methods, principles, and concepts that support the network infrastructure.</td>
<td>9 1</td>
<td>3.9</td>
<td></td>
</tr>
<tr>
<td>K-8 Knowledge of capabilities and applications of network equipment including routers, switches, bridges, servers, transmission media, and related hardware.</td>
<td>10 1</td>
<td>3.9</td>
<td></td>
</tr>
<tr>
<td>K-9 Knowledge of how to assess existing infrastructure (e.g., LAN, WAN)</td>
<td>5 5 1</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td>K-10 Knowledge of risk management, cybersecurity and privacy principles used to manage risks related to the use, processing, storage, and transmission of information or data.</td>
<td>3 9</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>K-11 Knowledge of Information technology (IT) security principles and methods (e.g., firewalls, demilitarized zones, encryption).</td>
<td>8 5</td>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td>K-12 Knowledge of local area and wide area networking principles and concepts including bandwidth management.</td>
<td>5 6 1</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>K-13 Knowledge of measures or indicators of system performance and availability.</td>
<td>7 6</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>K-14 Knowledge of how traffic flows across the network (e.g., Transmission Control Protocol (TCP), and Internet Protocol (IP), Open System Interconnection Model (OSI)).</td>
<td>11 1</td>
<td>3.8</td>
<td></td>
</tr>
</tbody>
</table>

Vote tally and average calculated here
THE KSA VOTE – FACULTY CROSSWALK

- Determine the cut-off value on the KSA vote average AND the discussion
- Consider each KSA and determine which course exposes that topic (“E”) or provides thorough coverage (”T”)
- Look for the gaps
- Modify curriculum to align to the BILT KSAs if at all possible; otherwise discuss with BILT
<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Course A</th>
<th>Course B</th>
<th>Course C</th>
<th>Course D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of computer networking concepts and protocols, and network</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>security methodologies.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of risk management processes (e.g., methods for assessing and</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>mitigating risk).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of laws, regulations, policies, and ethics as they relate to</td>
<td>8</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>cybersecurity and privacy. (e.g., PCI, PI, PH).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of cybersecurity and privacy principles.</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Knowledge of cyber threats and vulnerabilities.</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Knowledge of specific operational impacts of cybersecurity failures.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Knowledge of communication methods, principles, and concepts that support</td>
<td>9</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>the network infrastructure.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of capabilities and applications of network equipment including</td>
<td>10</td>
<td>1</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>routers, switches, bridges, servers, transmission media, and related</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hardware.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of how to assess existing infrastructure (e.g., LAN, WAN)</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Knowledge of risk management, cybersecurity and privacy principles used</td>
<td>3</td>
<td>9</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>to manage risks related to the use, processing, storage, and transmission</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of information or data.</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of information technology (IT) security principles and methods (e.g., firewalls, demilitarized zones, encryption).</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Knowledge of local area and wide area networking principles and concepts</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>including bandwidth management.</td>
<td></td>
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<td>7</td>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Knowledge of how traffic flows across the network (e.g., Transmission</td>
<td>11</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Control Protocol (TCP) and Internet Protocol (IP). Open System</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interconnection Model (OSI).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of remote access technology concepts.</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Knowledge of server administration and systems engineering theories,</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>concepts, and methods.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of telecommunications concepts (will change all the time).</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Map skills to courses here ("T" and "E")
THE KSA VOTE – REPORTING BACK TO BILT

- Give them feedback to show their co-leadership is valued
  - Explain how you plan to change the courses, degrees, and certificates to align with their needs
  - Let them know their feedback is being implemented

- Send out meeting minutes within two weeks of meeting
<table>
<thead>
<tr>
<th>Sample Certificate - Entry-Level Network Support</th>
<th>Sample KSAs covered: K1, K7, K8, K11, K12, K14 (from first 14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPMY 1305 - IT Essentials I: PC Hardware and Software</td>
<td>Provides comprehensive overview of computer hardware and software and an introduction to advanced concepts addressed by CISCO CCENT certification. Lab required.</td>
</tr>
<tr>
<td>ITNW 1358 - Network+</td>
<td>Assists individuals in preparing for Computing Technology Industry Association (CompTIA) Network+ certification exam and career as a network professional. Additionally, prepares individuals for a career as a Network Engineer in the Information Technology support industry. Includes the various responsibilities and tasks required for service engineer to successfully perform in a specific environment. Lab required.</td>
</tr>
<tr>
<td>ITSY 1300 - Fundamentals of Information Security (Security+)</td>
<td>An introduction to information security including vocabulary and terminology, ethics, the legal environment, and risk management. Identification of exposures and vulnerabilities and appropriate countermeasures are addressed. The importance of appropriate planning, policies and controls is also discussed. Lab required.</td>
</tr>
</tbody>
</table>
• Co-leads the program – more input means greater sense of ownership
• Identifies entry-level KSAs
  • Steering curriculum to align with their needs
• Shares sector trends and forecasts labor market demand
• Develops deep, invested relationships with colleges preparing their future employees (they want to hire your graduates)
• Helps deliver “workforce-ready” graduates

• BILT works for any technical program at any size college
WHAT CAN YOU DO?

• Be sure your BILT is sufficiently focused (one BILT per sub-discipline)
• Schedule quarterly meetings (web meetings are okay)
• Invite faculty to attend your meetings
• Allow the BILT members to regularly share their perspective on future trends
• Conduct annual job skills validation – vote in real-time
  Crosswalk the revised job skills to curriculum and make adjustments
• Report back to the BILT; make them feel their co-leadership is valued
Resources

60-minute “BILT Basics” webinar
bit.ly/BILTbasic

10-minute “Your Annual Job Skills Validation Vote” webinar
bit.ly/jobskillsvote

16-page PDF “Implementing the BILT Model”
bit.ly/BILT-toolkit

“An Inside Look at the BILT” brochure
bit.ly/BILTinside

20-minute “Using Google Tools to Tally and Average Your KSA Vote” webinar
bit.ly/KSAGooglevideo

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