Engaging with Employers and Getting Students Workforce Ready

Mark Dempsey, National CTC
National Career Pathways Network conference – October 2019
• Educators believe their graduates are prepared for work
• Businesses do not agree
• Depending on the study, percentages vary
• Percentages on each “side” are not always the same, but the trends match
96 percent of college and university chief academic officers said they are very or somewhat confident in their institution’s ability to prepare students for success in the workforce.

11 percent of business leaders strongly agree today’s college graduates have the skills and competencies that their business needs.

72 percent of educators believe their graduates are ready for work in an entry-level job.

42 percent of business leaders agree.

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”
Business and Industry Leadership Team

- BILT leadership is foundation of ALL the CTC’s work
- Process used for 25 years, but refined and scaled since 2004 through the work of the CTC (regional, now national)
- Shared with consortium of 73 college and university partners
- Designed with lock-step cooperation with regional (and now national) businesses to ensure employment for graduates
- Informs the “IT Skill Standards 2020 and Beyond” process
Business and Industry Leadership Team

- 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

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**Implementing the BILT Model of Business Engagement**

*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 that 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 retrofit 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 to by the BILT to 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.

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The table at right illustrates some of the differences between a traditional business advisory model and the more engaged, business-led BILT model.
<table>
<thead>
<tr>
<th>Advisory Board</th>
<th>Business-led BILT</th>
</tr>
</thead>
<tbody>
<tr>
<td>May only give advice</td>
<td>Co-leads</td>
</tr>
<tr>
<td>Annual KSA* suggested</td>
<td>Annual KSA* required</td>
</tr>
<tr>
<td>May “rubber stamp” existing program</td>
<td>Actively helps faculty improve program</td>
</tr>
<tr>
<td>May only meet once a year</td>
<td>Meets at least three times a year</td>
</tr>
<tr>
<td>If advice is ignored, commitment may be eroded</td>
<td>When advice is valued, commitment is boosted</td>
</tr>
<tr>
<td>May not be highly invested in success of the program</td>
<td>Feels ownership of the program</td>
</tr>
</tbody>
</table>

* Knowledge, skills, and abilities update
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**BENEFITS**

- Win-win-win for students, faculty, and BILT members
BENEFITS to STUDENTS

- Sought after by BILT members because of their ownership of courses, certificates, and degrees
- First considered for opportunities (internships) before they graduate – because BILT members engaged with your program
- Mentoring from BILT members
- Participation from BILT members in workshops, capstone classes, job fairs
- Curriculum aligned to workforce needs – very hirable
BENEFITS to FACULTY

- Assurance they are teaching what industry wants
- Get assistance from BILT members - guest speakers/panelists; recruitment help
- Alerted of future trends in time for timely curriculum adjustment
- Receive free or reduced-cost professional development because of BILT member commitment
BENEFITS to BILT MEMBERS

- Strengthen pipeline of “workforce ready” job candidates
- Develop professional relationships with other BILT members
- Give back to the community in a way that makes a real difference
- Know their time and their feedback is valued
Business and Industry Leadership Team

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.

Your BILT must meet quarterly, not 1-2 times per year for a “report out”
Remember the principle: “out of sight, out of mind”

The CTC model –

- Once a year meet in person for re-evaluate KSAs for curriculum alignment
- Three times a year virtually (90 min) via web meeting
In-person meeting

Conference call
web meeting
Business and Industry Leadership Team

ESSENTIAL ELEMENTS

#3 Always allow time on the meeting agenda for the BILT to discuss their perspective on future industry trends.

The CTC model –
- 90 minute meeting – first 30 minutes is trends talk
- Trend topic today could become a program requirement tomorrow
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.

Sitting in the room is more impactful than reading meeting minutes
Faculty still “own” the program – they are the education experts
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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.

More on this later
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.

More on this later
Business and Industry Leadership Team

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.

More on this later
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
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

OR

- Simply create a value proposition script and make cold calls
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PREPARING FOR YOUR MEETING

- Logistics
  - Timing (mornings work best for the CTC)
  - Feed them well (meals and snacks/beverages)
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
  - Request an RSVP
  - Follow up
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**THE KSA VOTE**

- “KSAs” = knowledge areas, skills, and abilities
- Modified DACUM to identify KSAs needed in graduates (4-6 hour meeting)
- BILT discusses knowledge skills, not courses – faculty will map to the courses
- Vote captures all of the perspectives
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
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THE KSA VOTE

- The pro forma list
  - Starting point for the meeting
  - Will be adjusted/edited in the room by the BILT
  - To create it...
    - Identify similar college programs and SLOs
    - Employer focus group
    - National standards (DOL skills are not future-facing)
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
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THE KSA VOTE

- RSVP rule of thumb:
  - On average, half of your RSVPs simply won’t show
  - If you want 10 in the room, confirm 20
<table>
<thead>
<tr>
<th>Infrastructure KSA</th>
<th># votes</th>
<th>(4 = most important)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td></td>
<td>Avg</td>
<td></td>
</tr>
<tr>
<td>K-1</td>
<td></td>
<td>11 4.0</td>
<td></td>
</tr>
<tr>
<td>K-2</td>
<td></td>
<td>7 1 2 2.5</td>
<td></td>
</tr>
<tr>
<td>K-3</td>
<td></td>
<td>8 4 1 0 3.5</td>
<td></td>
</tr>
<tr>
<td>K-4</td>
<td></td>
<td>7 4 1 3.5</td>
<td></td>
</tr>
<tr>
<td>K-5</td>
<td></td>
<td>3 6 3.1</td>
<td></td>
</tr>
<tr>
<td>K-6</td>
<td></td>
<td>4 3 2 3.8</td>
<td></td>
</tr>
<tr>
<td>K-7</td>
<td></td>
<td>9 1 3.9</td>
<td></td>
</tr>
<tr>
<td>K-8</td>
<td></td>
<td>10 1 3.9</td>
<td></td>
</tr>
<tr>
<td>K-9</td>
<td></td>
<td>5 5 1 3.4</td>
<td></td>
</tr>
<tr>
<td>K-10</td>
<td></td>
<td>3 9 3.3</td>
<td>add risk management before security</td>
</tr>
<tr>
<td>K-11</td>
<td></td>
<td>8 5 3.6</td>
<td></td>
</tr>
<tr>
<td>K-12</td>
<td></td>
<td>5 6 1 3.3</td>
<td></td>
</tr>
<tr>
<td>K-13</td>
<td></td>
<td>7 6 1 3.5</td>
<td></td>
</tr>
<tr>
<td>K-14</td>
<td></td>
<td>11 1 3.8</td>
<td></td>
</tr>
</tbody>
</table>

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

- Determine the cut-off value on the KSA vote average
- Consider each KSA and determine which course exposes that topic (“E”) or provides thorough coverage (“T”)
- Look for the gaps
- Make adjustments to align the curriculum to the BILT
<table>
<thead>
<tr>
<th>Knowledge</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Avg</th>
<th>Comments</th>
<th>Course A</th>
<th>Course B</th>
<th>Course C</th>
<th>Course D</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-1 Knowledge of computer networking concepts and protocols, and network security methodologies.</td>
<td>11</td>
<td></td>
<td>4</td>
<td>0</td>
<td>4.0</td>
<td></td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>K-2 Knowledge of risk management processes (e.g., methods for assessing and mitigating risk).</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2.5</td>
<td></td>
<td>T</td>
<td>E</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, PI, PHI, GDPR)</td>
<td>8</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>3.5</td>
<td>K20-39 also example PCI, PI, PHI, GDPR</td>
<td></td>
<td></td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>K-4 Knowledge of cybersecurity and privacy principles.</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>3.5</td>
<td></td>
<td>T</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K-5 Knowledge of cyber threats and vulnerabilities.</td>
<td>3</td>
<td>6</td>
<td></td>
<td>1</td>
<td>3.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K-6 Knowledge of specific operational impacts of cybersecurity losses.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
<td>3.8</td>
<td></td>
<td></td>
<td></td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>K-7 Knowledge of communication methods, principles, and concepts that support the network infrastructure</td>
<td>9</td>
<td>1</td>
<td></td>
<td>3</td>
<td>3.9</td>
<td></td>
<td>T</td>
<td></td>
<td></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</td>
<td>1</td>
<td></td>
<td>3</td>
<td>3.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K-9 Knowledge of how to assess existing infrastructure (e.g., LAN, WAN)</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>3.4</td>
<td>How to assess existing infrastructure (lan, wan)</td>
<td>T</td>
<td></td>
<td></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</td>
<td>9</td>
<td></td>
<td>3</td>
<td>3.3</td>
<td>Add risk management before security</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>K-11 Knowledge of information technology (IT) security principles and methods (e.g., firewalls, demilitarized zones, encryption).</td>
<td>8</td>
<td>5</td>
<td></td>
<td>3</td>
<td>3.6</td>
<td></td>
<td>E</td>
<td>T</td>
<td></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</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td>3.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K-13 Knowledge of measures or indicators of system performance and availability.</td>
<td>7</td>
<td>6</td>
<td></td>
<td>3</td>
<td>3.5</td>
<td></td>
<td>T</td>
<td></td>
<td></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</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>3.8</td>
<td>Set as ITL</td>
<td>E</td>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K-15 Knowledge of remote access technology concepts.</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td></td>
<td>3.3</td>
<td></td>
<td>E</td>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K-16 Knowledge of server administration and systems engineering theories, concepts, and methods.</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td></td>
<td>3.4</td>
<td></td>
<td>T</td>
<td>T</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>K-17 Knowledge of telecommunications concepts (will change all the time).</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3.0</td>
<td>Change all of these</td>
<td></td>
<td></td>
<td></td>
<td>E</td>
</tr>
</tbody>
</table>

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

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

- Send out meeting minutes without two weeks of meeting
<table>
<thead>
<tr>
<th>Course Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Certificate - Entry-Level Network Support</td>
<td>Sample KSAs covered: K1, K7, K8, K11, K12, K14 (from first 14)</td>
</tr>
<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>
RECAP – THE IDEAL BILT

- 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 job forecasting
- Develops deep, invested relationships with colleges preparing their future employees (they want to hire your graduates)
- Helps deliver “workforce-ready” graduates

- This 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 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

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