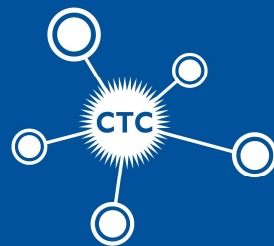




BILT for the Future: How to Keep Looking Ahead
So Curriculum Stays Current with Workforce Needs

HITEC July 24, 2023



NATIONAL
CONVERGENCE
TECHNOLOGY CENTER

AGENDA

TODAY'S TOPICS

Welcome and introductions

BILT 101

Recruiting for the BILT

Educator and employer panel

Preparing for the KSA meeting

Hosting the KSA meeting

Cross-refencing KSAs to curriculum

AGENDA

WORKSHOP GOALS

- Applying the BILT (Business and Industry Leadership Team) Model to your program
- Understanding the elements of a successful BILT
- Discussing strategies to recruit the right employers
- Practicing how to host the annual job skills meeting and leverage the outcomes

WHO WE ARE

NATIONAL CONVERGENCE TECHNOLOGY CENTER

Background

Collin College – Frisco TX

Funded by a grant from the
National Science Foundation

Regional ATE Center starting fall
2004

National ATE Center starting fall
2012

Mission

Support IT infrastructure/
cybersecurity programs across the
country and align curriculum with
employer need

Community of practice – 97 colleges
in 32 states

Work is co-led by IT business leaders

Free professional development for IT
faculty (22nd year of Summer
Working Connections)

MAJOR GOAL FOR ALL TECHNICAL PROGRAMS



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



BUSINESSES highly engaged

WHAT IS A BILT?



Business and Industry Leadership Team

1. A business advisory council "on steroids" whereby employers co-lead the program.

WHAT IS A BILT?



Business and Industry Leadership Team

2. A structured, repeatable process that can be used for any technical program.

WHAT IS A BILT?



Business and Industry Leadership Team

3. A model that puts employers in a co-leadership role that greatly increases their engagement with your program.

WHAT IS A BILT?



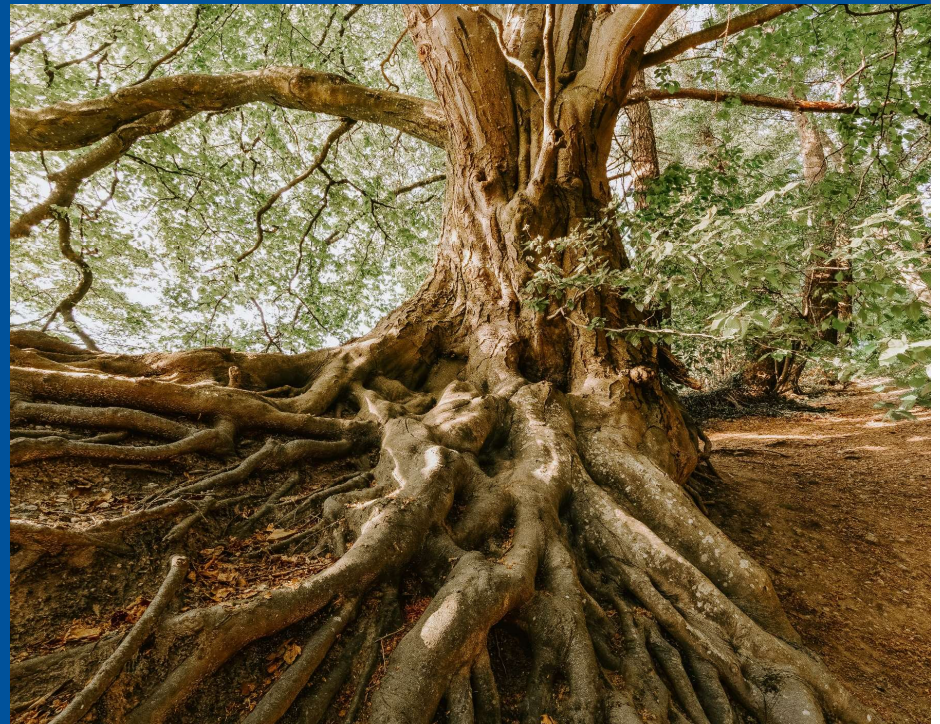
Business and Industry Leadership Team

4. A method to both ALIGN curriculum to industry needs and BUILD lasting relationships with employers.

BILT ROOTS

BUSINESS AND INDUSTRY LEADERSHIP TEAM

- National Science Foundation (NSF) Center of Excellence in Convergence Technology, based at Collin College (TX) [2012-2023]
- Established BILT model through work with business leaders from across the nation to determine the Knowledge, Skills, and Abilities that “workforce ready” graduates will need
- Model implemented at more than 100 colleges and projects in multiple disciplines.
- US DOL and ED recognize BILT as leading model for strategic employer engagement
- Pathways to Innovation NSF project launched BILT Academy to scale the model



DIFFERENT FLAVORS

BUSINESS AND INDUSTRY LEADERSHIP TEAM

- Local BILT advising a single college or district
- Regional BILT advising multiple colleges
- National BILT advising colleges coast to coast
- Project-specific BILT advising a particular initiative like a grant

The BILT model works with any technical program at any size college.



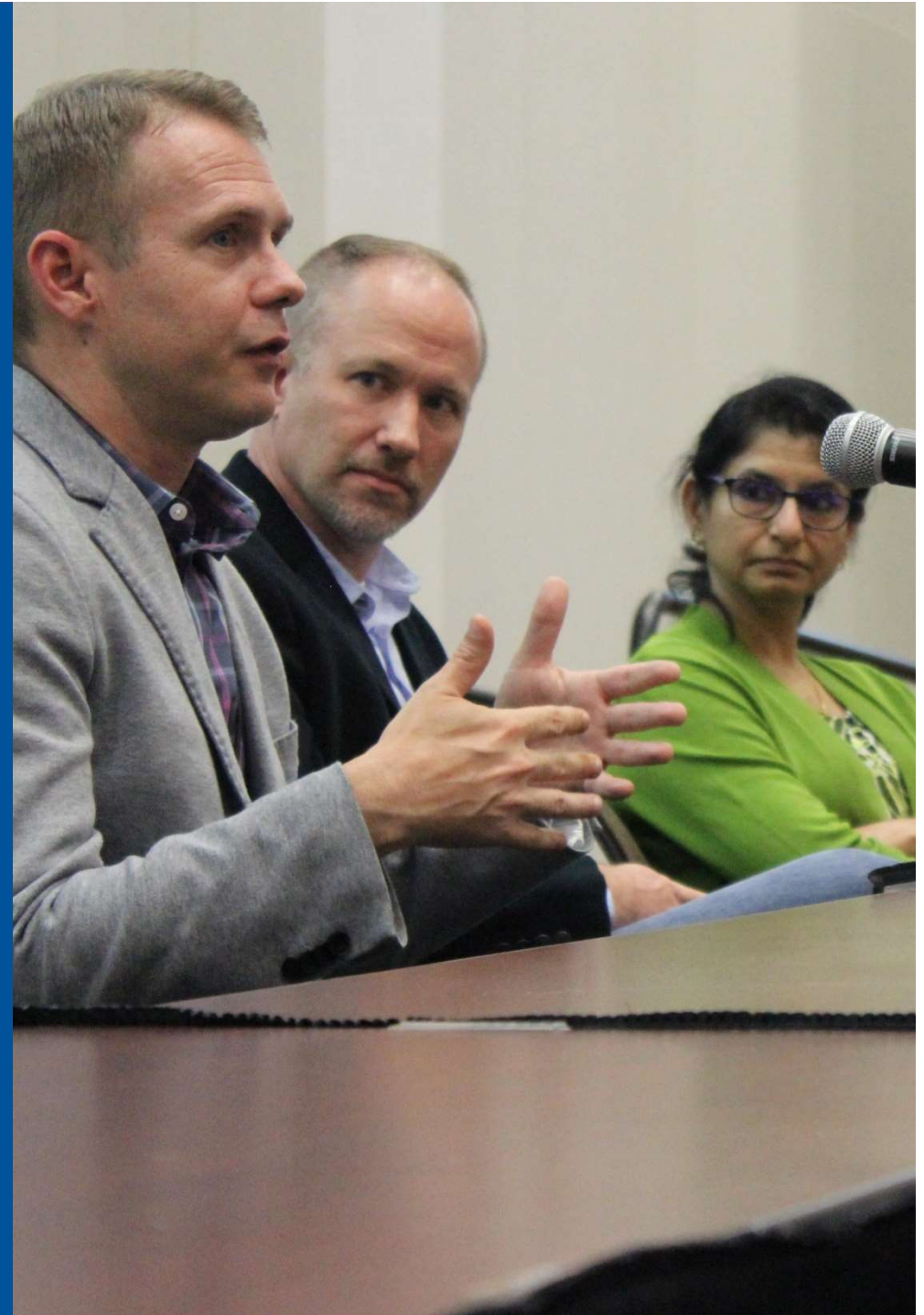
EMPLOYERS

ROLES

- Co-lead college programs through quarterly meetings
- Annually prioritize Knowledge, Skills and Abilities (KSAs) they want graduates to have 12-36 months into the future using structured, repeatable voting process
- Predict labor market demand
- Identify industry trends that could impact the program

WIIFM

- Entry-level employees with “hit-the-ground-running” skills (saves \$\$)
- Tangibly give back to the community
- Tapping eager talent in transitioning to the workforce
- Time valued and appreciated



FACULTY

ROLES

- Cross reference KSAs to existing curriculum
- Update curriculum to address KSAs prioritized by businesses
- Provide businesses with feedback regarding implementation

WIIFM

- Delivering relevant, industry sought-after skills
- Students more prepared to enter the workforce
- Early business engagement exposes students to business perspective (mentoring, internships, business-graded capstone courses)



BENEFITS

WIN-WIN FOR EVERYONE



Employers connect with a pipeline of “workforce ready” candidates.



Faculty have assurance they're teaching the skills the workforce demands.

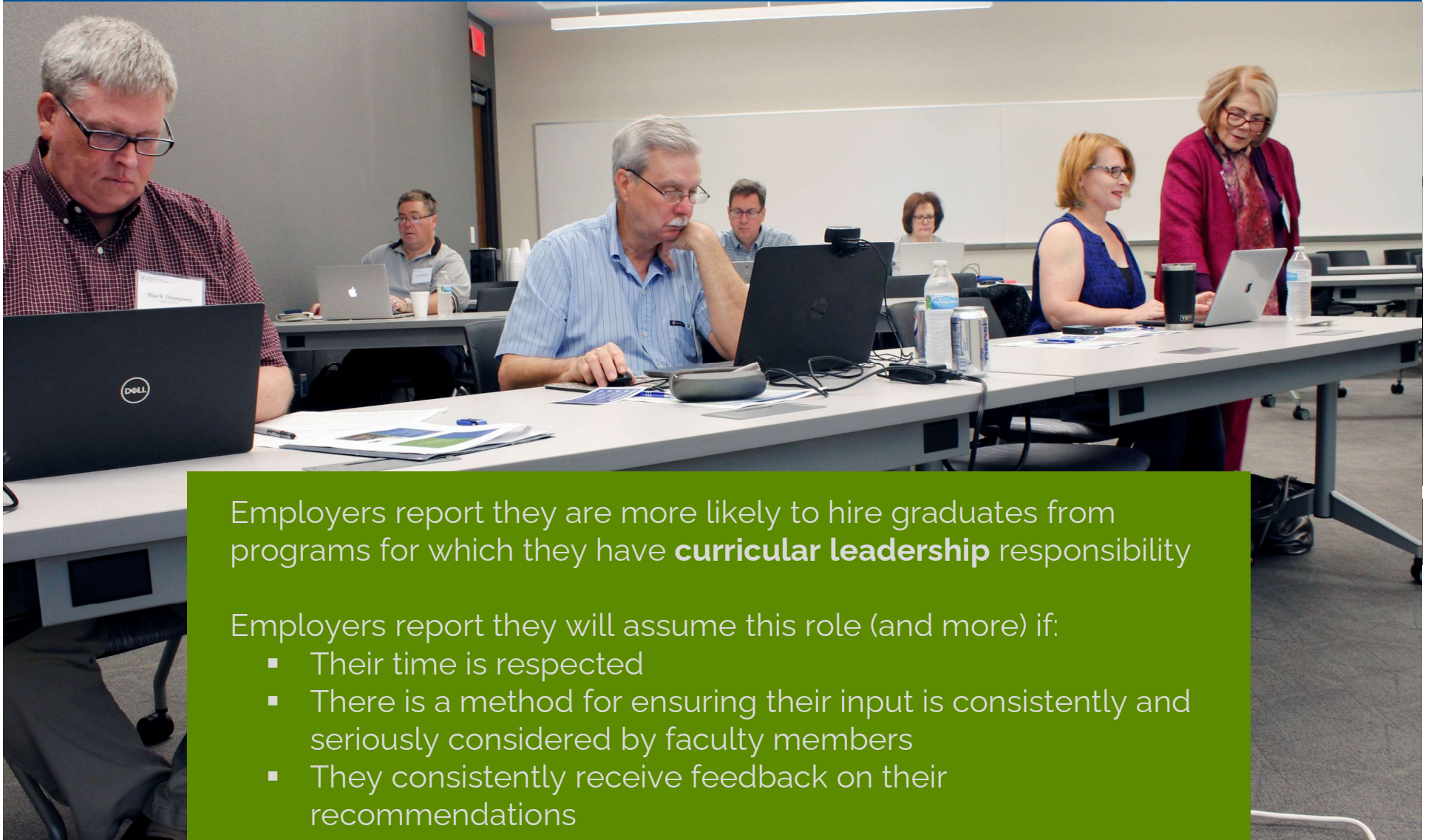


Students are first to be considered for internships and job openings.



Programs develop a pool of industry expert advisers to support all aspects of a program.

CO-LEADERSHIP



Employers report they are more likely to hire graduates from programs for which they have **curricular leadership** responsibility

Employers report they will assume this role (and more) if:

- Their time is respected
- There is a method for ensuring their input is consistently and seriously considered by faculty members
- They consistently receive feedback on their recommendations

BILT MEETING CYCLE

Building and maintaining a BILT is a **high-touch activity** with **two-way communication**.

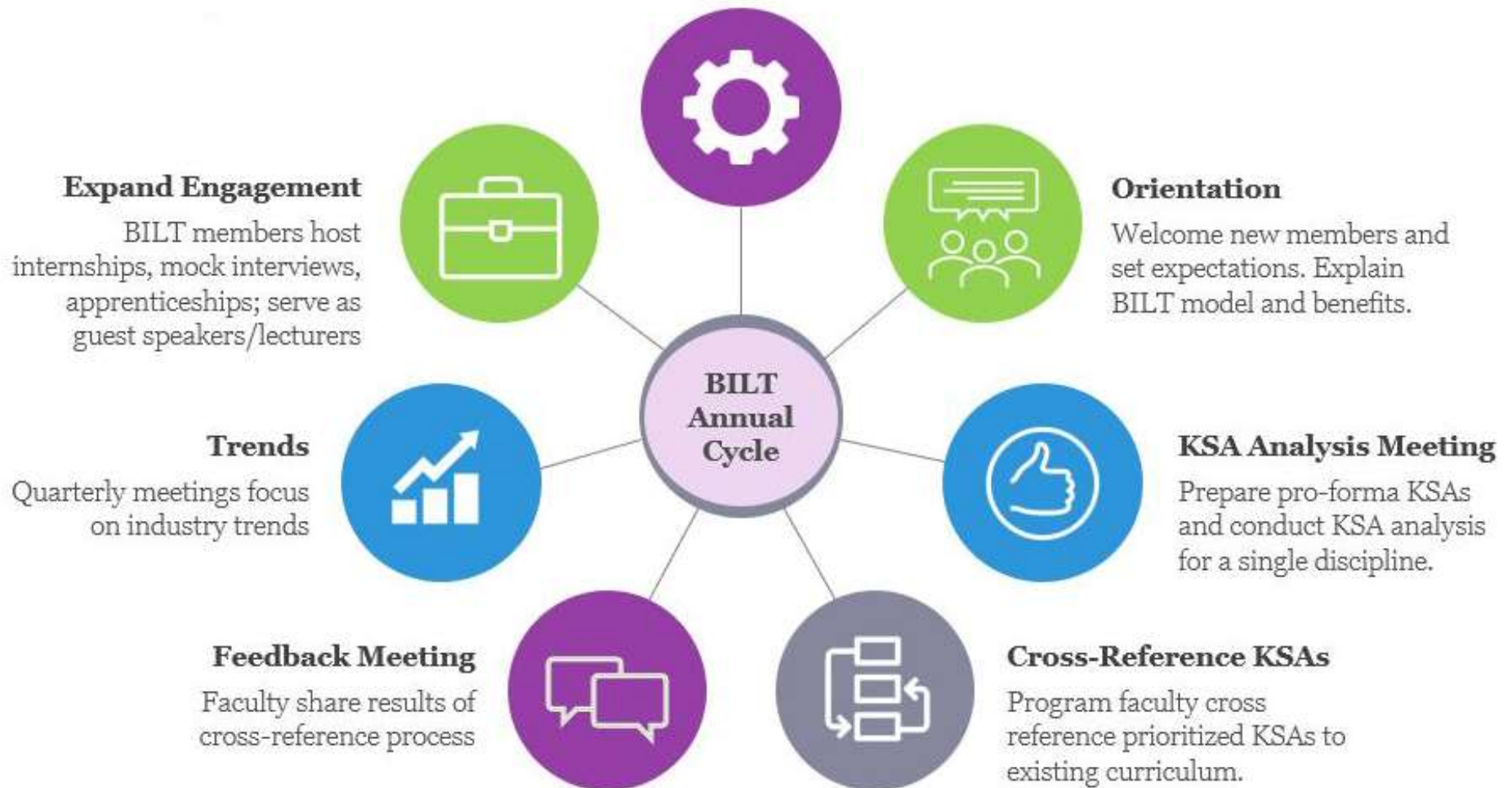
- Annual KSA analysis meetings held in hybrid mode in person for those who are able and web-meeting software for others (a single 2 - 2½-hour meeting per year)
- Industry Trends meetings are held 2-3 times per year via web-meeting software.

Emphasis is on growing a pipeline of right-skilled job candidates, usually in your service area, region, or state



Recruit BILT Members

Once established, add 1-2 new members annually.



THE **BILT** MODEL ESSENTIALS

CONVENE quarterly (shorter trends meetings x3, longer KSA vote meeting x1)

SCHEDULE time during three shorter meetings for BILT to talk industry trends

INVITE faculty to attend the meetings to hear from employers first-hand

PRIORITIZE a detailed list of entry-level KSAs once a year via a vote

MAP the prioritized KSA list to current curriculum to make sure it aligns

GIVE regular feedback to the BILT regarding how their feedback was used

ASSEMBLE “single-discipline” BILTs rather than large multi-discipline groups

THE **BILT** MODEL ESSENTIALS

CONVENE QUARTERLY

Avoid “out of sight, out of mind.”

Meetings don't always have to be in-person.

Three shorter meetings for trends, one longer meeting for KSAs.



THE **BILT** MODEL ESSENTIALS

DISCUSS TRENDS

Shorter (not focusing on KSAs) meetings allow time for BILT members to share perspectives on industry trends.





Help keep educators better understand what's coming.



Top 10 skills of 2025

-  Analytical thinking and innovation
-  Active learning and learning strategies
-  Complex problem-solving
-  Critical thinking and analysis
-  Creativity, originality and initiative
-  Leadership and social influence
-  Technology use, monitoring and control
-  Technology design and programming
-  Resilience, stress tolerance and flexibility
-  Reasoning, problem-solving and ideation

Type of skill

-  Problem-solving
-  Self-management
-  Working with people
-  Technology use and development

FIVE I.T. TRENDS - Winter 2022



The list below summarizes IT trends discussed by the National CTC's BILT (Business and Industry Leadership Team) at the November 2022 meeting. The purpose of these "trend talks" is to keep faculty – and their students – informed on the ever-evolving IT landscape.

1

Employability skills remain in demand. Employers aren't interested solely in new hires' technical "hard" skills. Students also need to be nurturing their interpersonal skills, especially when it comes to working within their team and across other teams to find solutions to complex problems. Collaborating, building relationships, and problem solving are all essential skills. As much as students may dislike it, the best way to teach these concepts is through hands-on classroom group work where different personalities and perspectives must come together in pursuit of a single goal.

Learn more: <https://www.weforum.org/agenda/2020/10/top-10-work-skills-of-tomorrow-how-long-it-takes-to-learn-them/>

2

Data is increasingly moving to the edge. More and more, there's no time for information to go all the way back to the traditional data center. Decisions and actions have to be made closer to the "edge" in a more distributed fashion. One employer noted that their customers often mistakenly think their cloud is secure based on the cloud provider's security system, but that's only securing the platform. It's up to the customer to take additional steps to secure the workloads and data that's inside the cloud at the edge.

Learn more: <https://www.redhat.com/en/blog/5-security-considerations-edge-implementations>

3

Certifications can get students past the HR gatekeeper. It's important that students not just take certification classes, but take and pass the cert exam. At larger companies, HR will treat certifications as a filter. That is, if a job posting gets 200 applicants but the managers only want to interview 10 people, HR needs a way to winnow that pool of applicants down. Often, certifications provide the filter. Those with the cert make it to the interview, those without the cert don't.

Learn more: <https://www.indeed.com/career-advice/career-development/top-it-certifications>

4

Security clearances require a clean drug test. One employer from a large defense contractor stressed how many fantastic, well-paying IT jobs require a security clearance. But if you can't pass a drug test cannot get the clearance. That includes marijuana use, which is not permitted. It's surprising how many otherwise qualified job applicants fail the drug test and don't get the job as a result.

Learn more: https://www.dcsa.mil/Portals/91/Documents/pv/mbi/DCSA_SF-B6%20Guide_070621.pdf

5

AI is becoming "generative." – Rather than task AI with "doing things," now AI will start to create value and develop new insights. That is, AI algorithms increasingly will create new content. Aside from online tools that produce art created by AI programs (<https://hotpot.ai/art-generator>), generative AI is happening now with pharmaceutical companies formulating new medicines and large defense contractors testing systems and predicting failures based on data rather than actual system performance. This will become more and more common across all industries.

Learn more: <https://www.altexsoft.com/blog/generative-ai/>



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THE **BILT** MODEL ESSENTIALS

INVITE FACULTY

Instructors should be in the room to hear first-hand from BILT members.

Faculty available to ask and answer questions.



THE BILT MODEL ESSENTIALS

CONDUCT ANNUAL VOTE

Once a year, BILT members prioritize a detailed list of entry-level KSAs (knowledge, skills, and abilities) for 12-36 months into the future.

The vote and discussion is a structured, repeatable process.

Beware the “rabbit hole” of soft skills.

Talk skills, not course content



Infrastructure KSAs - updated Summer 2022		# votes (4 = most important)				green cells ≥ 2.60
		4	3	2	1	Avg
Tasks SPECIFIC THINGS an entry level person would BE EXPECTED TO PERFORM on the job WITH LITTLE SUPERVISION.						
T-1	Configure network, routers, and switches (e.g., higher-level protocols, tunneling).	2	3	1	3	2.44
T-2	Diagnose network connectivity problem.	4	3	1	1	3.11
T-3	Install and maintain network infrastructure device operating system software (e.g., IOS, firmware) which would include patch network vulnerabilities to safeguard information.	3	5	0	1	3.11
T-4	Install or replace network, routers, and switches.	3	4	2	0	3.11
T-5	Integrate new systems into existing network architecture.	4	4	2	0	3.20
T-6	Monitor network capacity and performance.	0	7	1	1	2.67
T-7	Test and maintain network infrastructure including software and hardware devices.	0	6	2	1	2.56
T-8	Conduct functional and connectivity testing to ensure continuing operability.	2	8	0	0	3.20
T-9	Implement group policies and access control lists to ensure compatibility with organizational standards, business rules, and needs.	1	7	2	0	2.90
T-10	Support group policies and access control lists to ensure compatibility with organizational standards, business rules, and needs.	1	7	2	0	2.90
T-11	Follow SOP and validate/update documentation of compliance.	8	2	0	0	3.80
T-12	Validate/update baseline system security according to organizational policies.	3	6	1	0	3.20
T-13	Manage accounts, network rights, and access to systems and equipment.	4	4	2	0	3.20
T-14	Provide ongoing optimization and problem-solving support.	4	4	1	0	3.33
T-15	Install, update, and troubleshoot systems/servers.	5	4	1	0	3.40
T-16	Check system hardware availability, functionality, integrity, and efficiency.	6	3	1	0	3.50
T-17	Conduct periodic system maintenance including cleaning (both physically and electronically), disk checks, routine reboots, data dumps, and testing.	4	4	2	0	3.20
T-18	Implement local network usage policies and procedures.	4	5	1	0	3.30
T-19	Manage system/server resources including performance, capacity, availability, serviceability, and recoverability.	3	5	2	0	3.10
T-20	Monitor and maintain system/server configuration.	6	3	1	0	3.50

THE **BILT** MODEL ESSENTIALS

MAP THE KSAs

Faculty meets to map the prioritized KSA to identify gaps in program curriculum.

Curriculum adjustments are guided by gaps.



K or S	Explanation/Clarification		293	295	181	344	345	241	242	127	143	144	223	304	345	243	347	316	Es
		Avg.																	
K-1	Knowledge of how to identify the machining motion of a 3 axis CNC mill and a 2 axis CNC Turning Center	3.875	E	E		E	E		E					E	E	T	T		
K-2	Knowledge of how to identify the 4 quadrants of rectangular coordinate programming.	3.125				E	E		E						E	T	T		
K-3	Knowledge of how to identify CNC Milling machine and CNC Turning Center components.	3.375	E	E										E					
K-4	Knowledge of how to recognize incremental and absolute positioning.	3.250				E	E		E						E	T	T		
K-5	Knowledge of how to identify the proper coolant, oil, and air supply levels for CNC mills and turning centers.	3.000	E	E										E					

THE BILT MODEL ESSENTIALS

GIVE FEEDBACK

Ensures BILT members feel heard and valued.

Share how you implemented their suggestions.

If you can't do what they ask, tell them – the BILT can sometimes offer solutions.



THE BILT MODEL ESSENTIALS

DIVIDE YOUR BILT

Leverage the know-how of your subject matter experts in their specific discipline.



THE **BILT** MODEL ESSENTIALS

DIVIDE YOUR BILT

Convene a “super-BILT” for broad program discussions and trends.

Build niche “sub-BILTs” to look at specific KSAs for a discipline area.

BILT MEETINGS EXAMPLE

SPRING
Super-BILT
trends meeting

**NETWORKING BILT
PROGRAMMING BILT
SECURITY BILT
TOGETHER**

SUMMER
Super-BILT
trends meeting

**NETWORKING BILT
PROGRAMMING BILT
SECURITY BILT
TOGETHER**

FALL
Three sub-BILT
KSA meetings

NETWORKING BILT

PROGRAMMING BILT

SECURITY BILT

Business Advisory Council

May meet once or twice a year

May “rubber stamp” existing program

Faculty may drive meeting agenda

May only give advice and suggestions

Job skills recommendations delivered through discussions

May not be highly invested in success of the program

May not be kept in the loop on how suggestions implemented

BILT

Meets quarterly

Actively helps faculty improve the program

Employers help develop agenda – especially sharing trends

Co-leads

Job skills recommendations created through voting process

Feels an ownership in the program and its students

Regularly informed on how suggestions implemented

RECRUITING EMPLOYERS



RECRUITING EMPLOYERS

- Focus on single discipline, not an entire division. (Ex: Welding works; overall Manufacturing does not.)
- Compile your BILT target list
- Reach out via email AND phone – it's high-touch
- Companies representative of those who hire your graduates



RECRUITING EMPLOYERS

Need to be able to predict both their **specific** future needs and the **overall** future needs of the industry.

- High-level technical executives
- First-line hiring managers
- Technicians

HR representatives should not be the only rep for the business.

Mindful of DEI.

Faculty are ex-officio; they listen and ask questions



RECRUITING EMPLOYERS

DIVERSITY ON THE BILT

- Highly desirable for the companies to hire Associate level students and be local/regional
- Consider diversity measures such as gender, ethnicity, etc.
- Various types and sizes of companies
- Types of jobs within those companies, both now and in the future
- Desirable to have BILT members able to predict future needs



RECRUITING EMPLOYERS

BILT MEMBERS ARE...

- Qualified as subject matter experts for your program
- Dedicated to co-leading
- Have a WIIFM that is addressed

TIP: Recruit enough to have a minimum of 8-10 members attend your meetings – good rule of thumb is that half of your RSVPs will not show up



RECRUITING EMPLOYERS

SUBJECT MATTER EXPERTISE

Mandatory for the KSA meetings

How to gauge that expertise?

- Ask
- Check out LinkedIn profiles
- Get referrals from those you know (your employer team member on this project, for example)
- And, don't forget - existing Advisory Council Members should not be fired!



RECRUITING EMPLOYERS

TIME COMMITMENT

- Are they available to participate for the quarterly meetings?
- How much do they need YOUR work to accomplish their own goals?

TIP: BILT members may need to miss one or more meetings in a year. Most important meetings are the KSA analysis meeting and the Feedback meeting



RECRUITING EMPLOYERS

COMPILING LIST OF CANDIDATES

- Current Advisory Council members
- Supportive community organizations:
 - Chambers of Commerce
 - Economic Development Corporations
 - Workforce Boards
 - Trade Associations
- Contact your supervisor for guidance on working with others at the college whose focus is employers



ELEVATOR PITCH

DETERMINE THE ASK

Best pitches are only 4-5 sentences and describe:

- Your program
- Why you need employer SMEs
- What you need them to do and how long it will take
- Potential WIIFM for them (can vary)
- Close by asking for participation



ELEVATOR PITCH

SAMPLE PITCH

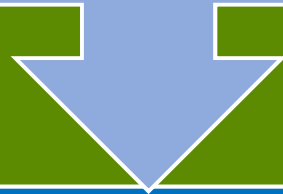
We at (your college name) want to align a program in (program name) with employer demand in our area, and we are adopting the Business & Industry Leadership Team (BILT) Model for our advisory council. The BILT is a proven model that puts area employers in a co-leadership role for our programs.

We invite (business rep name or their company) to become part of our BILT team to guide our curriculum so that the knowledge and skills of our graduates better-align with your needs for job candidates.

Could you join us for a virtual orientation session in February or March (date TBD) to learn more about our BILT and how your participation may be beneficial? We will meet no longer than an hour.

ELEVATOR PITCH

Brainstorm to determine possible objections and responses



Have a few questions to address other WIIFMs such as...

Would your company benefit from a trends discussion with other key employers in our area?

ELEVATOR PITCH

SUGGESTIONS

- Customize the pitch for each constituent – address the value of your work from the listener's POV



ELEVATOR PITCH

SUGGESTIONS

- Adjust the pitch for new programs
 - Very similar, but rather than updating and augmenting a Business Advisory Council, you'll be starting from scratch
 - Definitely need clear picture of labor market demand before recruiting BILT members



ELEVATOR PITCH

SAMPLE ELEVATOR PITCH

We at (your college name) want to align a program in (program name) with employer demand in our area, and we are adopting the Business & Industry Leadership Team (BILT) Model for our advisory council. The BILT is a proven model that puts area employers in a co-leadership role for our programs.

We invite (business rep name or their company) to become part of our BILT team to guide our curriculum so that the knowledge and skills of our graduates better-align with your needs for job candidates.

Could you join us for a virtual orientation session in February or March (date TBD) to learn more about our BILT and how your participation may be beneficial? We will meet no longer than an hour.

RECRUITING STAKEHOLDERS

EXTERNAL TO THE COLLEGE
INSIDE THE COLLEGE



RECRUITING STAKEHOLDERS

EXTERNAL TO THE COLLEGE

Workforce Boards, Economic Development Corporations, and Trade Associations typically want...

- More workers in a job area
- More qualified workers in a job area
- To at least listen in on the KSA and trends meetings



RECRUITING STAKEHOLDERS

EXTERNAL TO THE COLLEGE

Approach external stakeholder to assist with BILT recruitment

Ask for “Warm” email or phone introductions or referrals to potential BILT Members

- Workforce Board
- Chamber of Commerce
- Economic Development Corporations
- Associations in the discipline

TIP: Invite external stakeholders to attend BILT meetings as observers
workers in a job area



RECRUITING STAKEHOLDERS

INSIDE THE COLLEGE

Administrators are often motivated by enrollment numbers

Other faculty want to teach relevant content and want to be involved too once they understand the value of the process

Staff benefit from seeing how you've positioned your program to be more responsive to the community

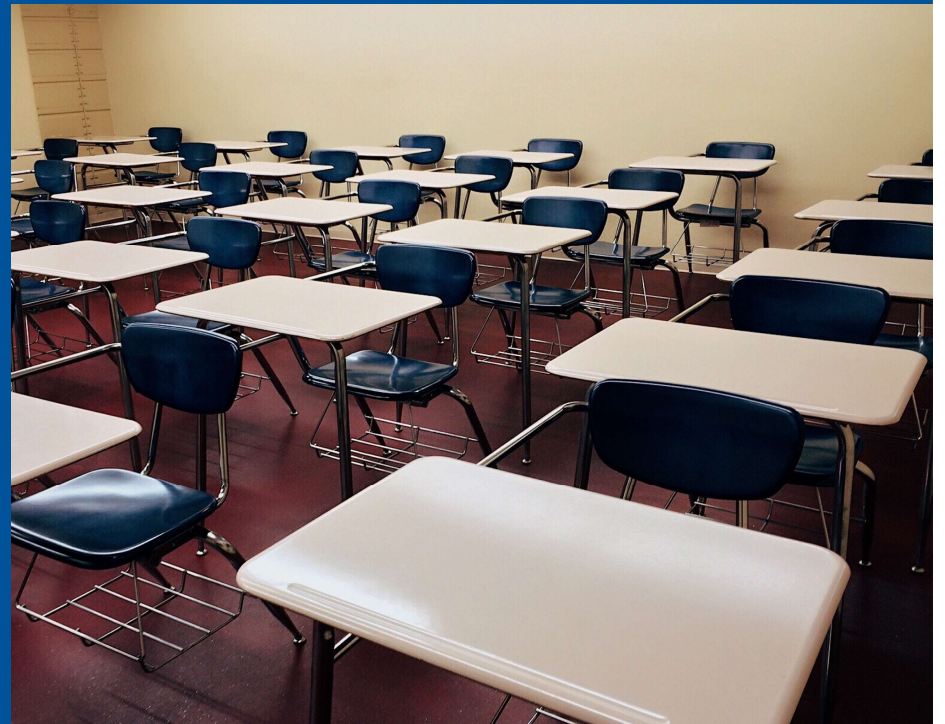


RECRUITING STAKEHOLDERS

INSIDE THE COLLEGE

Recruit and inform internal stakeholders by customizing your pitch

- Other Faculty
- Faculty Chair
- Dean and/or Associate Dean
- Vice President of Workforce
- President
- Trustees? (President makes this contact in most cases)



RECRUITING STAKEHOLDERS

INSIDE THE COLLEGE

Potential elevator pitch for a Vice President

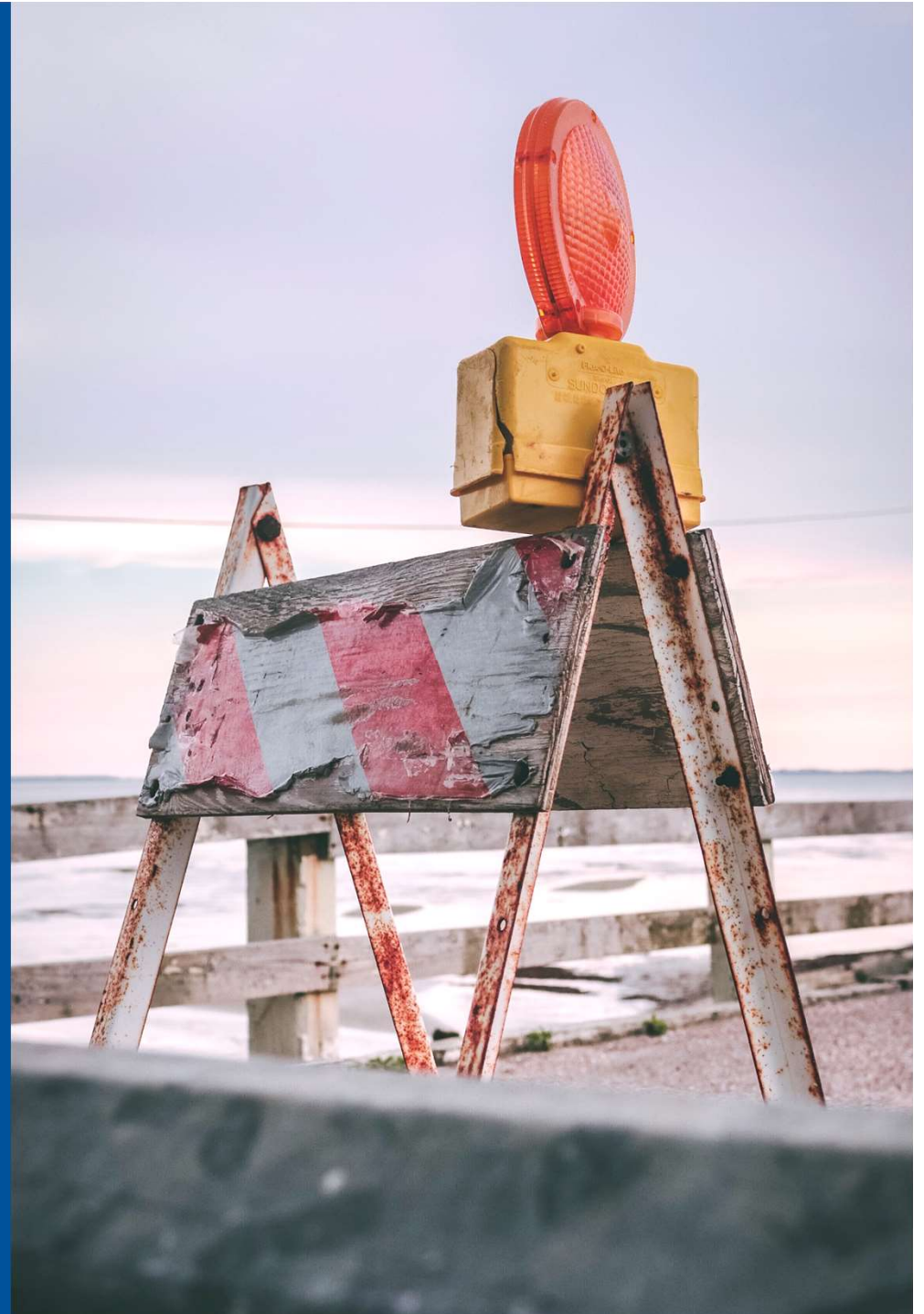
Good to see you Vice President Smith. I'd like you to know about work we're doing to strengthen our Welding program and better align it with employer needs. We are implementing the Business & Industry Leadership Team (BILT) model that puts employers in a co-leadership role to guide our curriculum. This model has shown positive results at colleges across the country.

We are expanding our advisory council to include future-focused welding subject matter experts from local companies. They will participate in a structured KSA analysis process to identify the knowledge, skills, and abilities our graduates should possess 12-36 months from now. Faculty will align and update our curriculum to make sure it addresses these industry priorities. We're excited about deepening employer engagement to strengthen the program so we can increase enrollments and meet local workforce needs.

Ask for what you need from Vice President Smith [here].

GROUP ACTIVITY

YOUR ELEVATOR PITCH



BILT PANEL

Matt Glover, Yern

Kyle Jones, Sinclair Community College

Pete Maritato, Suffolk County Community College

Kim Yohannan, Alteryx

PREPARING FOR THE KSA MEETING



PREPARING FOR THE KSA MEETING

BACKGROUND AND CONTEXT

- Created by NSF ATE Convergence Technology Center
- Uses PCAL7 (**P**erformance **C**riteria **A**na**L**ysis) process developed by US Air Force
- Prioritizes the Knowledge, Skills, and Abilities (KSAs) businesses will need in entry-level workers 12-36 months into the future
- **Consensus is not the goal**
- Results of prioritization help faculty align curriculum to workforce needs



PREPARING FOR THE KSA MEETING

Start with a pro forma list, not a blank wall.

Give the BILT something to respond to – they will edit, add, and delete after they vote.



PREPARING FOR THE KSA MEETING

PRO FORMA LIST CREATION part 1

- Compile pro forma KSAs and Tasks for employer evaluation using a variety of existing skill standards (e.g. NICE and NIST, associations associated with the industry, Career OneStop, and various state standards) – no reinvention of the wheel
- Remove any duplicated items from the list
- A starting point that provides metrics for discussion – a best estimate of knowledge/skills



PREPARING FOR THE KSA MEETING

PRO FORMA LIST CREATION part 2

- Approximately 70-150 of mostly knowledge and skills
- Enter identified KSAs into template spreadsheet and check for duplications
- Create an online Google Form that is linked to a Google Sheet

The National CTC has created “how to” documents and videos



CONDUCTING THE KSA MEETING



CONDUCTING THE KSA MEETING

SCHEDULING

- Ensure a non-biased facilitator can be there for KSA meeting
- Invite employers once the date is set
- Remember – this meeting is longer: approx. 2-2.5 hours



CONDUCTING THE KSA MEETING

ON-SITE and HYBRID LOGISTICS

- Audio Visual capability
 - Screen(s)
 - Sound system, including microphones
 - Conference phone
 - Wireless Internet access
- Room set with employers in U-shape
- Catering or at least coffee/water
- Convenient location for those who will be face-to-face
- Ensure attendees have devices compatible for electronic voting



CONDUCTING THE KSA MEETING

Welcome from the program lead's supervisor or above as well as the lead

Self-introductions of all in the room and on the web meeting

Brief explanation of the BILT approach and how to vote

The **voting link** for KSA +Ts and expected time allowed

Discussion and Q&A (the bulk of the meeting)

Discuss next steps on **Faculty Cross Reference**

Schedule next meeting to provide feedback to BILT

CONDUCTING THE KSA MEETING

INVITATIONS

Send a calendar invitation with meeting details via email that includes

- WIIFM (value proposition)
- Whether or not there will be food
- Whether the meeting will be face-to-face or virtual or both (suggest both)
- Whether or not they need to bring a laptop or tablet for voting if on site



CONDUCTING THE KSA MEETING

TIMELINE FOR INVITATION FOLLOW-UP

Phone those who have not responded about 1 week after invitation sent to talk with them and ask them to attend

1 week in advance of KSA mtg and again 1 day in advance, send a reminder to all (except those who have declined) with...

- Agenda
- Meeting connection info (if supporting hybrid)
- Map and parking instructions



CONDUCTING THE KSA MEETING

AT LEAST ONE WEEK IN ADVANCE

Convert spreadsheet to voting form

- Ensure you are satisfied with the KSAs pro forma KSAs prior to changing it into the linked Google Form/Sheet (changes often require starting over)
- Convert spreadsheet to KSA voting form/sheet for upcoming KSA mtg using the video and instructions or seeking help from ITSS member
- Have staff members vote to test the form (their votes can be removed)



CONDUCTING THE KSA MEETING

MEETING ROLES

Industry Subject Matter Experts

Participate in ratings and discussion

Faculty Subject Matter Experts

Attend as active listeners

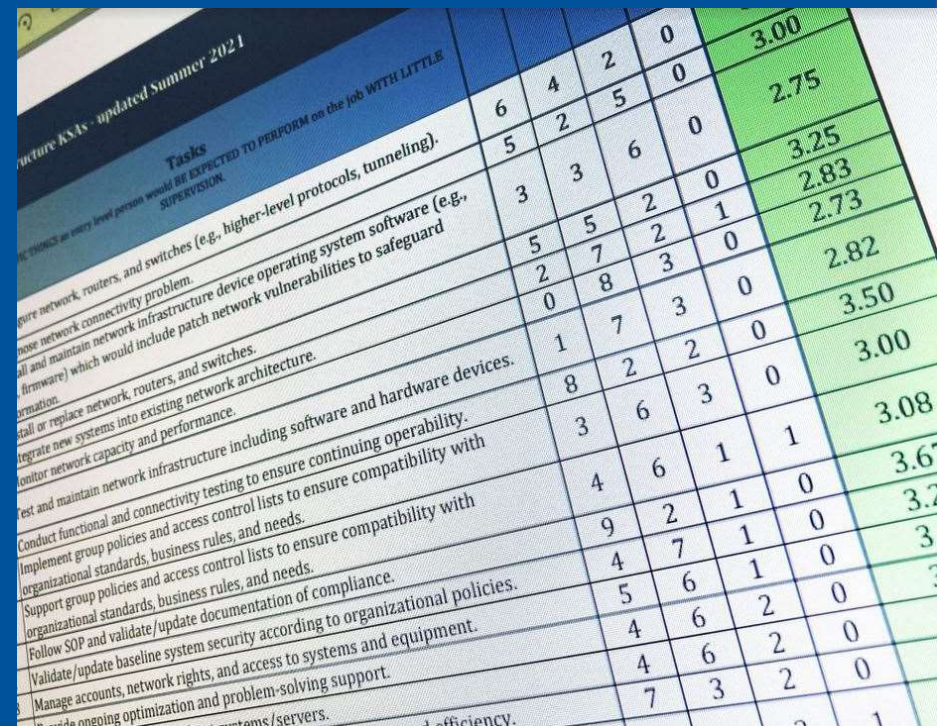
Facilitator

Process expert responsible for efficiency & effectiveness of meeting

Recorder/Minute-taker

Records discussion & prepares meeting minutes (Zoom recording)

KSA Spreadsheet Editor if available



The image shows a close-up of a spreadsheet titled "Structure KSAs - updated Summer 2021". The spreadsheet lists various tasks and their corresponding ratings. The tasks are listed in the left column, and the ratings are in the right columns. The ratings are color-coded in green.

Tasks	6	4	2	0	3.00
Configure network, routers, and switches (e.g., higher-level protocols, tunneling).	5	2	5	0	2.75
Configure network connectivity problem.	3	3	6	0	3.25
Install and maintain network infrastructure device operating system software (e.g., firmware) which would include patch network vulnerabilities to safeguard information.	5	5	2	0	2.83
Install or replace network, routers, and switches.	2	7	2	1	2.73
Integrate new systems into existing network architecture.	0	8	3	0	2.82
Monitor network capacity and performance.	1	7	3	0	3.50
Test and maintain network infrastructure including software and hardware devices.	8	2	2	0	3.00
Conduct functional and connectivity testing to ensure continuing operability.	3	6	3	0	3.08
Implement group policies and access control lists to ensure compatibility with organizational standards, business rules, and needs.	4	6	1	1	3.67
Support group policies and access control lists to ensure compatibility with organizational standards, business rules, and needs.	9	2	1	0	3.7
Follow SOP and validate/update documentation of compliance.	4	7	1	0	3
Validate/update baseline system security according to organizational policies.	5	6	1	0	?
Manage accounts, network rights, and access to systems and equipment.	4	6	2	0	?
Provide ongoing optimization and problem-solving support.	4	6	2	0	?
Provide ongoing optimization and problem-solving support.	7	3	2	0	?

CONDUCTING THE KSA MEETING

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 considers the following together:

- Importance
- Level of proficiency
- Time spent doing the skill
- Difficulty – how difficult is the skill to learn?

CONDUCTING THE KSA MEETING

TWO KEY ELEMENTS OF THE MEETING

VOTING is an essential part of the meeting, but...

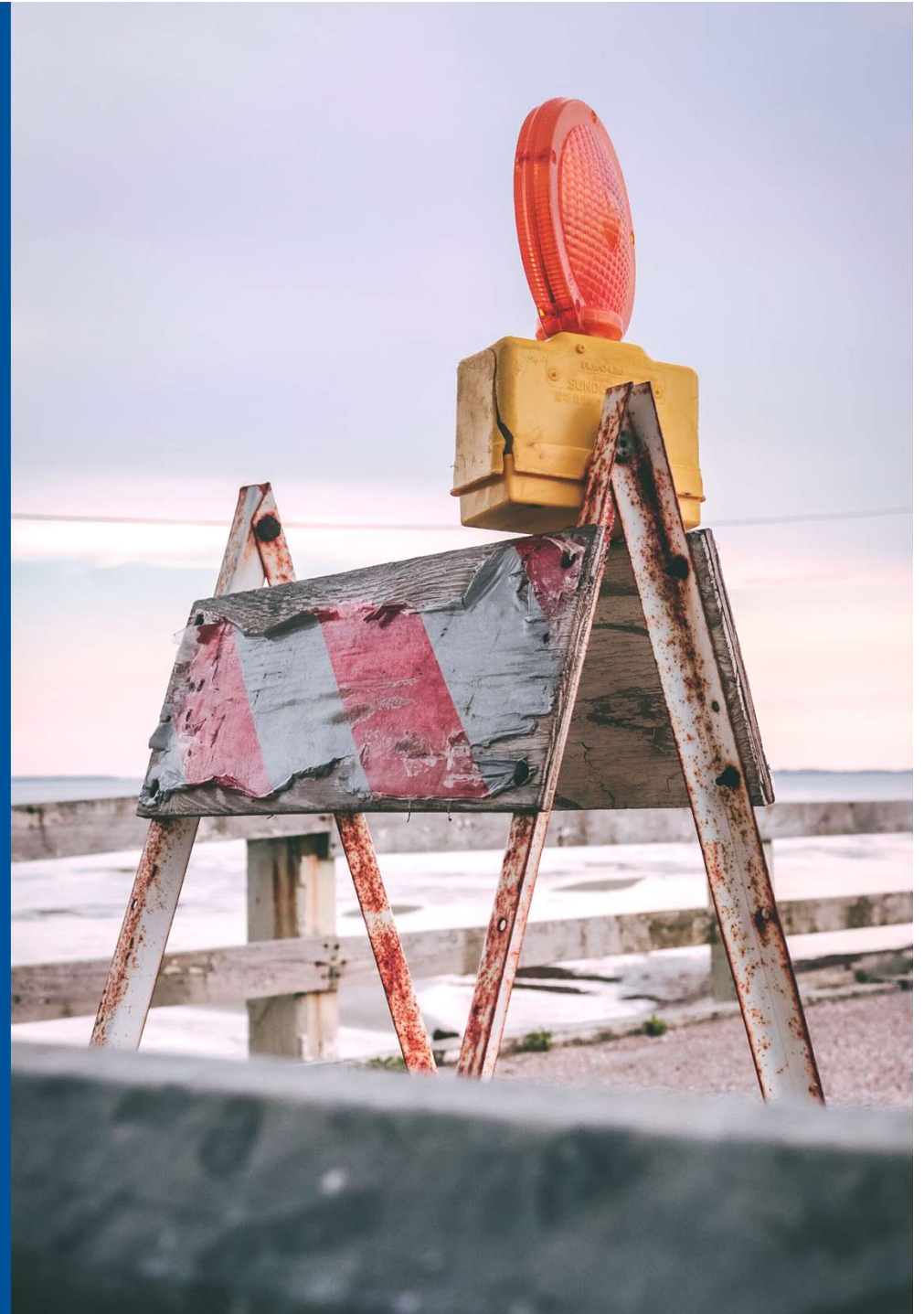
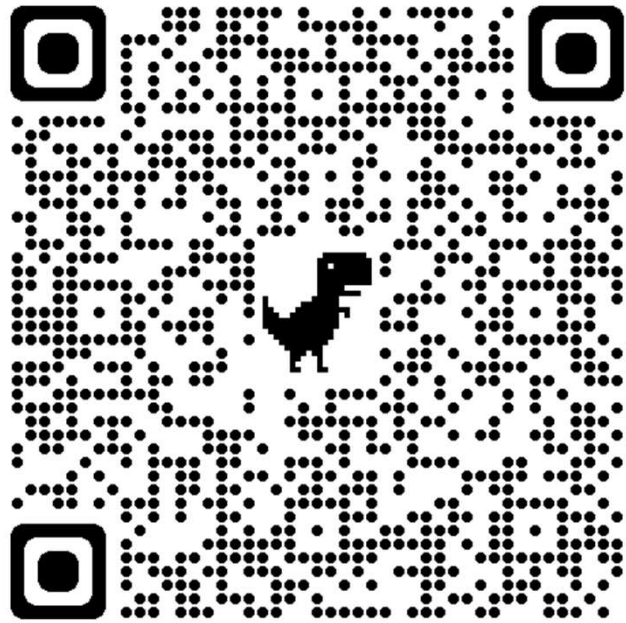
DISCUSSION is just as important

BILT members and the Facilitator can ask clarifying questions

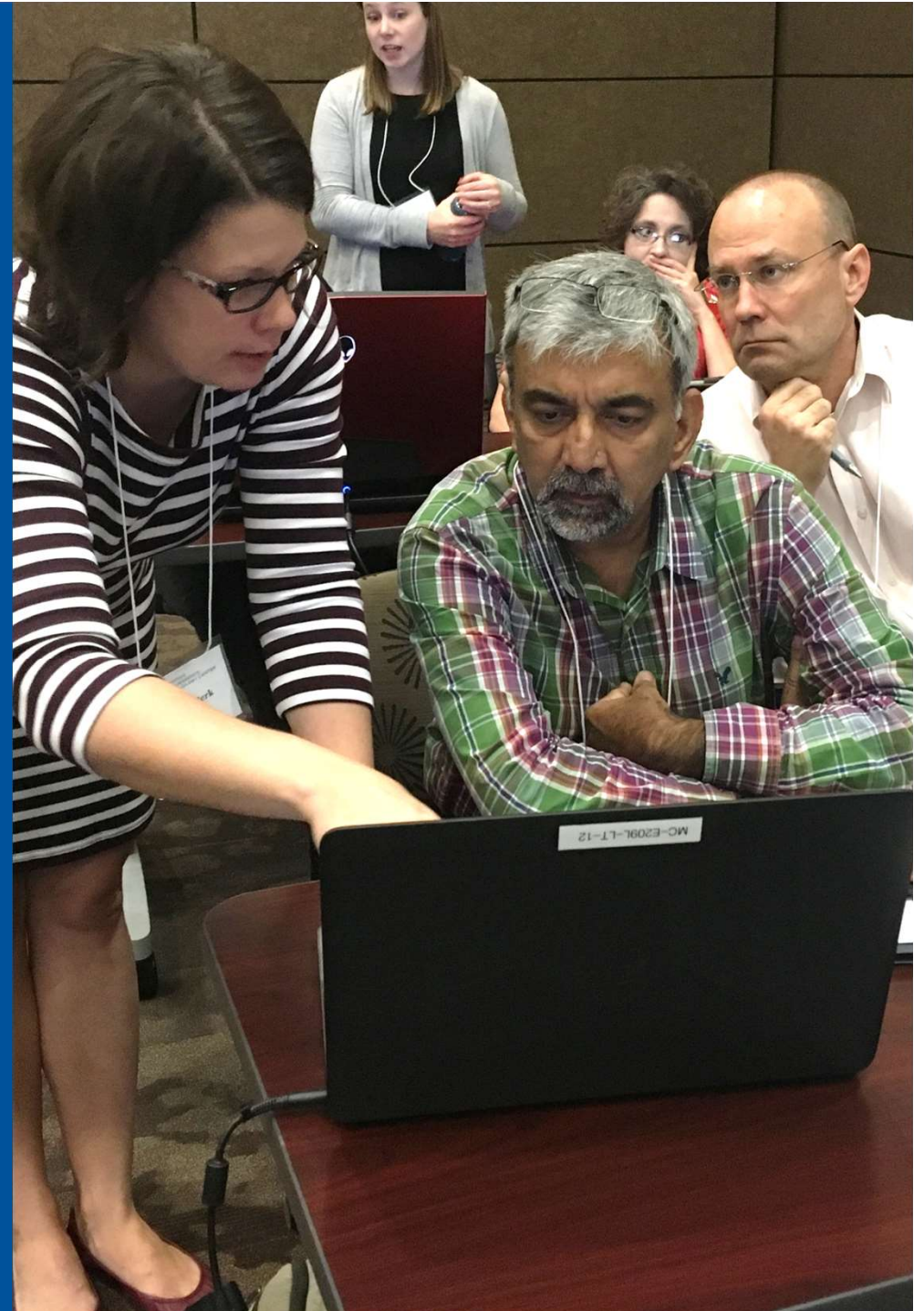
Tasks	6	4	2	0	Rating
Configure network routers, and switches (e.g., higher-level protocols, tunneling).	5	2	5	0	2.75
Configure network connectivity problem.	3	3	6	0	3.25
Install and maintain network infrastructure device operating system software (e.g., firmware) which would include patch network vulnerabilities to safeguard information.	5	5	2	0	2.83
Install or replace network routers, and switches.	2	7	2	1	2.73
Integrate new systems into existing network architecture.	0	8	3	0	2.82
Monitor network capacity and performance.	1	7	3	0	3.50
Test and maintain network infrastructure including software and hardware devices.	8	2	2	0	3.00
Conduct functional and connectivity testing to ensure continuing operability.	3	6	3	0	3.08
Implement group policies and access control lists to ensure compatibility with organizational standards, business rules, and needs.	4	6	1	1	3.67
Support group policies and access control lists to ensure compatibility with organizational standards, business rules, and needs.	9	2	1	0	3.7
Follow SOP and validate/update documentation of compliance.	4	7	1	0	3
Validate/update baseline system security according to organizational policies.	5	6	1	0	?
Manage accounts, network rights, and access to systems and equipment.	4	6	2	0	
Provide ongoing optimization and problem-solving support.	4	6	2	0	
Monitor network systems/servers.	7	3	2	0	
Efficiency.				1	

GROUP ACTIVITY

KSA VOTING PRACTICE



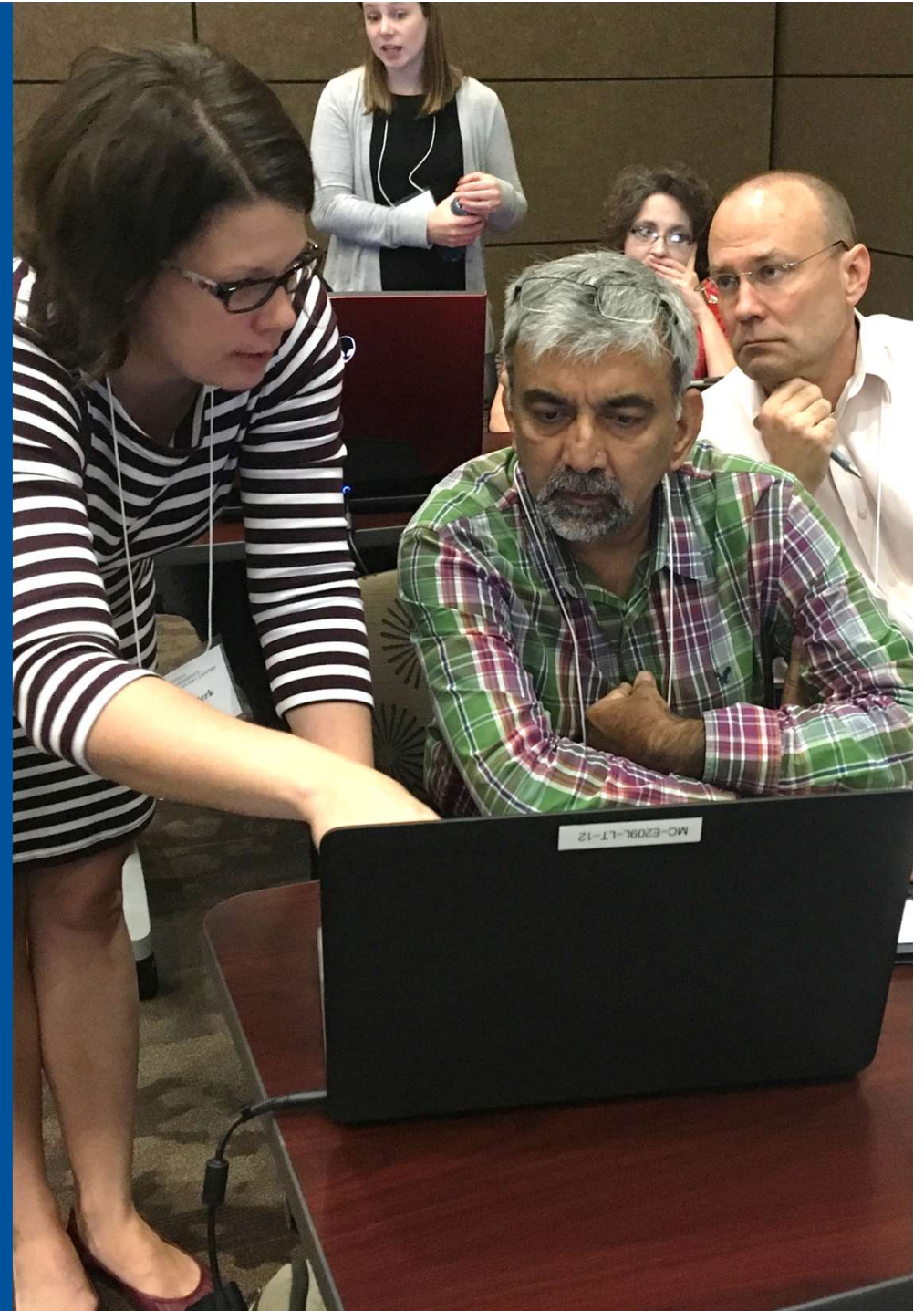
FACULTY CROSS REFERENCE



FACULTY CROSS REFERENCE

GUIDELINES

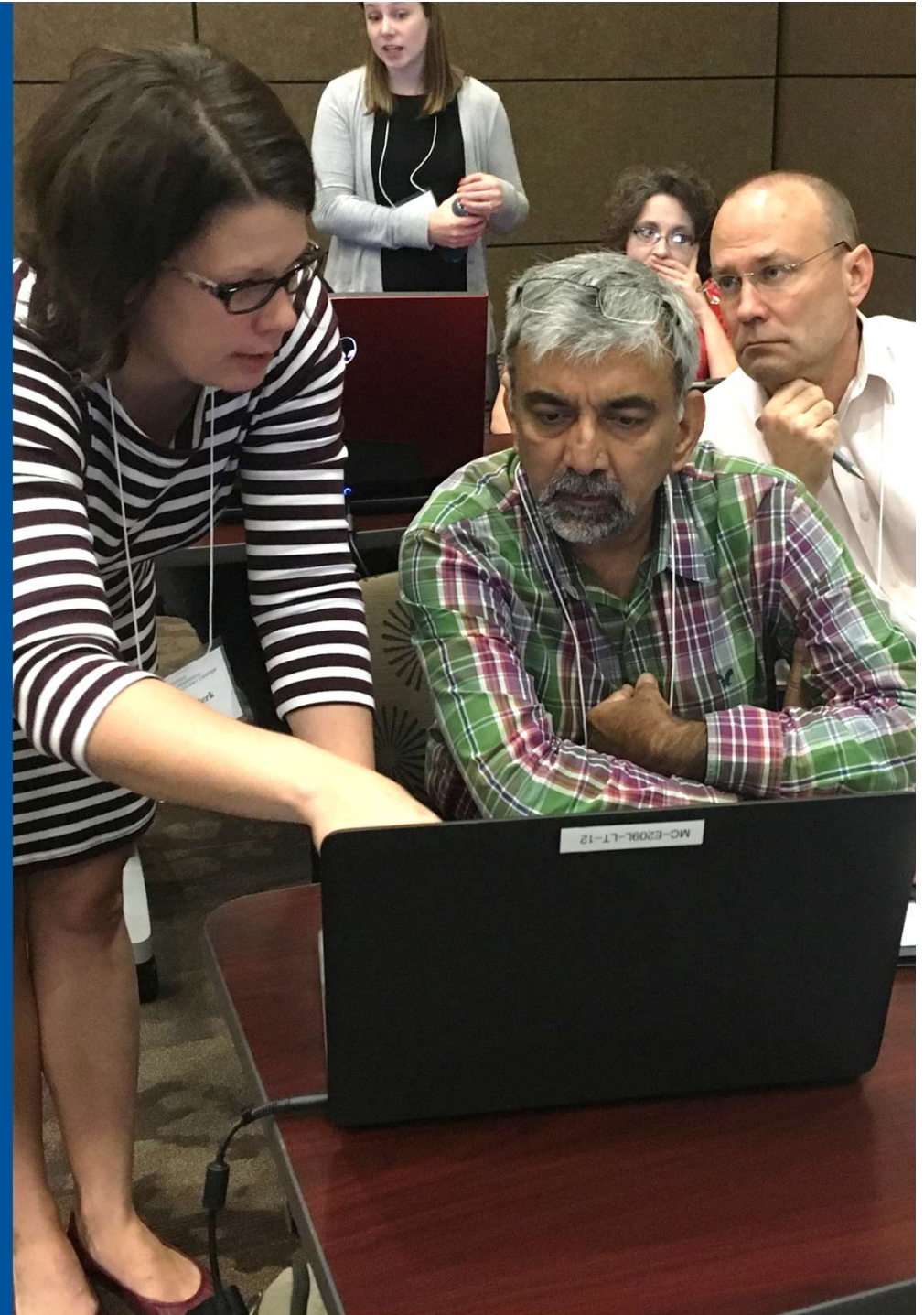
- Involve all faculty teaching in the program under consideration.
- Determine the KSA “cutoff” value (usually 2.6 to 3).
- For each KSA ranked above the cutoff, consider each course in the program one at a time and mark:
 - “E” for exposure coverage
 - “T” for thorough coverage
 - Blank for no coverage



FACULTY CROSS REFERENCE

FEEDBACK FORMS

- Cross-reference file showing “E” and “T” indicators for prioritized KSAs
- Highlight rows showing only “E” coverage with light tan, and highlight rows with no coverage in red.
- Feedback form for program with multiple certificates and/or degrees



K or S	Explanation/Clarification		293	295	181	344	345	241	242	127	143	144	223	304	345	243	347	316	Es
		Avg.																	
K-1	Knowledge of how to identify the machining motion of a 3 axis CNC mill and a 2 axis CNC Turning Center	3.875	E	E		E	E		E					E	E	T	T		
K-2	Knowledge of how to identify the 4 quadrants of rectangular coordinate programming.	3.125				E	E		E						E	T	T		
K-3	Knowledge of how to identify CNC Milling machine and CNC Turning Center components.	3.375	E	E										E					
K-4	Knowledge of how to recognize incremental and absolute positioning.	3.250				E	E		E						E	T	T		
K-5	Knowledge of how to identify the proper coolant, oil, and air supply levels for CNC mills and turning centers.	3.000	E	E										E					

IMPLEMENTATION CHALLENGES



IMPLEMENTATION CHALLENGES

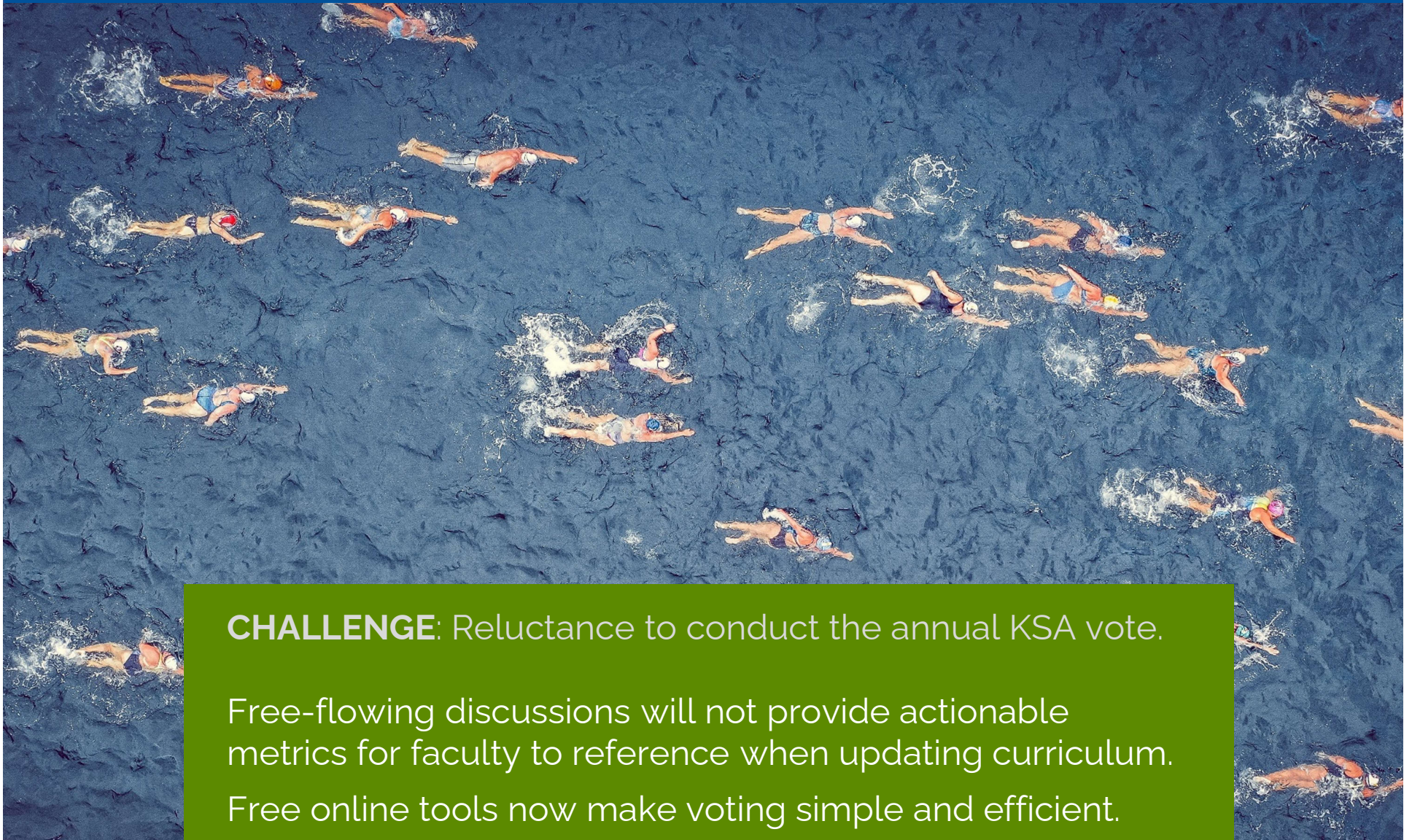


CHALLENGE: Reluctance to schedule frequent meetings.

Meetings don't have to be an elaborate in-person event – virtual meetings work.

Takes time to build relationships. Strive for quarterly.

IMPLEMENTATION CHALLENGES



CHALLENGE: Reluctance to conduct the annual KSA vote.

Free-flowing discussions will not provide actionable metrics for faculty to reference when updating curriculum.

Free online tools now make voting simple and efficient.

IMPLEMENTATION CHALLENGES



CHALLENGE: Inability to find committed employers.

Once BILT members understand their voice is heard and realize they are co-leading the program, they will commit.

Address BILT members' "WIIFM" – what's in it for me?

IMPLEMENTATION CHALLENGES



CHALLENGE: Difficulty getting institutional buy-in.

Start small to build your case for wider implementation.
The BILT model's success will inspire copycat adoption.
Recruit a faculty "influencer" that others follow.

IMPLEMENTATION CHALLENGES



CHALLENGE: Faculty fear losing control to employers.

BILT meetings focus on the KSAs, not course content.

Educators remain the classroom experts – they decide how and when to teach the BILT's requested KSAs.

WHAT WE LEARNED

- The essential elements of the BILT model
- Key differences between business advisory councils and BILTs
- Strategies to recruit employers (and other stakeholders) to embrace and adopt the BILT
- Best practices for planning and hosting the annual KSA meeting
- How the online KSA vote works
- Steps for cross-referencing KSA vote results with curriculum
- Ways to overcome common BILT implementation challenges



ATTRIBUTION

Select content from this presentation was developed by



Pathways to Innovation
NSF Grant (DUE 2039395)



RESOURCES

Implementing the BILT Model of Business Engagement



SURVEY

<https://forms.gle/LySaDsF6MnANPASRA>



CONTACT US

HOW TO GET IN TOUCH

CTC website
www.connectedtech.org

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