

The BILT Model: Maximizing Employer Relationships to Make Students Workforce Ready

HITEC July 2023



NATIONAL
CONVERGENCE
TECHNOLOGY CENTER



AGENDA

TODAY'S TOPICS

Introduction and background

The BILT Model explanation

Common implementation challenges

Next steps for you

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 – 100
colleges in 32 states

All work is co-led by IT business
leaders

Free professional development for
IT faculty (21st year)

MAJOR GOAL FOR ALL TECHNICAL PROGRAMS



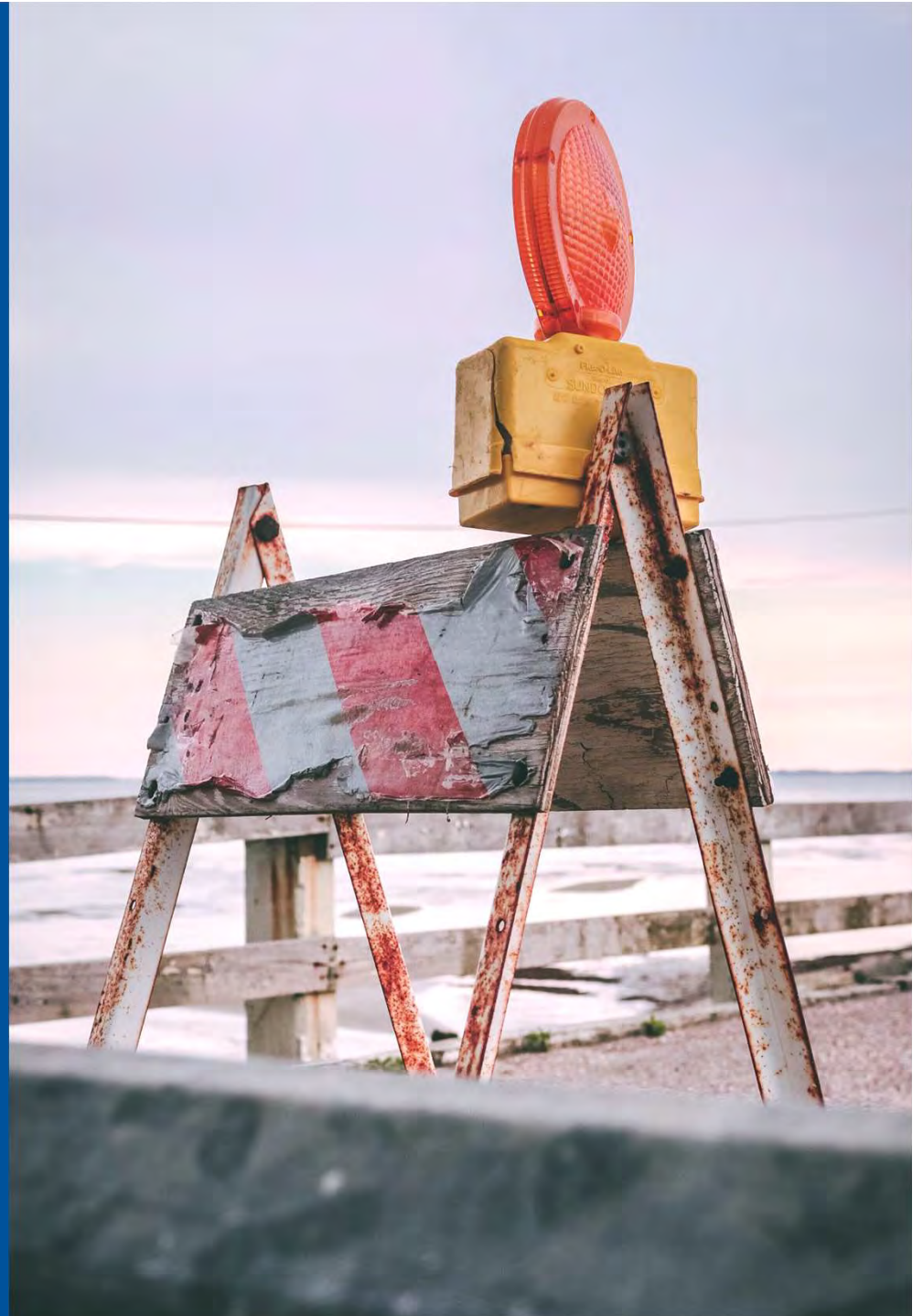
STUDENTS completing certificates and degrees and well-qualified for ready employment



BUSINESSES highly engaged

WORKING WITH EMPLOYERS

What challenges are you facing in dealing with your employers?



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.



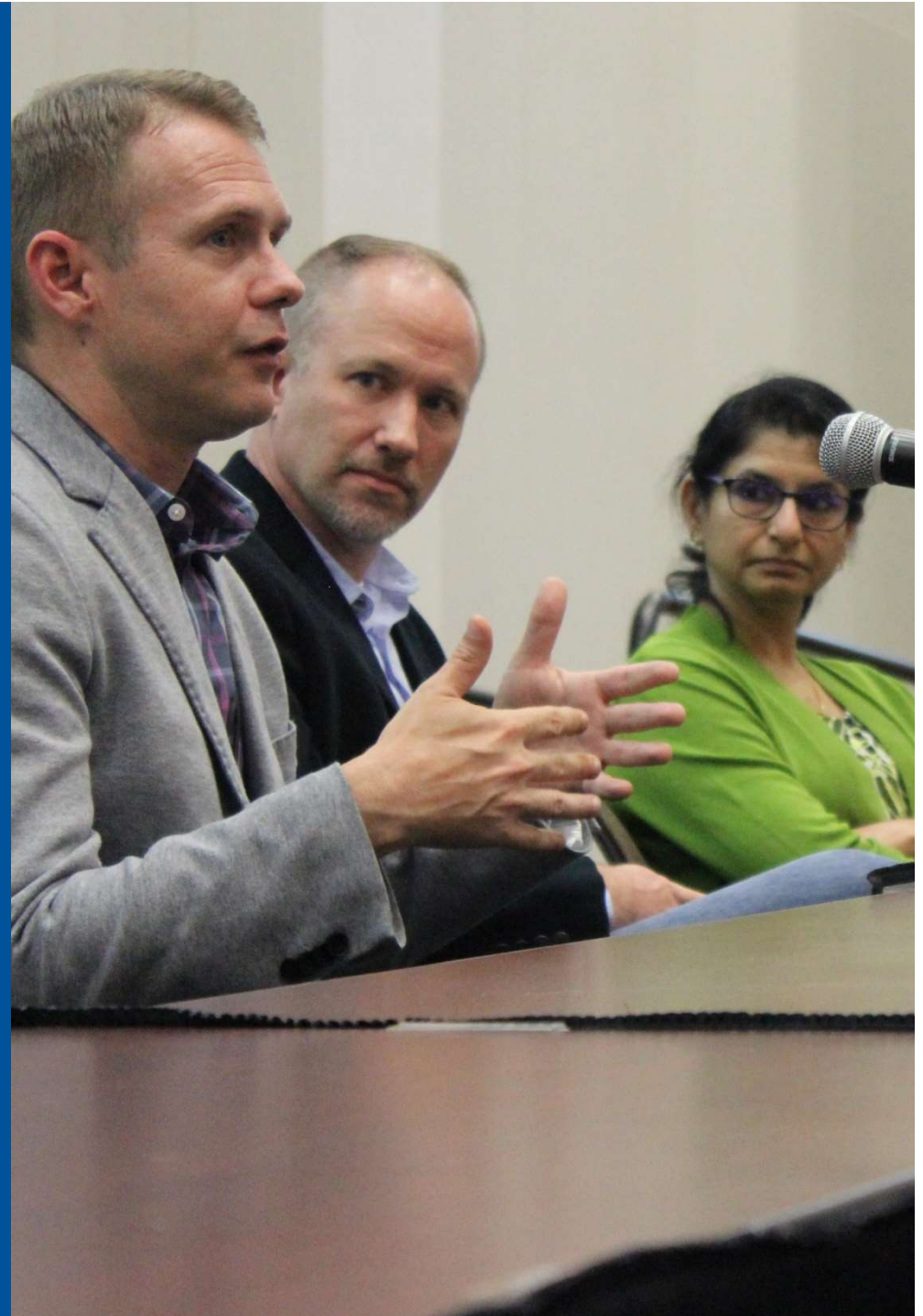
EMPLOYERS

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.

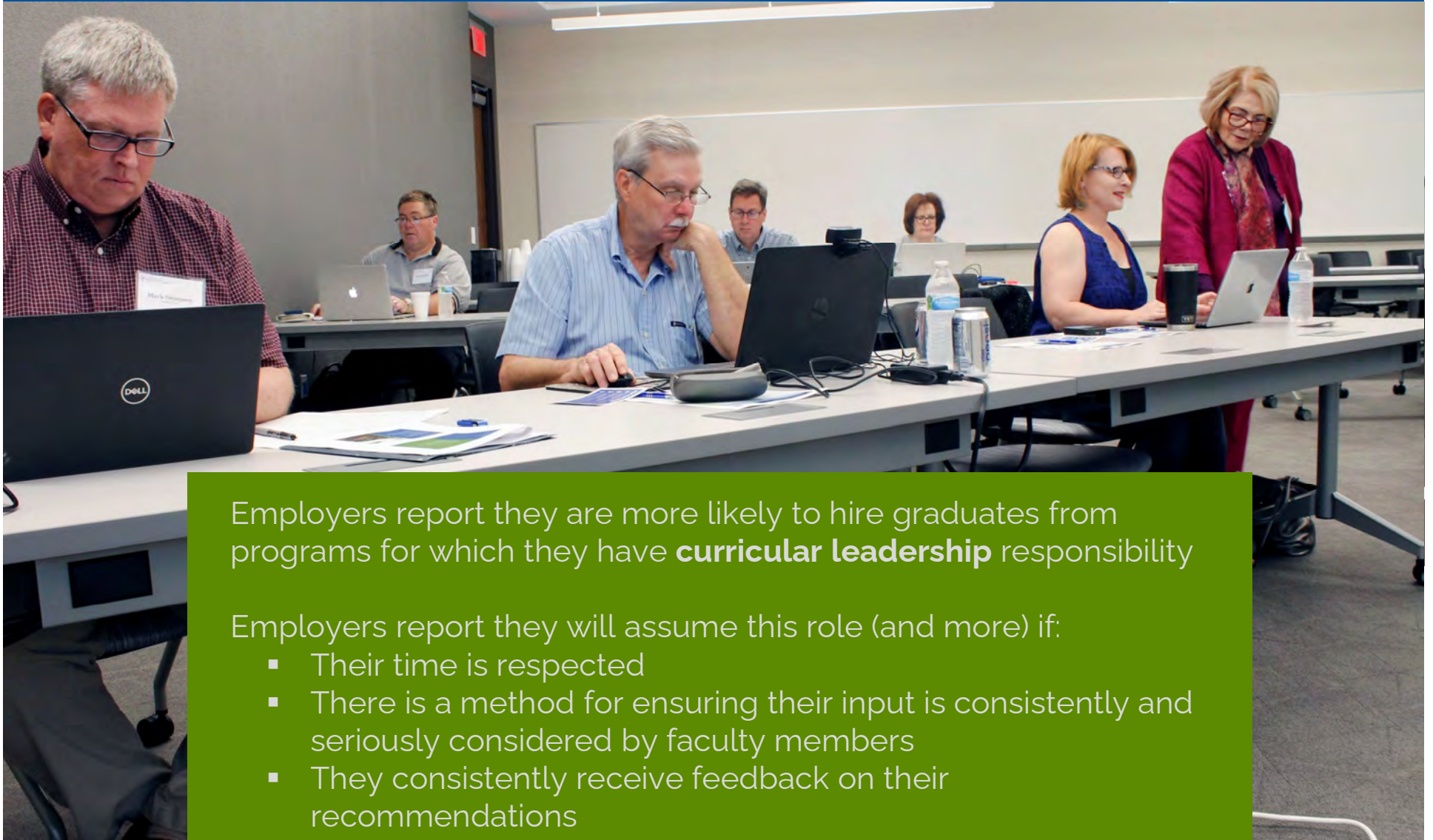


Students are first to be considered for internships and job openings.



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

THE **BILT** MODEL ESSENTIALS

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

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

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/ov/mbil/DCSA_SF-86%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.



	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.



Kor S	Explanation/Clarification		232	295	101	344	345	241	242	127	143	144	223	304	345	243	347	316	Ex
		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

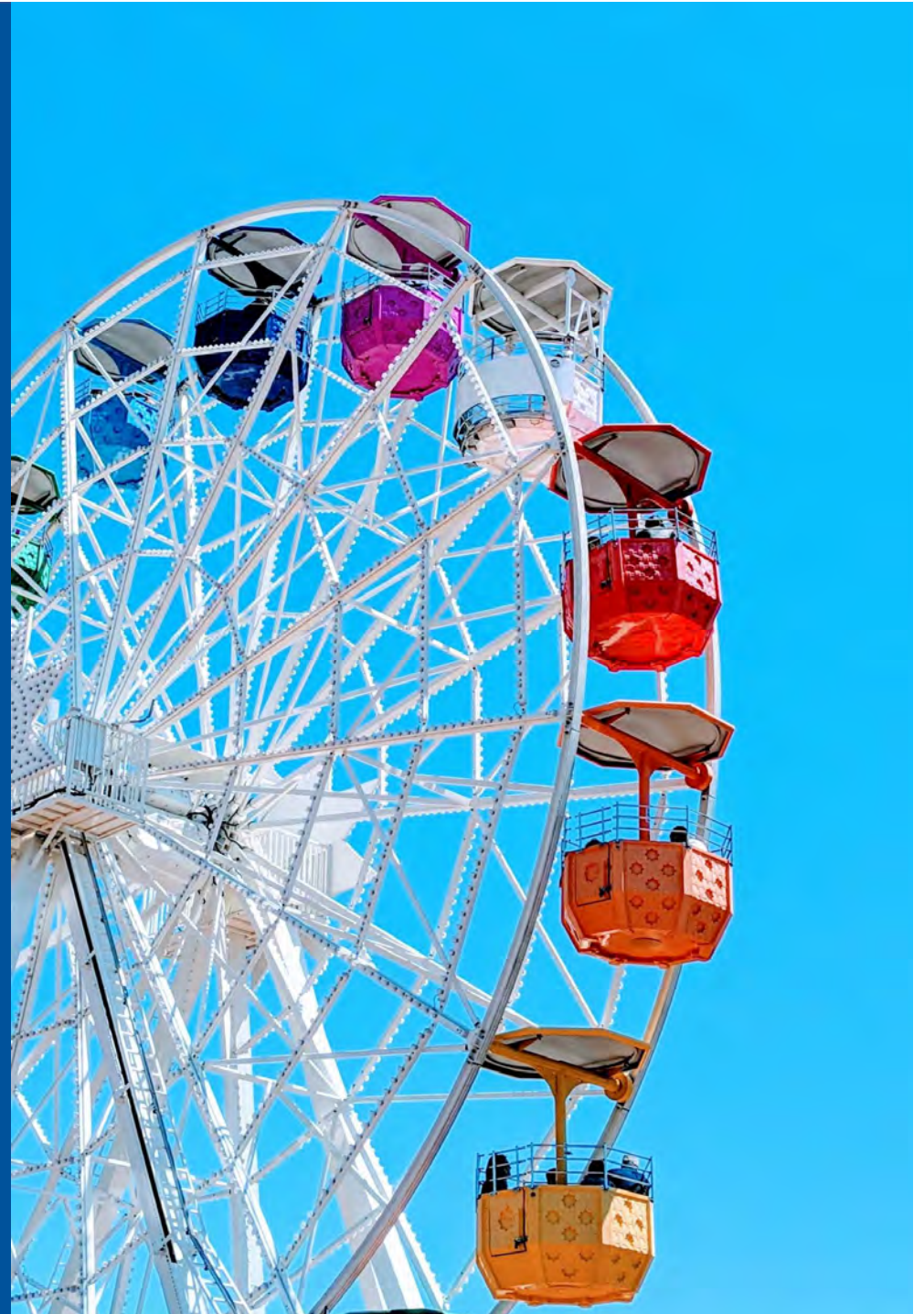
Regularly informed on how suggestions implemented

BILT MEETING CYCLE

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

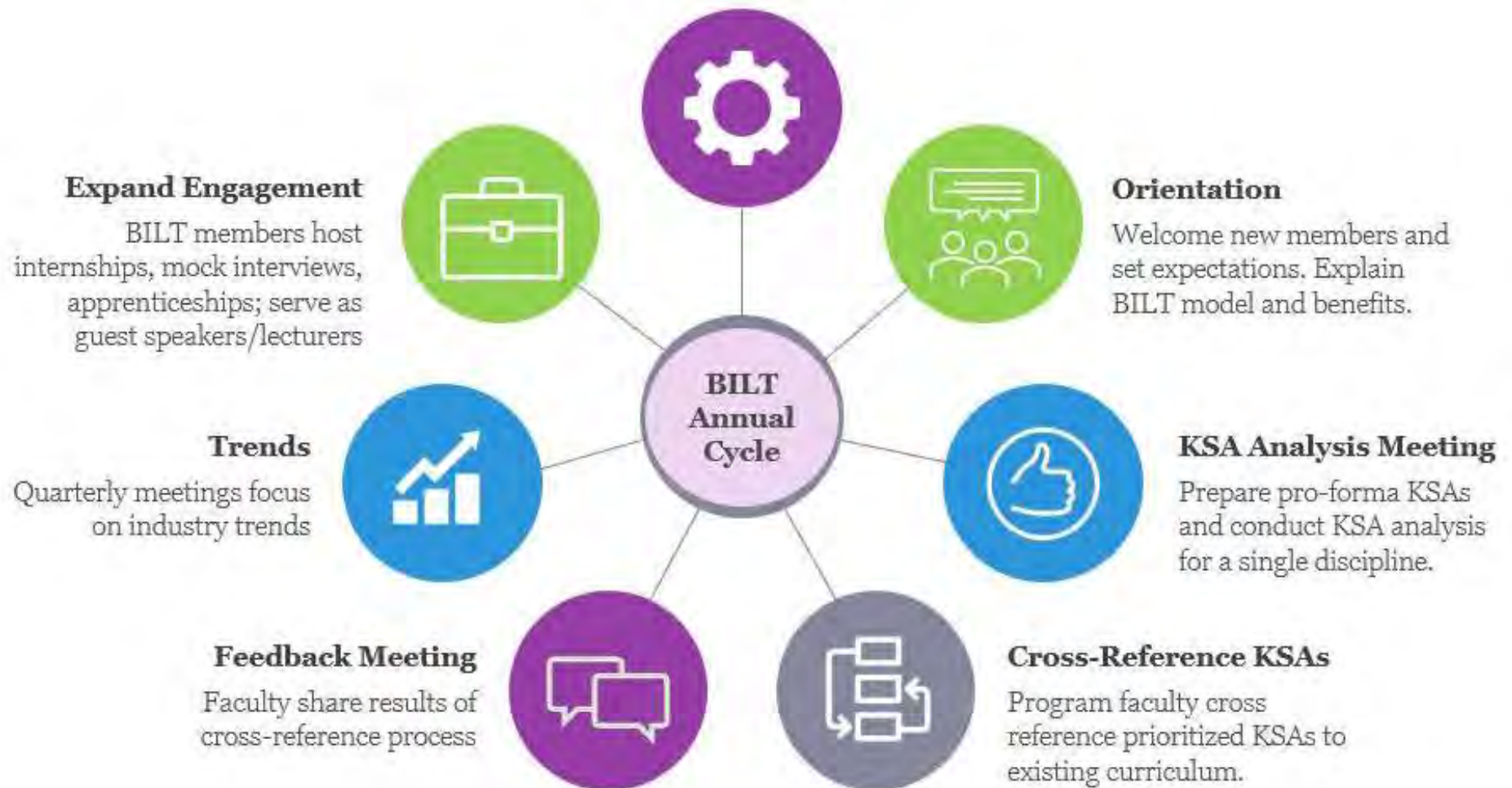
- Annual KSA analysis meetings held in hybrid mode in person for those who are able and web-meeting software for others (a single 2 - 2½-hour meeting per year)
- Industry Trends meetings are held 2-3 times per year via web-meeting software.

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.



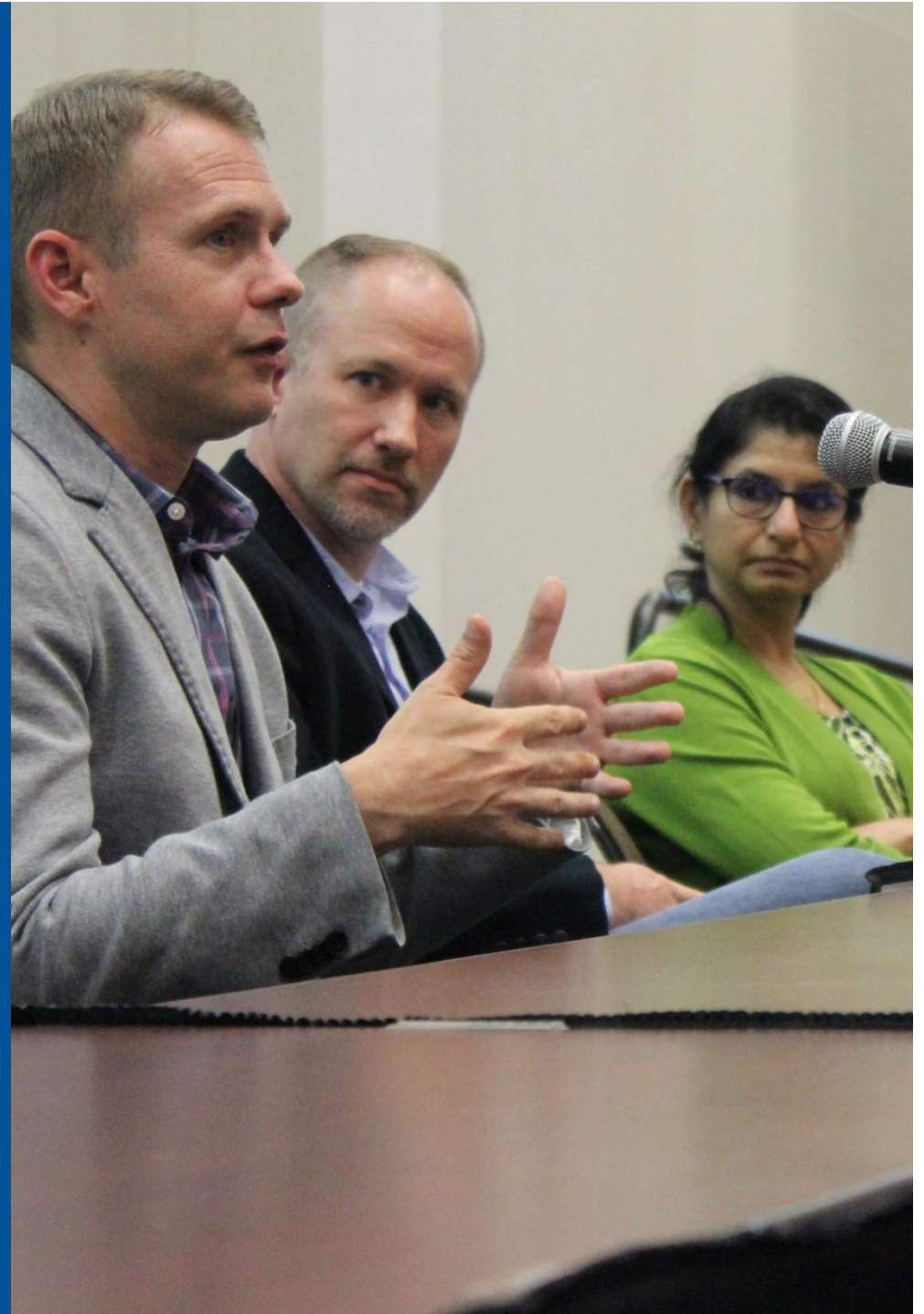
IDENTIFYING THE RIGHT BILT MEMBERS

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

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

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

Mindful of DEI.



IDENTIFYING THE RIGHT BILT MEMBERS

Work with area groups that connect with employers.

You can also create a value proposition script and cold-call appropriate local businesses.



College president and Board of Trustee members
(ask permission first)

Chambers of commerce

Economic development organizations

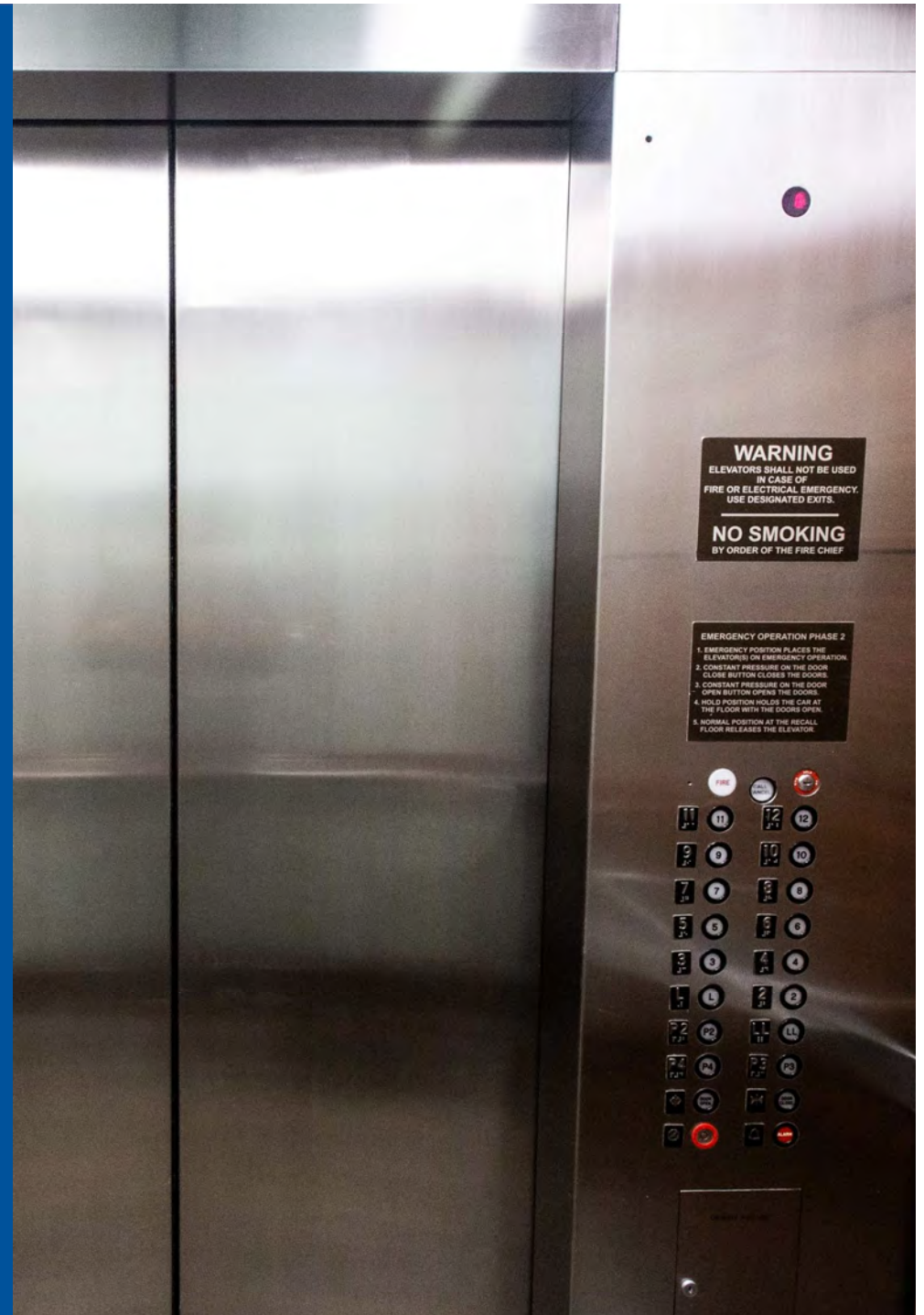
Discipline-specific professional associations

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



LOGISTICS

PLANNING THE MEETING

- 8:30am works best for the National CTC
- Feed them well, even if it's just drinks and snacks
- Use phone calls and snail mail for newer members (send e-mail as a backup)
- Develop a “WIIFM” value proposition for BILT prospects – what's in it for me?



LOGISTICS

MANAGING THE KSA VOTE MEETING

- KSAs = knowledge, skills, and abilities
- BILT discusses the KSAs, not the courses
- Focus on entry-level skills 12-36 months out
- Start with a pro forma list, not a blank wall – let the BILT edit, add, delete



LOGISTICS

MANAGING THE KSA VOTE MEETING

- Employers rank job skills on a scale of 1-4 (4 = most important), then discuss the results
- Vote and discuss KSAs synchronously – hybrid format works with some in the room and some on the phone
- Consensus is not the goal



LOGISTICS

REPORTING BACK TO THE BILT

- Faculty meet to consider each KSA to ensure all are being covered, and address any possible gaps
- Give feedback to the BILT regarding the KSA recommendations – what did you do, what can't you do?
- Make the BILT feel heard and valued



IMPLEMENTATION CHALLENGES

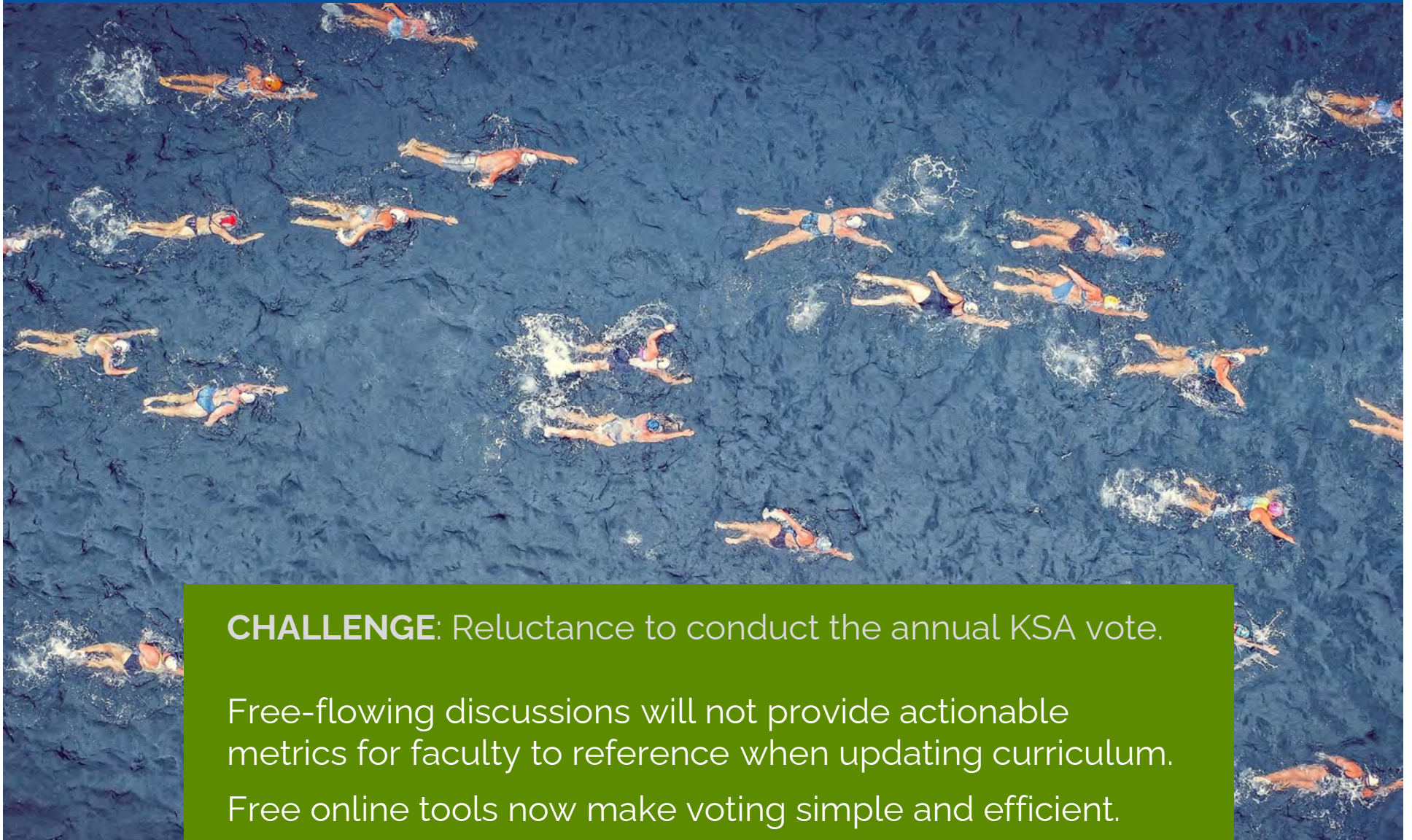
A silhouette of a person climbing a dark rock face against a bright, orange-hued sunset sky. The person is positioned on the right side of the frame, facing left, and is using ropes and gear to ascend. The sky is a gradient of warm colors, from light orange to a darker, hazy blue at the top.

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.

VOTE TEST DRIVE

<https://forms.gle/h4P6zybdoTKkWwJ46>



WHAT CAN YOU DO?

Be sure your BILT is sufficiently focused (one BILT per sub-discipline) and appropriately diverse

Schedule quarterly meetings

Invite faculty to attend your meetings

Allow BILT members to regularly share perspectives on future trends

Conduct annual job skills validation

Crosswalk those updated skills to curriculum and make adjustments

Report back to the BILT – ensure they feel heard and valued



RESOURCES

Implementing the BILT Model of Business Engagement



CONTACT US

HOW TO GET IN TOUCH

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