BILT
Business & Industry Leadership Team

The NITIC Expression

The BILT Model
Leagues Conference
March 11th, 2025

NITIC
National Information Technology Innovation Center

Introductions

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Agenda

- Introduction and NITIC background
- The BILT Model explanation
- Common implementation challenges
- Next steps for you

NITIC

National Information Technology
Innovation Center

Working together

to prepare the IT professionals of tomorrow

National IT Innovation Center

- The National Science Foundation's (NSF) Advanced Technological Education (ATE) program supports centers across the U.S. to define and disseminate the critical knowledge and skills required for technician education in advanced technology industries.

- NITIC is led by **Columbus State Community Colleg**e and our core partners:
  - Collin College
  - Lone Star College
  - Maricopa Community College District
  - Sinclair Community College

NSF

NITIC
National Information Technology Innovation Center

NITIC will create valuable products and deliverables that will advance knowledge in IT education, including the following:

IT Innovation Network

Join the IT Innovation Network (ITIN) and be part of our Community of Practice for faculty sharing, learning, and problem-solving.

Innovation Clearinghouse

Access or share new IT curriculum assets and resources in the Innovation Clearinghouse.

Professional Development

Take advantage of Professional Development opportunities, including Working Connections Virtual and In-Person Workshops.

Business Industry Leadership Teams

Stay up to date on industry needs and employer engagement through Business Industry Leadership Teams (BILT).

National IT Innovation Center

“Working together to prepare the IT professionals of tomorrow”

NITIC is a collaborative community of educators, industry leaders, government agencies, and other IT stakeholders that are working together to **prepare tomorrow’s workforce for jobs in emerging technologies.** By leveraging a network of community colleges and providing access to industry-driven competencies, innovative methodologies, technical resources, and professional development opportunities, **NITIC will lead the advancement of qualified technical programs** that cultivate a skilled, **all-**inclusive, and forward-thinking IT workforce, ready to thrive and lead in the dynamic technology landscape ahead.

Trending in IT

Generative and Agentic AI	Machine Learning Security	Ethics in AI & Cyber	Micro services and Containerization
IT/Operational Tech	Integrated Sensing and Communications (ISAC)	Data Analytics & Visualization	Professional Skills
Student Recruitment & Retention	Industry Partnerships	Quantum Computing	High Speed Skills Transformation

FIVE I.T. TRENDS - Winter 2022

NATIONAL CONVERGENCE TECHNOLOGY CENTER

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-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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WORKING WITH EMPLOYERS

What challenges are you facing in dealing with your employers?

WHAT IS A BILT?

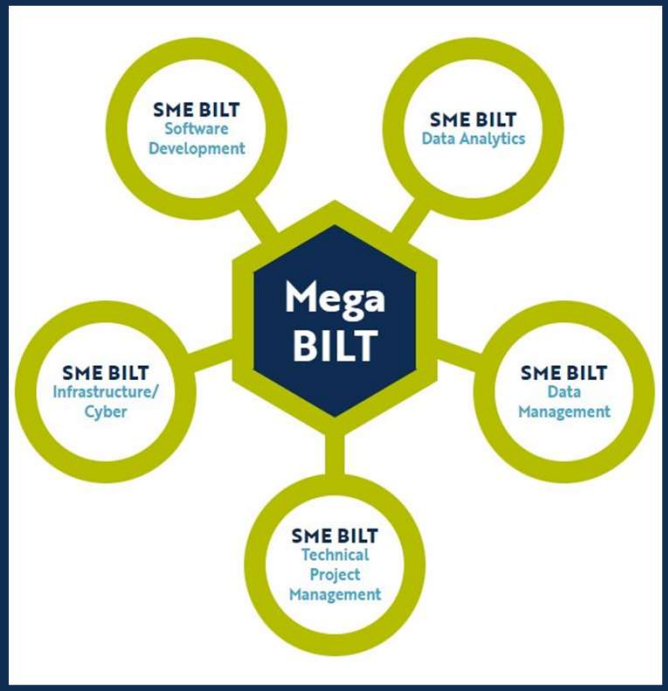
Business and Industry Leadership Team

1. A business advisory council “on steroids” whereby employers co-lead the program.
2. A structured, repeatable process that can be used for any technical program.
3. A model that puts employers in a co-leadership role that greatly increases their engagement with your program.
4. A method to both ALIGN curriculum to industry needs and BUILD lasting relationships with employers.

Business and Industry Leadership Teams

- BILT Overview
- NITIC's National BILT
  - Mega BILT and SME BILTs
  - BILT Results
- Local BILT Implementation Support
  - Toolkit

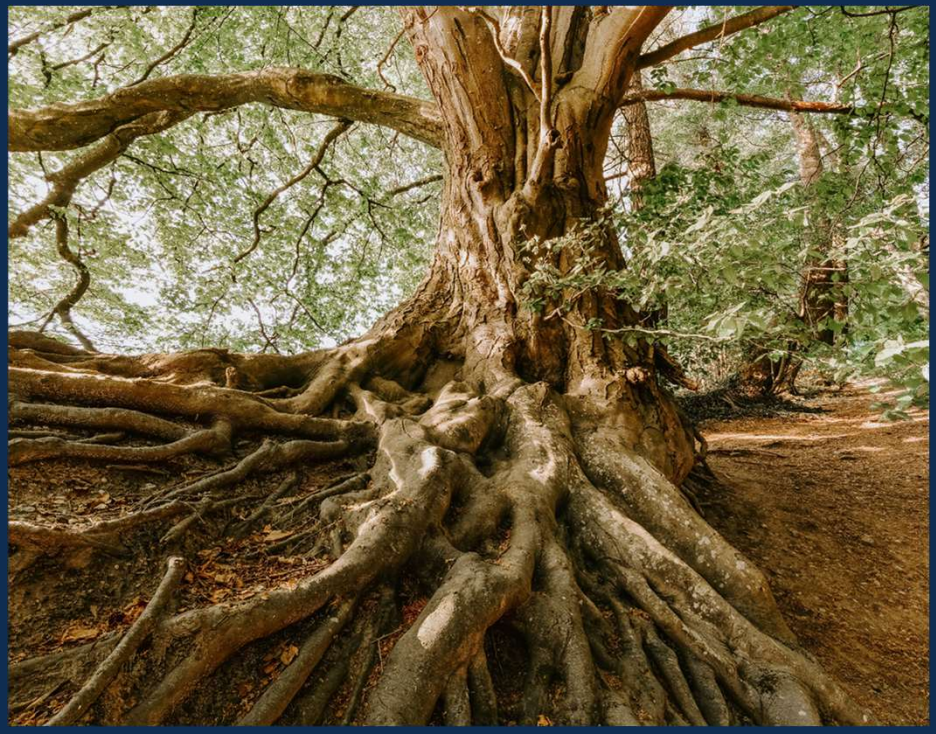
Website Link: BILT Overview - NITIC



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 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

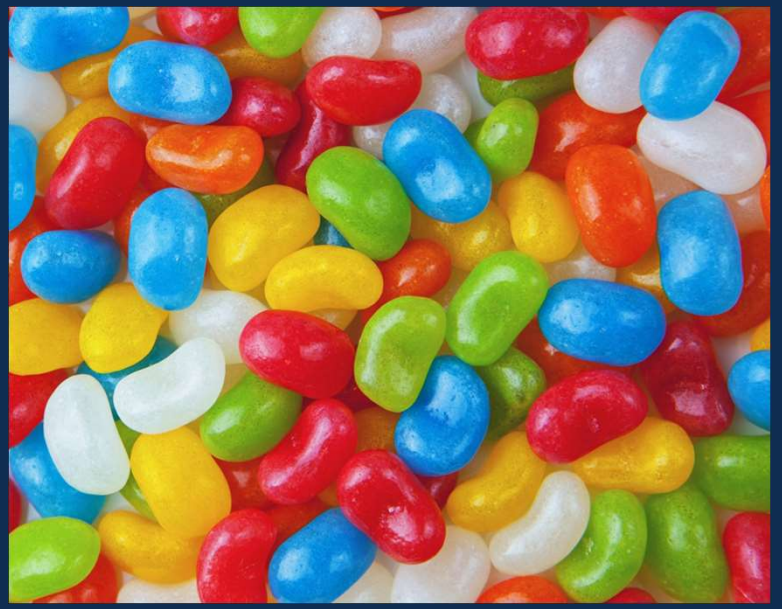


DIFFERENT FLAVORS

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.



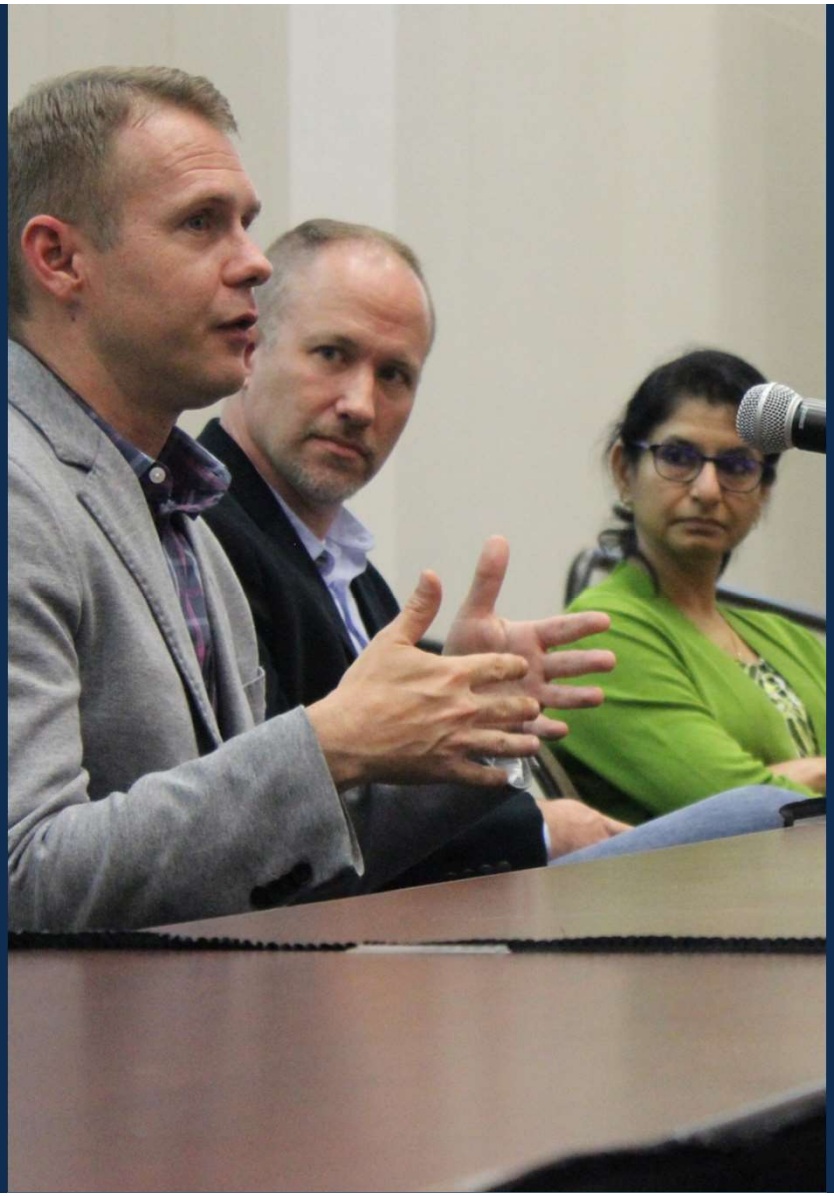
EMPLOYERS

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/ talent

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

Students are first to be considered for internships/ apprenticeships 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 3-4/yr (shorter trends meetings 2-3/yr + 1 longer KSA vote meeting)

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

INVITE faculty to hear from employers first-hand at KSA meetings

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

MAP the prioritized KSA list to current curriculum to inform alignment

GIVE feedback to the BILT regarding how their KSA prioritization was used

THE BILT MODEL ESSENTIALS

CONVENE 3-4x annually

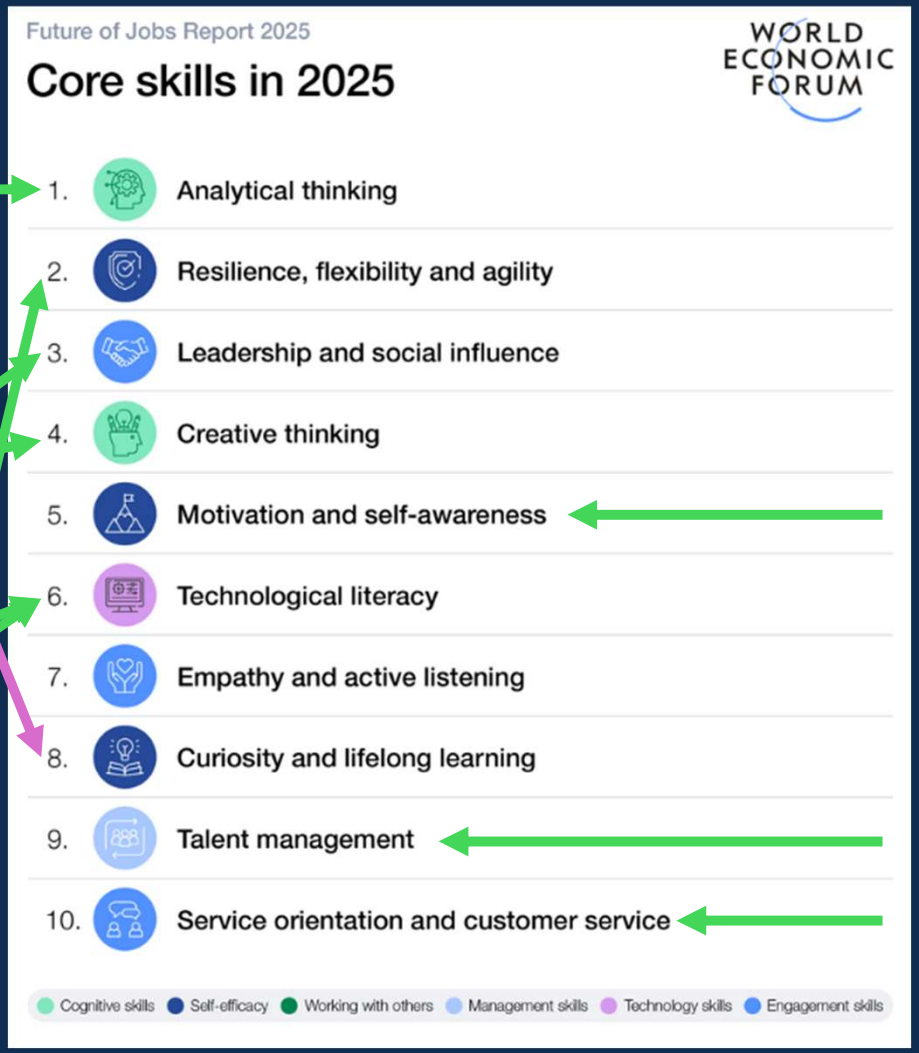
Avoid “out of sight, out of mind.”

Meeting format as appropriate

2-3 shorter meetings for trends,
1 longer meeting for KSAs.

Skills Trends 2020....

1. Analytical thinking and innovation
2. Active learning and learning strategies
3. Complex problem-solving
4. Critical thinking and analysis
5. Creativity, originality and initiative
6. Leadership and social influence
7. Technology use, monitoring and control
8. Technology design and programming
9. Resilience, stress tolerance and flexibility
10. Reasoning, problem-solving and ideation




Future of Jobs Report 2025
Core skills in 2025
WORLD ECONOMIC FORUM
1. Analytical thinking
2. Resilience, flexibility and agility
3. Leadership and social influence
4. Creative thinking
5. Motivation and self-awareness
6. Technological literacy
7. Empathy and active listening
8. Curiosity and lifelong learning
9. Talent management
10. Service orientation and customer service
Cognitive skills
Self-efficacy
Working with others
Management skills
Technology skills
Engagement skills
Future of Jobs Report 2025
Top 10 fastest growing skills by 2030
WORLD ECONOMIC FORUM
1. AI and big data
2. Networks and cybersecurity
3. Technological literacy
4. Creative thinking
5. Resilience, flexibility and agility
6. Curiosity and lifelong learning
7. Leadership and social influence
8. Talent management
9. Analytical thinking
10. Environmental stewardship
Cognitive skills
Self-efficacy
Working with others
Management skills
Technology skills
Ethics

THE BILT MODEL ESSENTIALS

DISCUSS TRENDS

Shorter meetings allow time for BILT members to share perspectives on industry trends.

Help keep educators better understand what's coming.

THE BILT MODEL ESSENTIALS

INVITE FACULTY

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

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

Curriculum adjustments are guided by gaps.

K or S	Explanation/Clarification		293	295	161	344	345	241	242	127	143	144	223	304	346	243	347	316	E's
		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					

Voting Test-Drive

KS Rankings

4 The KS must be included in the curriculum

3 The KS really should be included in the curriculum

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

1 The KS can be left out of the curriculum entirely

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

Synchronize BILT intel for output

- Analyze "Mega-BILTs" for broad program discussions and trends.
- Build and analyze "sub-BILTs" to look at specific KSAs for your specific disciplines'
- Synchronize input with additional sources of trends intel

"Your" BILT Meetings…example

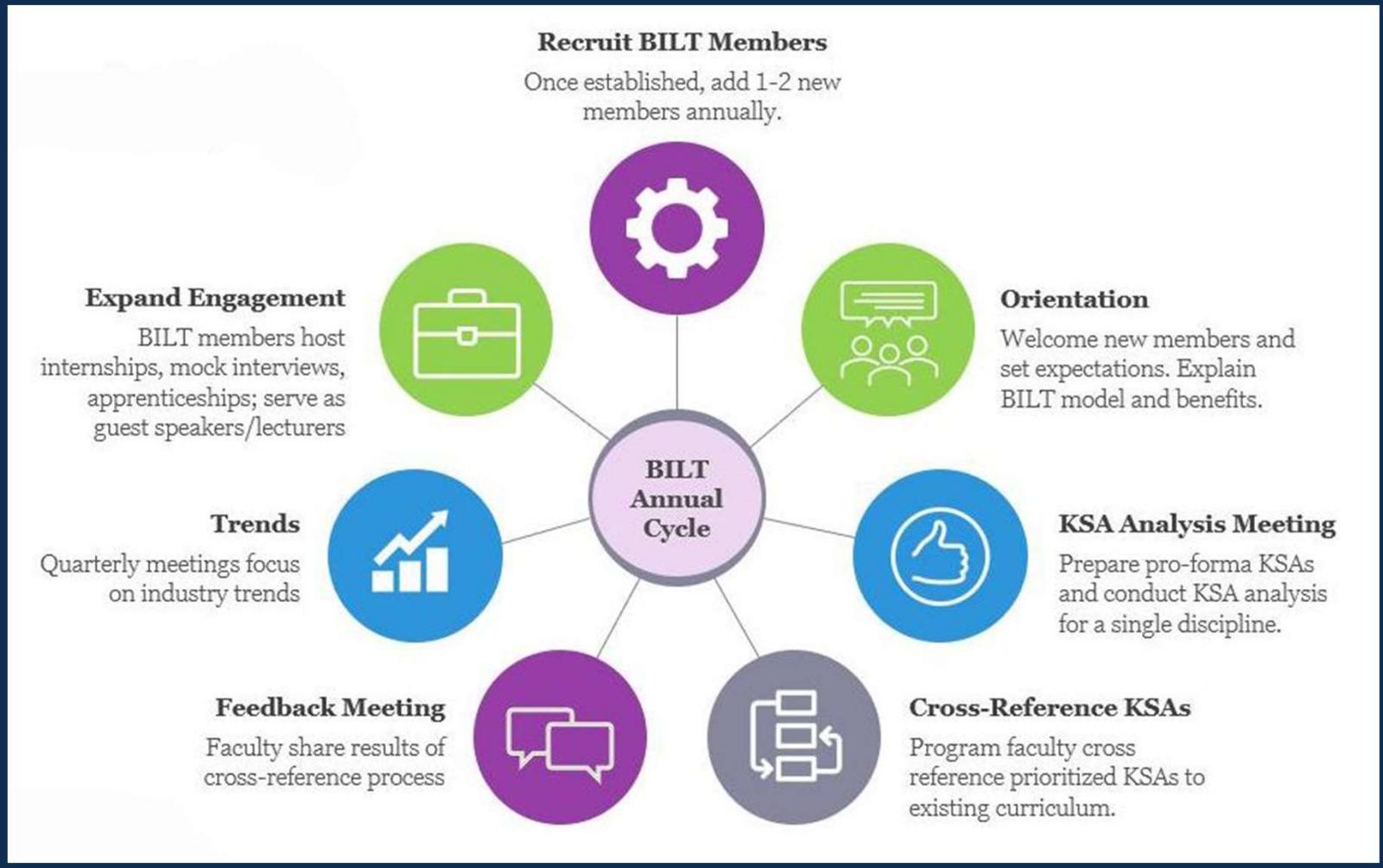
Spring Mega-BILT trends meeting …combined	and	Summer Mega-BILT trends meeting …combined	FALL Separate BILT KSA meetings
Networking SME BILT + Programming SME BILT + SECURITY SME BILT		Networking SME BILT + Programming SME BILT + SECURITY SME BILT	Networking BILT Programming BILT SECURITY BILT

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

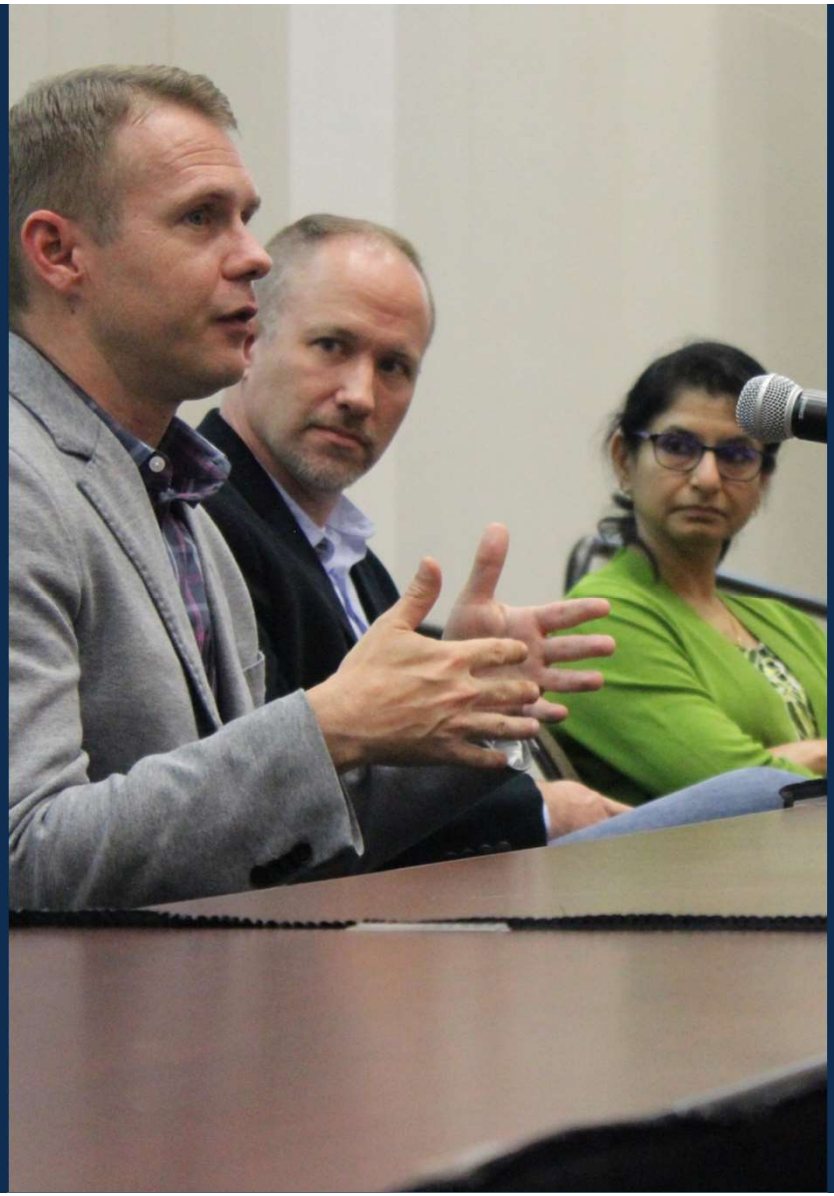

Recruit BILT Members
Once established, add 1-2 new members annually.
Orientation
Welcome new members and set expectations. Explain BILT model and benefits.
KSA Analysis Meeting
Prepare pro-forma KSAs and conduct KSA analysis for a single discipline.
Cross-Reference KSAs
Program faculty cross reference prioritized KSAs to existing curriculum.
Feedback Meeting
Faculty share results of cross-reference process
Trends
Quarterly meetings focus on industry trends
Expand Engagement
BILT members host internships, mock interviews, apprenticeships; serve as guest speakers/lecturers
BILT Annual Cycle

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.



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.

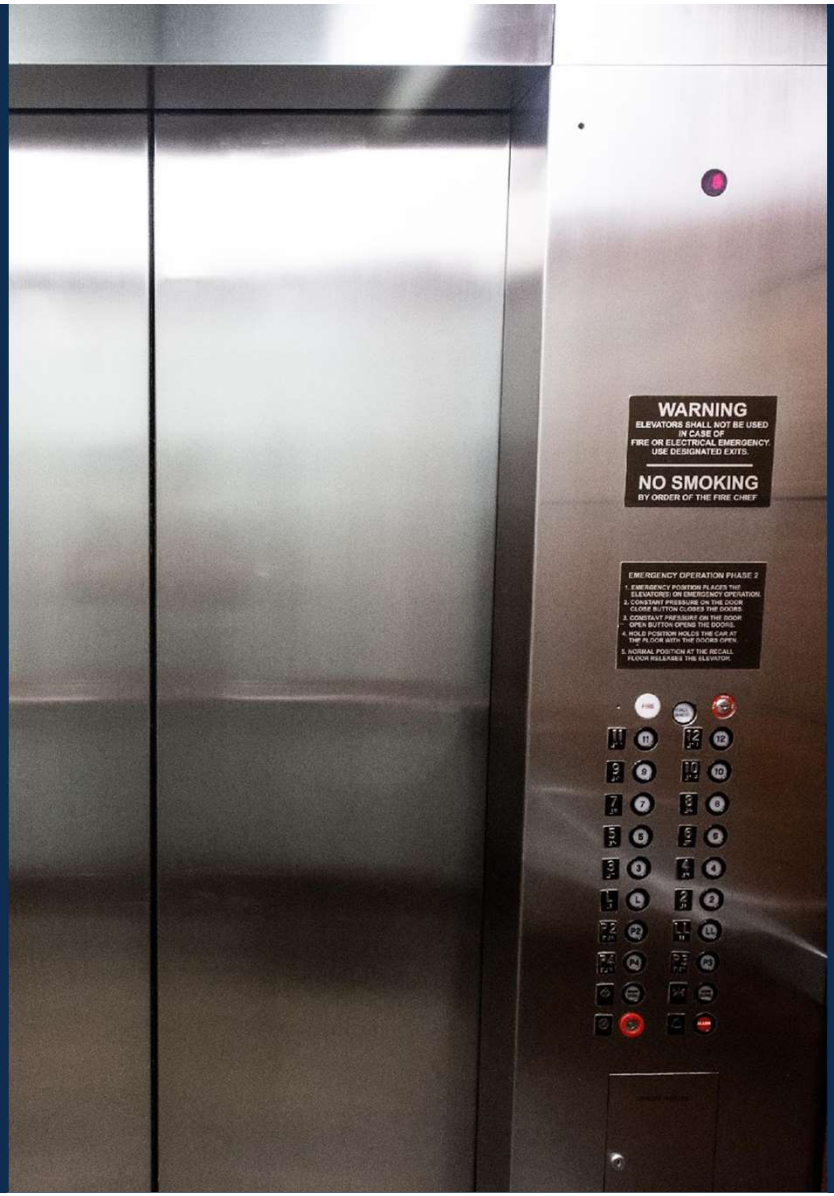
- College president and Board of Trustee members (ask permission first)
- Chambers of commerce
- Economic development organizations
- Discipline-specific professional associations

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

- F2F 8:30am worked 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

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 do not provide actionable metrics for curriculum updates.

Free online tools now make voting simple and efficient.

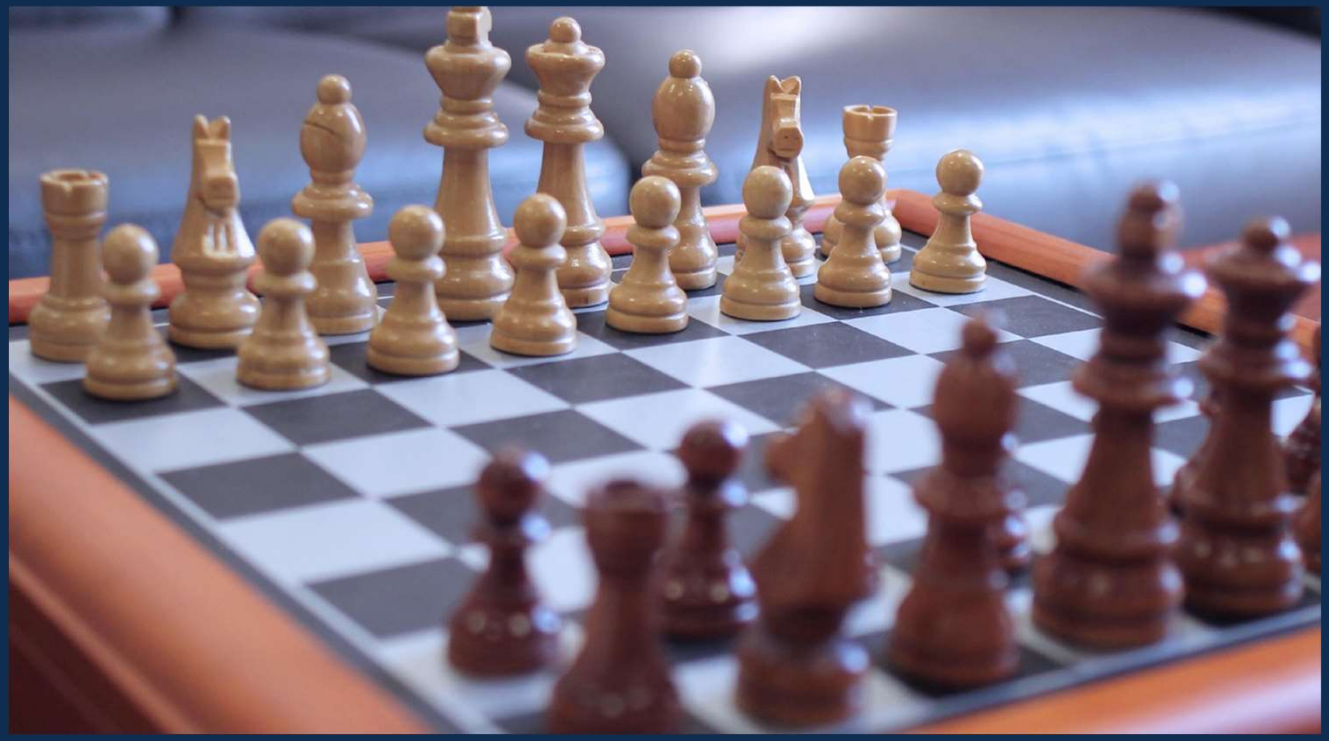
IMPLEMENTATION CHALLENGES

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

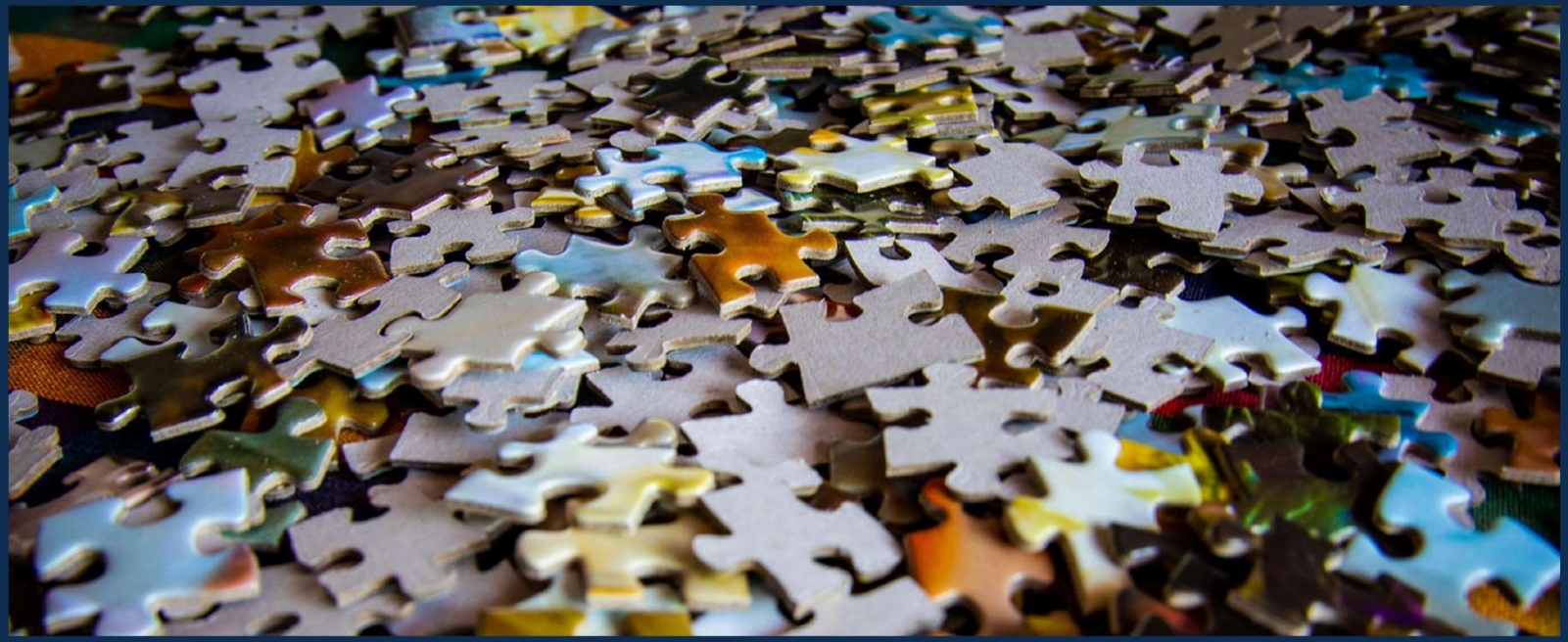


CHALLENGE: Difficulty getting institutional buy-in.

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.

BILT Model Advantages....

Business Advisory Council	BILT
May meet once or twice a year	**Meets 2-3 times a year**
May "rubber stamp" existing program	**Actively helps faculty improve the program**
Faculty may drive meeting agenda	**Employers help develop agenda — especially sharing trends**
May only give advice and suggestions	**Co-leads**
Job skills recommendations delivered through discussions	**Job skills recommendations created through voting process**
May not be highly invested in success of the program	**Feels ownership in the program and its students**
May not be kept in the loop on how suggestions implemented	**Regularly informed on how suggestions implemented**

WHAT CAN YOU DO?

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

Schedule regular 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

Q&A

Thank you!

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