Building Industry-Responsive Career Pathways with Stackable Credentials

Center for Occupational Research & Development

cord Center for Occupational Research & Development

National nonprofit helping educators…

- **Connect the classroom to the workplace** through contextual and cross-disciplinary instruction
- **Design seamless pathways** from secondary to postsecondary to careers
- **Facilitate industry-education collaboration** to ensure a globally competitive workforce

INTRODUCTIONS

NAME

ROLE

PROGRAM AREA

Big Picture for Today

- **Framework for Career Pathways Alignment**: Organizing structure for building industry-informed career pathways and supporting credential attainment
- Collaboration with partners to remove barriers to launching and sustaining pathway programs

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Agenda

1. Ecosystem Building and Partnerships
2. Strategic Employer Engagement
3. Industry-Responsive Pathway Design

Workshop Format

Each Framework Component:	Self-Check
	Content, Examples, Tools/Resources
	Action Planning
	Wrap-up: Share and discuss draft action plans

Workshop Resource Toolbox

cord.org/san-jacinto

Workforce Realities

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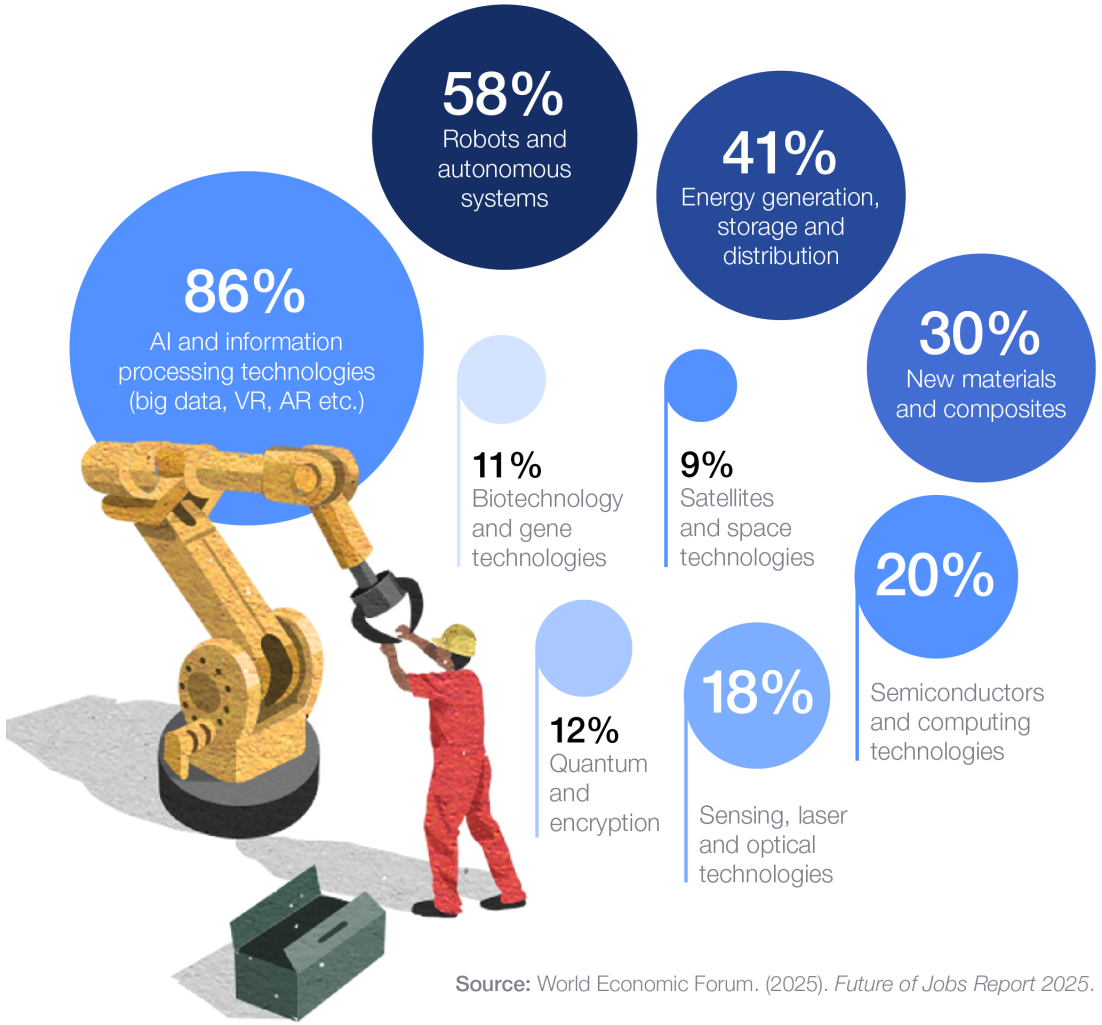
Disruption to skills

39% of workers' core skills will change by 2030

Source: World Economic Forum. (2025). *Future of Jobs Report 2025*.

Trends in AI, robotics and energy technologies are most likely to drive business transformation

Share of employers expecting the technology to transform their organization

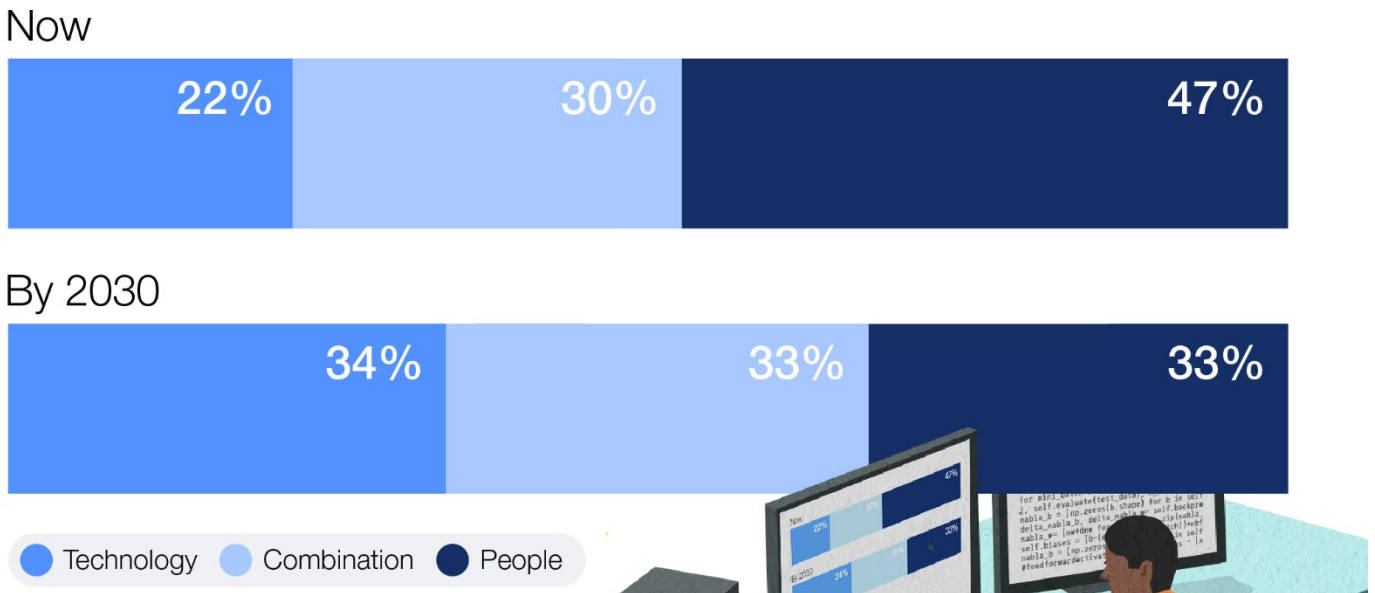


Source: World Economic Forum. (2025). *Future of Jobs Report 2025*.

Future of Jobs Report 2025

Human-machine frontier

Proportion of tasks completed predominantly by technologies (machines, algorithms etc.), predominantly by people, or by a combination of the two

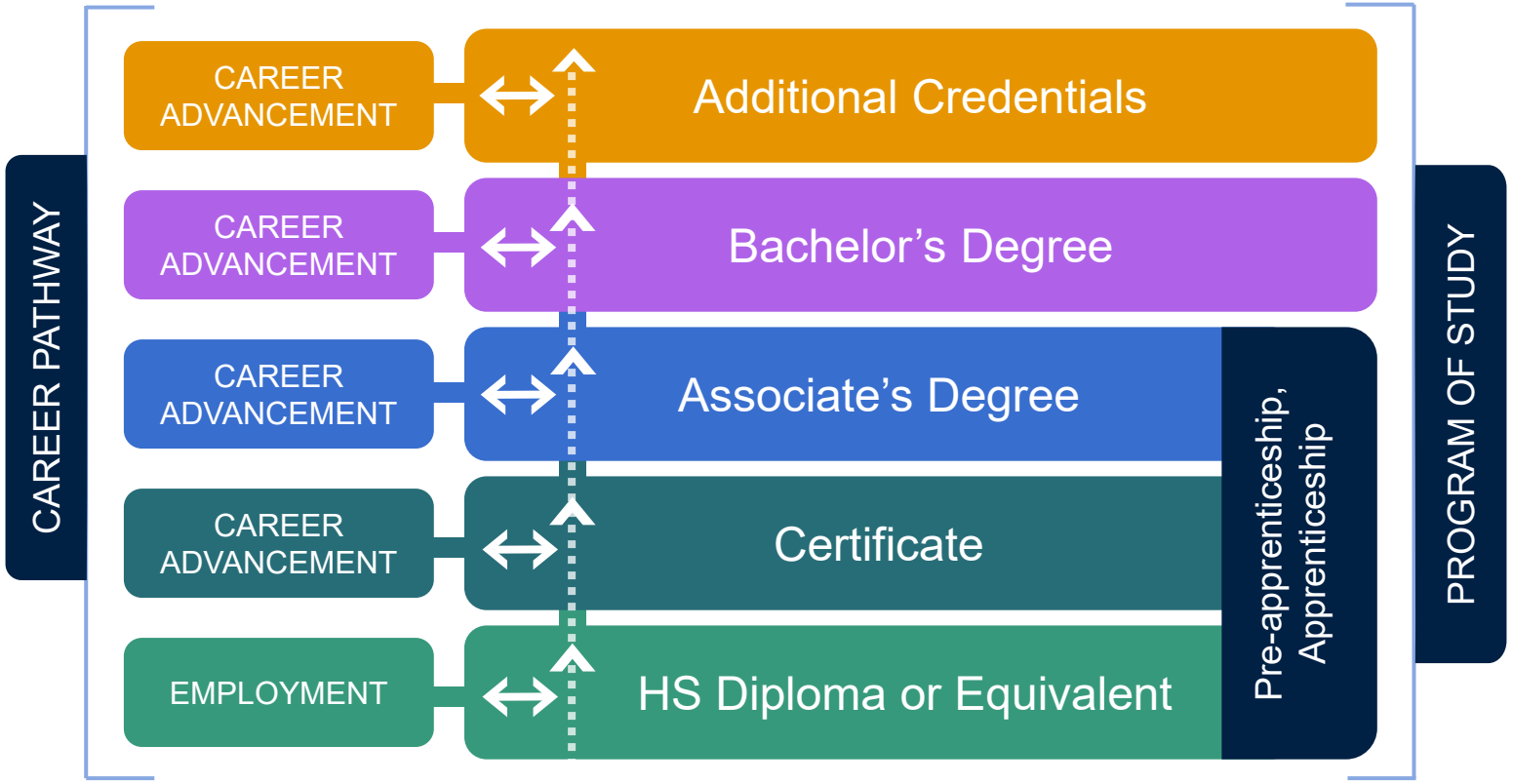


Source: World Economic Forum. (2025). *Future of Jobs Report 2025*.

Career Pathway Definition

Align	Prepare	Support	Educate/Train	Organize	Enable	Help
Align with the skills needed by industries in the state or regional economy;	Prepare individuals to succeed in a range of education options, including apprenticeships;	Include counseling to support an individual in achieving the individual's education and career goals;	Include, as appropriate, concurrent education and training opportunities for a specific occupation or occupational cluster;	Organize education, training, and support services to meet individual needs and accelerate educational and career advancement;	Enable individuals to attain a high school diploma or equivalent, and at least one recognized postsecondary credential;	Help individuals enter or advance within an occupation or occupational cluster.

Stackable Credentials



Adapted from *Introduction to Stackable Credentials*, ED-OCTAE

Benefits of Pathways Embedded with Stackable Credentials

Provide flexibility for **students**

Meet the evolving skill needs of **employers**

Increase **credential attainment**

Give **educational institutions** tools for continuous upskilling

Learnings from CORD's National TA Cohorts

Essential Components:

1. Engaging employers in strategic and sustainable ways
2. Building career pathways based on industry-validated stackable credentials
3. Supporting completion through non-credit/credit integration and wrap-around services

Framework for Career Pathways Alignment

Essential Components:

1. ***Strategic Employer Engagement*** based on an industry-led model that yields workforce intelligence at a depth and with a frequency to facilitate continuous program improvement and innovation
2. ***Career Pathways*** that supports learners of all ages and skill levels, built on stackable credentials aligned to postsecondary and employment opportunities that are co-developed by educators and employers
3. ***Support for Completion*** that recognizes "all learners as learners" by providing credit for prior learning, course schedules, delivery modes and wrap-around services that support working adults, and efficient program design that accelerates credential attainment

Framework for Career Pathways Alignment

Self Check #1

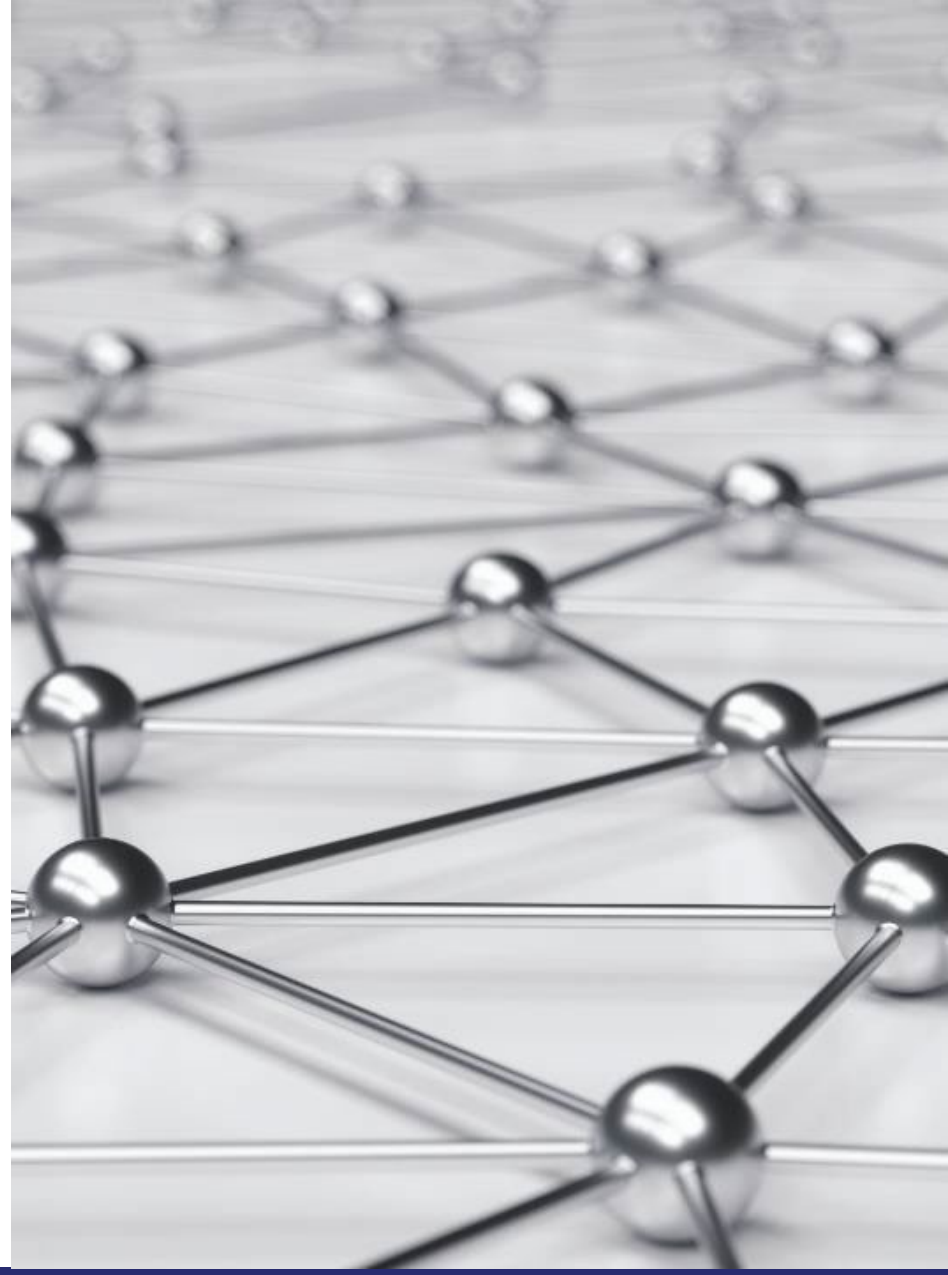
Program
Relationships
Assessment

Partnerships to Support the Ecosystem

- **Employer** – collaborate across sector: curriculum to work-based learning experiences; build your community's talent pipeline
- **Organizational** – school districts and postsecondary institutions, adult education providers, workforce boards: align, accelerate, remove barriers
- **Instructional** – academic, CTE, and adult education faculty as content development partners: interdisciplinary connections, real-world context, employability skills across curriculum
- **Community** – government and community organizations provide an array of holistic supports to aid students in completion.

Partnerships Are Key

- Leverage each other's resources and knowledge
- Connect disconnected systems
- Strengthen/build partnerships to support your local/regional economy

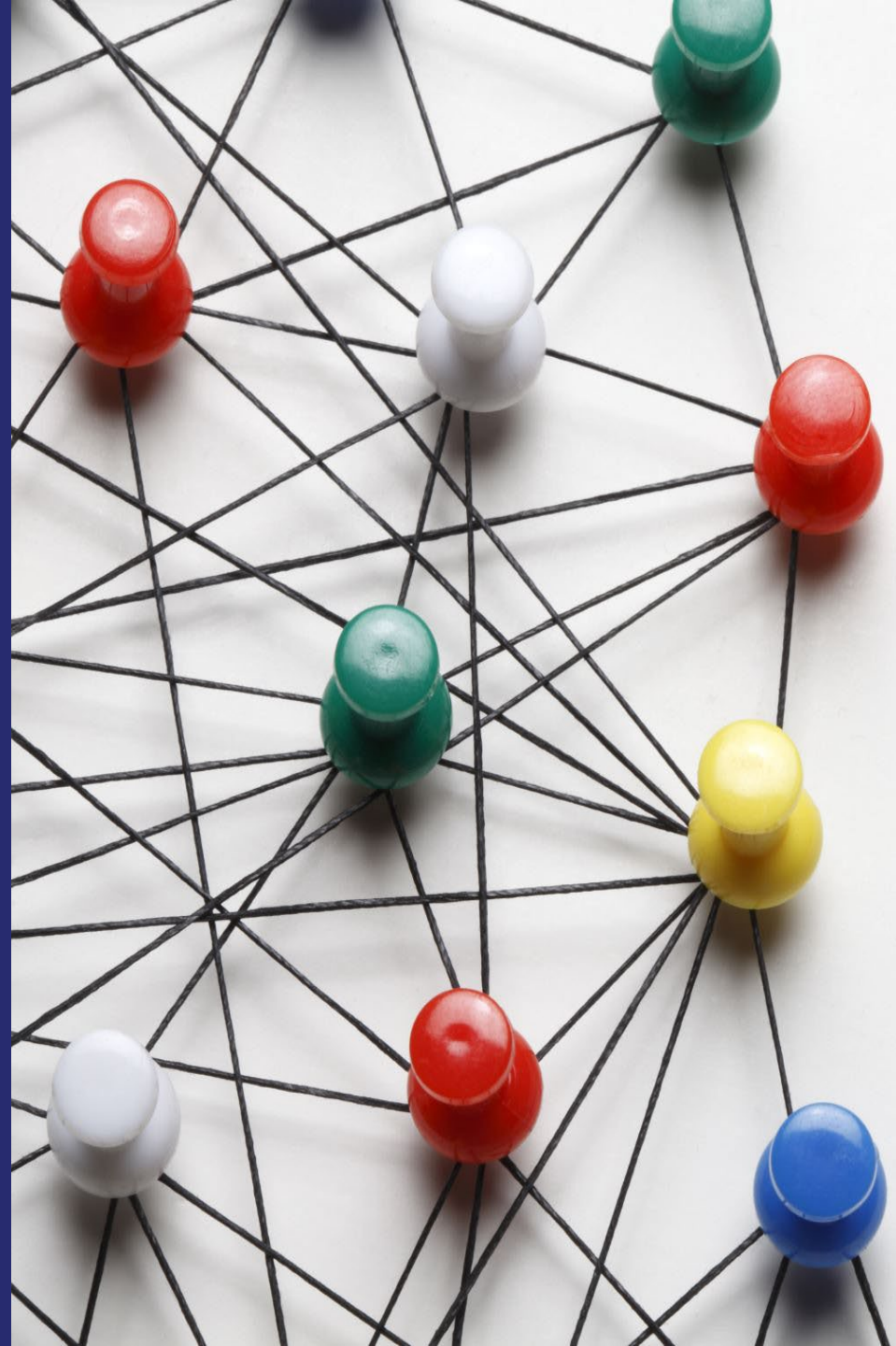


Partnership Ecosystem

- **We can’t know it all.**
- **We can’t do it all.**
- **We need partners** across the ecosystem to collaborate on the journey ahead.

ACTIVITY

Pathway Ecosystem Inventory



Framework for Career Pathways Alignment

LOCAL ACTION PLAN

Component 1: Foster Ecosystem/Partnership Building

What do we want to achieve?

What gaps and/or challenges do we want to address?

Action Steps: How will we achieve it?	**Roles/Responsibilities:** Lead/Team Member	**Resources Needed**	**Timeline:** By when?	**How can InnovATE BIO help?**	**Possible Funding Sources:**

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- ✓ **Use Action Plan Template at your table**

or

- ✓ **Download Action Plan Template file from Workshop Toolbox**

Framework for Career Pathways Alignment

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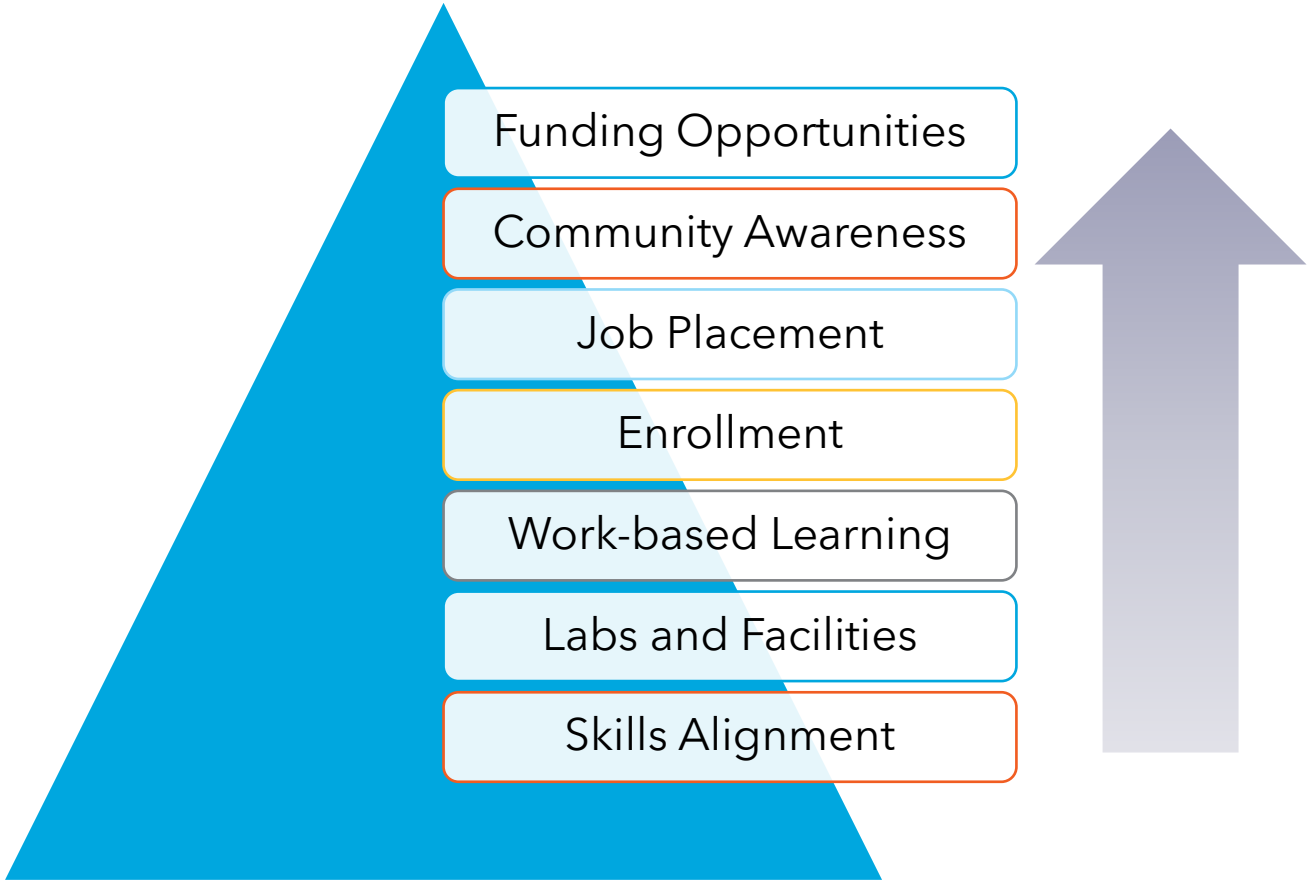
Self Check #2

Employer Engagement

What is Employer Engagement?

- A **strategy** to identify and integrate employer input and feedback into your institution's programs and activities.
- A working **relationship** where employers and institutions view each other as strategic partners.
- A **methodology** to:
  - keep your programs fresh and relevant
  - place your career-ready graduates into jobs
  - increase your enrollment
  - garner financial and other support
  - join voices for program advocacy

Benefits of Strategic Employer Engagement



Who is at the Table?

- Who hires your graduates/completers?
- Who provides intel on evolving needs of businesses in the region?
- Who assists in building industry-informed programs?
- Who at your institution conducts outreach to employers?
- How is that information gathered and shared?

ACTIVITY

Employer Engagement Goals

Identifying Your Employer Engagement Goals

Consider future goals and how employer partners could help you achieve them.

List three things you wish your program/institution had and how employers could help.

	Wish we had …	How our employers can help
1		
2		
3		

List three activities you could do to involve employers.

	Activities we could do …	How employers can be involved
1		
2		
3		

Name three companies that align with the needs and activities above.

	Company/Contact Person	How they align with the need(s)
1		
2		
3		

Deepening Employer Engagement with the BILT Model

Business & Industry Leadership Team (BILT) Model

- Strategic approach to continuous industry engagement and program alignment
- Puts employers in co-leadership role for program design and curriculum
- Leverages structured annual cycle of repeatable processes:
  - KSA Analysis
  - Industry Trends

BILT Business & Industry Leadership Team Academy®

BILT Roots

National Science Foundation (NSF)
Center of Excellence in Convergence Technology at Collin College (TX) [2012-2023]

Developed with business leaders across nation to determine **Knowledge, Skills, and Abilities** "workforce ready" graduates will need.

Implemented at more than **150 colleges** and universities in multiple disciplines.

Recognized nationally as a leading model for strategic employer engagement

CORD's *Pathways to Innovation* project launched **BILT Academy®** to support colleges with implementation

BILT Essential Roles

Employers:

- Industry subject matter experts
- Co-lead programs
- Prioritize Knowledge, Skills and Abilities (KSAs) they need graduates to have 12-36 months into the future
- Share industry trends throughout the year

Faculty:

- Attend KSA mtg as active listeners
- Cross reference KSAs to curriculum to determine gaps in coverage
- Conduct feedback meeting with BILT to discuss plans for curriculum modifications

BILT Business & Industry Leadership Team

BILT Academy®

Annual Cycle

Recruit BILT Members

Add 1-2 new employers annually.

Orientation

Welcome new members and set expectations. Explain BILT model and benefits.

KSA Analysis Meeting

Employers prioritize Knowledge, Skills, and Abilities (KSA) for workforce-ready graduates.

Cross-Reference Process

Program faculty compare prioritized KSAs to existing curriculum for modifications and updates.

Feedback Meeting

Program faculty report to employers the results of cross-reference process and planned course changes.

Trends Meeting

Employers and faculty discuss emerging industry trends.

Expand Engagement

BILT members provide work-based learning opportunities; serve as guest speakers, adjunct faculty.

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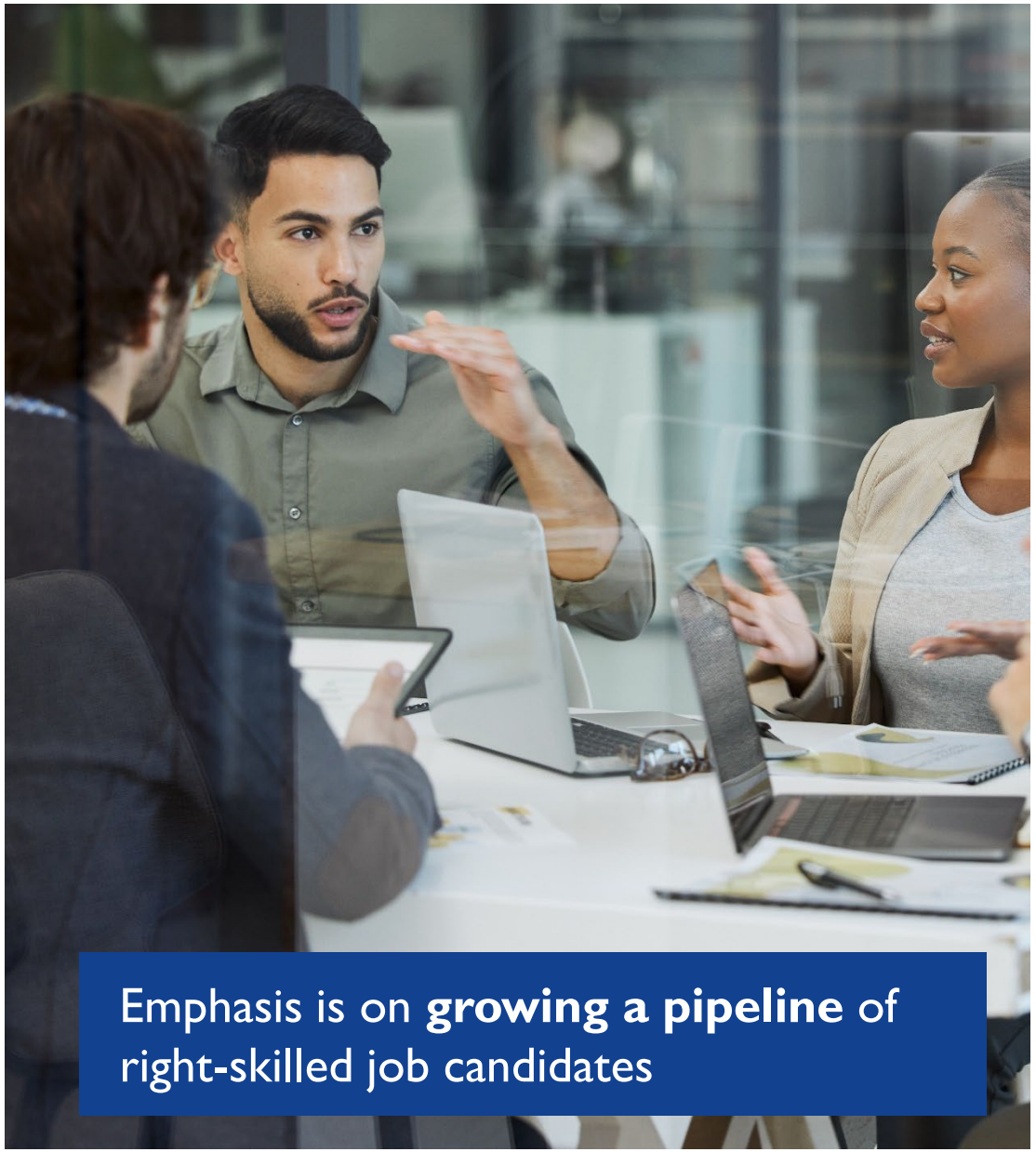
BILT Meetings

Purposeful, Action-Oriented

- **KSA Analysis** Meeting (1.5-2 hrs.)
- **Feedback** Meeting (1 hr.)
- **Industry Trends** Meeting(s) (1 hr.)

Key ingredients:

- Times / formats convenient for employers
- Structured, efficient processes
- Networking and relationship building



BILT Characteristics

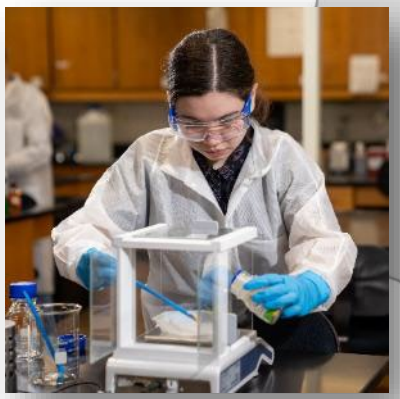
- Rely on industry subject matter expertise
- Future-facing
- Analyze KSAs at the program level

Ideal Composition of BILT

- Companies represent those who hire program graduates
  - High-level technical executives
  - First-line hiring managers
  - Technicians
  - HR execs, usually **not** the sole reps for a company
- Faculty are ex-officio; they *listen* and ask questions

BISMARCK STATE COLLEGE | North Dakota's Polytechnic Institution

leapr @Forsyth Tech



MiraCosta College

EnTec

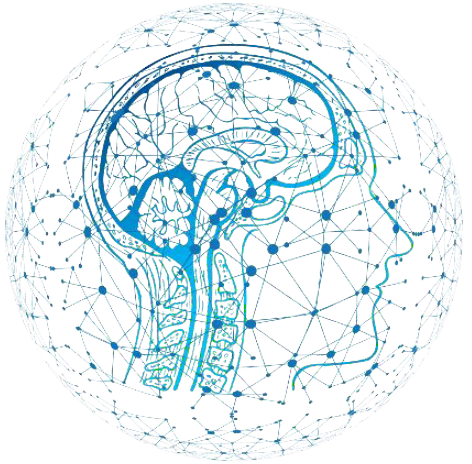
MIAMI DADE COLLEGE
SCHOOL OF ENGINEERING
+TECHNOLOGY

BILT Drives Innovation

- Cybersecurity BILT drove build of AS and BS; now over 1,200 enrollees
- Cloud BILT guided development of AS and BS
- Data Analytics BILT established both AS and BS
- AI BILT team drove creation of AI credentials (2 CCs, AS, BS); launched Fall 2023; almost 2000 enrolled
- In process: Aerospace and Semiconductor

EnTec

MIAMI DADE COLLEGE
SCHOOL OF ENGINEERING
+TECHNOLOGY




Media Services
Media Services
Participants
Chat
Share Screen
Record
Live Transcript
MDCTECH
AI

From Advisory Boards to BILT:

A Shift to Employer-Led Programs

Forsyth Tech
COMMUNITY COLLEGE

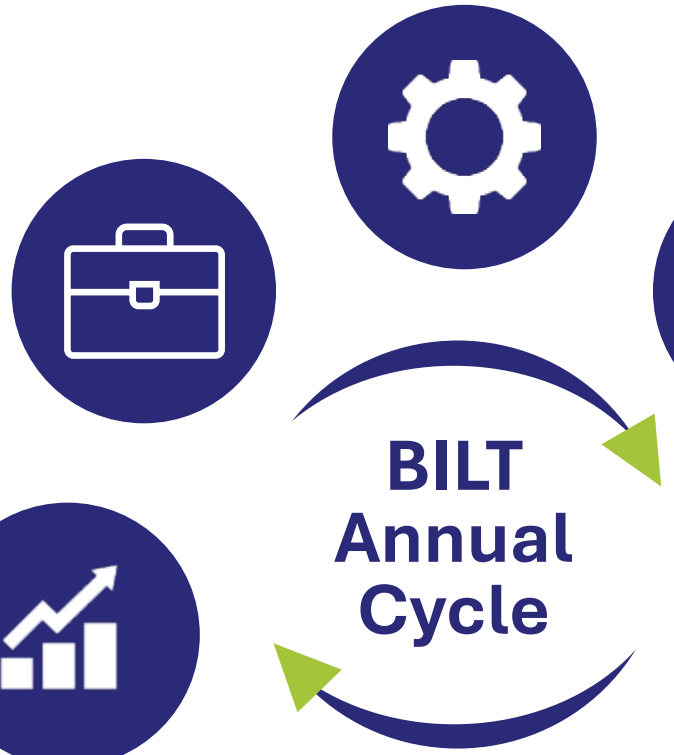
How BILT Is Changing Our Approach

FROM:	TO:
• **Inconsistent advisory board experiences** • Employer engagement **varied by program** • Skills discussions **lacked clear focus and prioritization** • Limited alignment between **curriculum and workforce needs**	• **Structured, employer-led conversations** • Clear, prioritized **skills aligned to workforce needs** • Stronger employer **partnerships and collaboration** (greater value for employers and students) • Continuous **program improvement and innovation** • **Expanded work-based learning and apprenticeship opportunities**

BILT Academy®

Business & Industry Leadership Team

Annual Cycle



STEP 1

Recruit BILT Members

Add 1-2 new employers annually.

STEP 2

Orientation

Welcome new members and set expectations. Explain BILT model and benefits.

STEP 3

KSA Analysis Meeting

Employers prioritize Knowledge, Skills, and Abilities (KSA) for workforce-ready graduates.

STEP 4

Cross-Reference Process

Program faculty compare prioritized KSAs to existing curriculum for modifications and updates.

STEP 5

Feedback Meeting

Program faculty report to employers the results of cross-reference process and planned course changes.

STEP 6

Trends Meeting

Employers and faculty discuss emerging industry trends.

STEP 7

Expand Engagement

BILT members provide work-based learning opportunities; serve as guest speakers, adjunct faculty.

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BILT Recruitment

Step 1

COMPILING LIST OF POTENTIAL BILT MEMBERS

- Current Advisory Council members, if existing program
- Businesses you want to target
- Supportive community organizations:
  - Chambers of Commerce
  - Economic Development Corporations
  - Workforce Boards
  - Trade Associations
- Connect with colleagues whose roles are employer-facing (workforce development, foundation, community relations, etc.)

ASK EXTERNAL STAKEHOLDERS TO ASSIST

Network with your networks (and your colleagues' networks)

Ask for "Warm Introduction" emails to potential BILT Members

Invite external stakeholders to attend BILT meetings as observers

DETERMINE THE ASK

ELEVATOR PITCH

Best pitches are concise

- Name and focus of program
- Why employer expertise is needed
- What participation entails
- Potential benefits to employers (WIIFM)
- Clear, simple call to action inviting participation

Example 1

At XYZ Community College, we're aware of the [program] skills gap in our community and want your input on how we can increase your pool of qualified applicants. Our [discipline] program is adopting the Business & Industry Leadership Team (BILT) model that puts employers in a co-leadership role. Our goal is to align curriculum with your talent needs so our graduates meet your requirements.

To accomplish this, we need a [discipline] expert from your company to help identify the knowledge, skills, and abilities (KSAs) you want in workers 12-36 months from now. The time commitment will be about 4-5 hours annually. We'll have 3-4 meetings: a KSA analysis and industry trends discussions.

Who from your company can join us?
(Provide date / time for Orientation to close the pitch.)

Pitching the BILT

YOUR VALUE PROPOSITION / ELEVATOR PITCH

Example 2

- We at (XYZ college) want to better align our program in (program name) with employer needs 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 college programs.
- We invite (business rep name or 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 on (date) to learn more about our BILT and how your participation may be beneficial?

BILT ORIENTATION – STEP 2

Low-Risk Introduction to the Model

30-minute Virtual Meeting

- Brief Overview of Your Program (Credentials Offered, Faculty/Dean Intros)
- BILT Model Orientation – What is it/What to expect (Delivered by Your Coach)
- Questions from Employers
- Identify Date/Time for KSA Meeting
- Adjourn

KSA Analysis

Step 3

KSA ANALYSIS

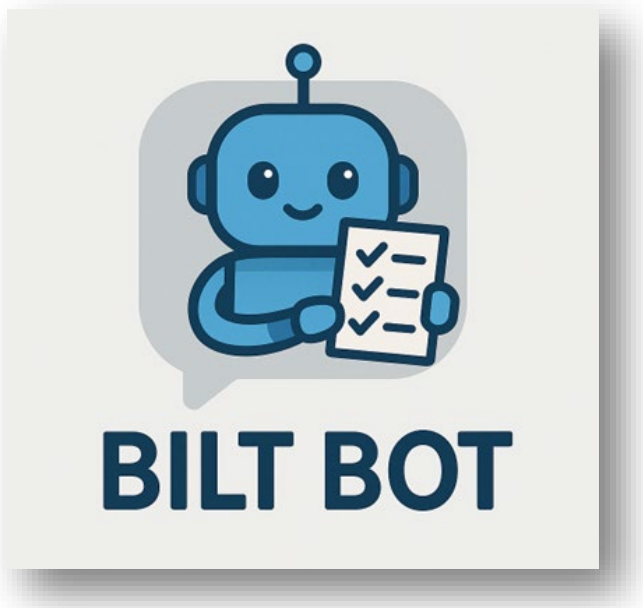
- **Background**:
  - Created by NSF ATE Convergence Technology Center
  - Based PCAL7 developed by USAF, a modified DACUM process
- **Purpose**: Prioritize **Knowledge, Skills, and Abilities** (KSAs) businesses will need in entry-level workers 12-36 months into the future
  - Annual, 2-hour meeting
  - Real-time voting and robust discussion of results, missing competencies
- Consensus not the goal
- Results of prioritization help faculty align curriculum to workforce needs

WHAT ARE KSAS?

HOW DO YOU DEVELOP A KSA LIST?

Existing Programs	New Programs
Student learning objectives for your courses	Student learning objectives for similar programs at other colleges
Student learning objectives for similar programs at other colleges	Artificial Intelligence tools (ChatGPT, Claude, CoPilot)
Job descriptions for entry-level positions	Department of Labor O*NET
Department of Labor O*NET	Others:
Others:	

BILT Tools



Developing KSA Lists

ChatGPT - BILT BOT

KSAs Created in Excel

1	Knowledge of procedures used for documenting and querying reported incidents, problems, and events.
2	Knowledge of cybersecurity trends & effect of changes due to Cybersecurity event.
3	Knowledge of electronic devices (e.g., computer systems/components, access control devices, digital cameras, digital scanners, electronic organizers, hard drives
4	Knowledge of what is cloud based and what is on premises as well as the different support models for each.
5	Knowledge of risk management processes (e.g., methods for assessing and mitigating risk).
6	Knowledge of system administration concepts for operating systems such as but not limited to Unix/Linux, IOS, Android, and Windows operating systems.
7	Knowledge of applicable backup and restoration procedures.
8	Knowledge of documentation processes and procedures.
9	Knowledge of Personal Health Information (PHI) data security standards.
10	Knowledge of system monitoring and diagnostic tools and processes.
11	Knowledge of Personally Identifiable Information (PII) data security standards.
12	Knowledge of VOIP telecommunication systems, both cloud based and on premise, as well as the OSI model and common networking protocols.
13	Knowledge of remote access processes, tools, and capabilities related to customer support.
14	Knowledge of physical computer components and architectures, including the functions of various components and peripherals.
15	Knowledge of cyber threats and vulnerabilities.
16	Knowledge of IT system operation, maintenance, and security needed to keep equipment functioning properly.
17	Knowledge of file extensions (e.g., .dll, .bat, .zip, .pcap, .gzip).
18	Knowledge of organizational security policies.
19	Knowledge of industry best practices for service desk (e.g. Machine learning and AI).
20	Knowledge of troubleshooting methods.
21	Knowledge of computer networking concepts and protocols, and network security methodologies.
22	Knowledge of operating environments, organizational software and applications.
23	Knowledge of business issues regarding software licensing.

KSA ANALYSIS MEETING

Begins with a list of **pro forma Knowledge, Skills, and Abilities (KSAs)** with a future-focus

Employers vote to prioritize KSAs and discuss the results as a group

May **add, change, or delete an item** during discussion

Meant to **help faculty align curriculum** based on what knowledge, skills, and abilities businesses predict they want in those they want to hire **12-36 months into the future**

JOHNSTON COMMUNITY COLLEGE
One College • Endless Opportunities

Applied Engineering Technology KSA Analysis 2026

First and last name: *

Company Name: *

Email: *

1 KSAs — 2 Submit

KSAs

Knowledge, Skills and Abilities (KSAs) important for entry-level technician roles.

K-1 Read and analyze Ladder Diagrams and Ladder Logic

Less Important — More Important

1 2 3 4

K-2 Sketch/Draw Schematics and simple parts

Less Important — More Important

1 2 3 4

K-3 Know electrical symbols and abbreviations

BILT Members Discuss Results

	BILT College - Technical Support/Help Desk KSA Results 7/15/202X (EXAMPLE)							
		# votes (4 = most important)					3	
		4	3	2	1	Avg	# of Voters	Comments
K-1	Knowledge of the basic operation of computers.	11	2	0	0	3.85	13	
K-2	Knowledge of computer networking concepts and protocols, and network security methodologies.	8	4	1	0	3.54	13	
K-3	Knowledge of operating environments, organizational software and applications.	8	4	1	0	3.54	13	
K-4	Knowledge of practices of internal, external, and global customers (as applicable).	2	6	3	2	2.62	13	Not needed for entry-level role; needed for mid-level roles
K-5	Knowledge of internal organizational communication processes.	7	3	3	0	3.31	13	
K-6	Knowledge of organization chart and roles/responsibilities of company personnel/departments.	2	2	9	0	2.46	13	Not needed for entry-level role; needed for mid-level roles
K-7	Knowledge of technical presentation tools.	4	3	3	2	2.75	12	This role does not make presentations, rather they troubleshoot.
K-8	Knowledge of continuous quality improvement.	3	2	4	1	2.7	10	Focus is on troubleshooting; need to understsand that their work should be of the highest quality only.
K-9	Knowledge of crisis management processes and procedures.	5	4	2	0	3.27	11	
S-1	Skill in identifying possible causes of degradation of system performance or availability as well as skill in initiating actions needed to mitigate this degradation.	6	3	3	0	3.25	12	
S-2	Skill in using the appropriate tools for repairing software, hardware, and peripheral equipment of a system.	7	5	0	0	3.58	12	
S-3	Skill in conducting research for troubleshooting novel client-level problems.	4	4	2	0	3.2	10	
S-4	Skill in configuring and validating network workstations and peripherals in accordance with approved standards and/or specifications.	6	3	2	0	3.36	11	
S-5	Skill in incident response for on premises or cloud service models.	6	4	0	0	3.6	10	
S-6	Skill in communicating with others.	8	4	0	0	3.67	12	
	What is missing; possible additions:							
	Focus on using AI tools - for troubleshooting							
	Cloud computing is becoming very common so tech support must be very familiar							
	Addressing issues when clients present problems with customized software							

COMPLETING THE VALIDATION PROCESS

Faculty ***"map"*** the competencies prioritized at the KSA meeting to existing courses

Gaps are identified, and a **curriculum strategy** established

Results and plans are reported back to the BILT at the Feedback meeting

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CROSS-REFERENCE PROCESS

STEP 4

SAMPLE: Using the results from the KSA voting process (Faculty Exercise)

BILT College - Technical Support/Help Desk KSA Results 7/15/202X (EXAMPLE)

List courses in the program in the columns that were added (see gray columns).

Place an E in the cell for Exposure, T in the cell for Thorough, leave blank if the topic is not covered in the program.

Yellow items at the bottom were added during the KSA meeting. Determine if they can be added to the program. If so, can it be added to an existing course or is a new course needed.

		# votes (4 = most important)							Courses in Program								
		4	3	2	1	Avg	# of voters	Comments	IT 101	IT 102	IT 103	IT 104	IT 105	IT 106	NET 201	NET 202	NET 203
K-1	Knowledge of the basic operation of computers.	11	2	0	0	3.85	13		E	T	T						
K-2	Knowledge of computer networking concepts and protocols, and network security methodologies.	8	4	1	0	3.54	13		E						T		
K-3	Knowledge of operating environments, organizational software and applications.	8	4	1	0	3.54	13		E	E	T						
K-4	Knowledge of practices of internal, external, and global customers (as applicable).	2	6	3	2	2.62	13	Not needed for entry-level role; needed for mid-level roles	E	T		T					
K-5	Knowledge of internal organizational communication processes.	7	3	3	0	3.31	13		E		E						
K-6	Knowledge of organization chart and roles/responsibilities of company personnel/departments.	2	2	9	0	2.46	13	Not needed for entry-level role; needed for mid-level roles	E			T					
K-7	Knowledge of technical presentation tools.	4	3	3	2	2.75	12	This role does not make presentations, rather they troubleshoot.	E		T						
K-8	Knowledge of continuous quality improvement.	3	2	4	1	2.7	10	Focus is on troubleshooting; need to understsand that their work should be of the highest quality only.	E		E	T					
K-9	Knowledge of crisis management processes and procedures.	5	4	2	0	3.27	11				T		T				
S-1	Skill in identifying possible causes of degradation of system performance or availability as well as skill in initiating actions needed to mitigate this degradation.	6	3	3	0	3.25	12		E	E			T				
S-2	Skill in using the appropriate tools for repairing software, hardware, and peripheral equipment of a system.	7	5	0	0	3.58	12										
S-3	Skill in conducting research for troubleshooting novel client-level problems.	4	4	2	0	3.2	10		E	E							
S-4	Skill in configuring and validating network workstations and peripherals in accordance with approved standards and/or specifications.	6	3	2	0	3.36	11		E								
S-5	Skill in incident response for on premises or cloud service models.	6	4	0	0	3.6	10	E	E			T	T				
S-6	Skill in communicating with others.	8	4	0	0	3.67	12		E	E	T						
	What is missing; possible additions:																
	Focus on using AI tools - for troubleshooting	Developing a new course to address.															
	Cloud computing is becoming very common so tech support must be very familiar	Included in S-5.							E	E							
	Addressing issues when clients present problems with customized software	Considering adding module to IT 104.															

WHAT DO YOU DO WITH THE RESULTS?

- Modify courses/lessons/labs (incremental adjustments)
- Add courses
- Delete courses

Most importantly:

Let BILT members know what was done with the prioritized KSAs during the Feedback Meeting!

FEEDBACK MEETING

STEP 5

Agenda

- Welcome and Introductions
- College Updates
- Recap of KSA Meeting
- Discussion of Cross-Referencing Process and Results
  - Curriculum changes
  - Further clarification on specific topics
  - Challenges to address

TRENDS MEETING – STEP 6

Discussion of industry trends related to program/discipline

- Recent changes and those anticipated in the next 6-12 months
- BILT members propose topics and co-facilitate discussion
- Flexible meeting format w/informal discussion
  - Often a favorite of BILT members
  - Great opportunity to learn about changes in between annual KSA meetings

Framework for Career Pathways Alignment

LOCAL ACTION PLAN

Component 2: Engage Employers

What do we want to achieve?

What gaps and/or challenges do we want to address?

Action Steps: How will we achieve it?	**Roles/Responsibilities:** Lead/Team Member	**Resources Needed**	**Timeline:** By when?	**How can InnovATE BIO help?**	**Possible Funding Sources:**

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- ✓ **Use Action Plan Template at your table**

or

- ✓ **Download Action Plan Template file from Workshop Toolbox**

Self Check #3

Designing Career Pathways

Mapping the Pathway Journey...

Pathways to Career Readiness and Advancement

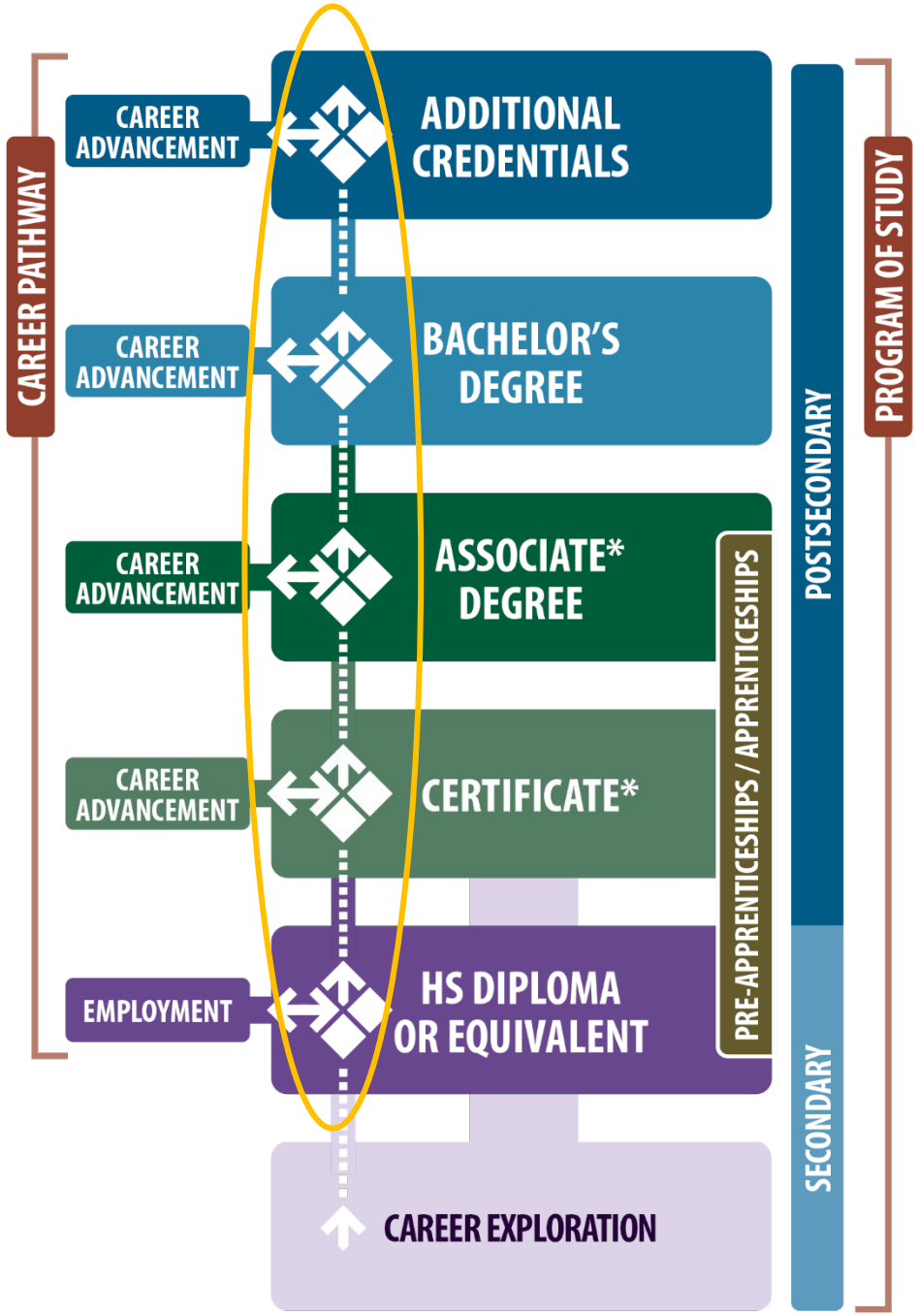
Programs of Study and ***Career Pathways*** share many of the same attributes. The two terms are used interchangeably in many state and local applications. Both are defined in Federal Law.

STACKABLE CREDENTIALS

At these milestones the learner may advance to the next-higher-skill job in the sector for which they have trained, and/or continue in or reenter the learning pathway to pursue additional credentials.

*These stackable credentials may:

- Include preparation for industry certifications.
- Articulate to bachelor's degree programs.
- Be obtainable by HS students through dual credit.



Source: *Introduction to Stackable Credentials*, US Department of Education Office of Career, Technical and Adult Education, 2021

Benefits of Pathway Maps

- To help learners of all ages **understand the opportunities** available to them to learn, earn, and realize success in the career path of their choice
- To identify entry points and exit points aligned to **credential** attainment and advancing levels of **employment**
- To convey that a **seamless pathway** of stackable credits and credentials is not only possible, but critical to success in today's labor market

Mapping Career Opportunities & Economic Mobility

- You're creating a visual story depicting the pathway
- What career opportunities does it comprise?
- What postsecondary credentials can you earn?
- What industry certifications will the pathway prepare you for?

SUPPLY CHAIN MANAGEMENT

Associate in Applied Science A.A.S.: Supply Chain Management Degree

This 60 credit-hour program is designed to provide End-to-End (E2E) supply chain education for those persons pursuing entry level jobs and careers in supply chain management.

The curriculum focuses on both the technical and employability skills needed to be successful in this field. Targeted educational content covers all supply chain functions including demand planning, inventory management, production control, procurement and sourcing, transportation, and warehouse management and logistics design. The degree provides business content including accounting and economics ensuring that students have a solid base of general financial acumen. The additional general education requirements focus on the critical skills of communication and presentation competencies, organizational savvy, relationship management, team building and problem solving.

FIRST SEMESTER:

Number	Course Title	Credits	Course Category
ENG 101	Composition I	3	AAS General Education
MGT 111	Introduction to Business Organization	3	Program Requirement
SCM 101	Supply Chain Management	3	Program Requirement
SCM 122	Inventory Management	3	Program Requirement
SCM 126	Demand Planning	3	Program Requirement

SECOND SEMESTER:

Number	Course Title	Credits	Course Category
ACC 101	Introduction to Financial Accounting	4	Program Requirement
MGT 150	Business Math	3	AAS General Education
PSY 101	Introduction to Psychology*	3	AAS General Education
SCM 123	Transportation	3	Program Requirement
SCM 127	Customer Service and Fulfillment[1]	2	Program Requirement

THIRD SEMESTER:

Number	Course Title	Credits	Course Category
PSY 245	Industrial/Organizational Psychology[2]	3	AAS General Education
SCM 120	Production Control	3	Program Requirement
SCM 124	Warehouse Operations	3	Program Requirement
SCM 125	Procurement	3	Program Requirement
SCM 228	Logistics Design and Strategy[3]	3	Program Requirement

FOURTH SEMESTER:

Number	Course Title	Credits	Course Category
CIS 101	Introduction to Computer Information Systems	3	Program Requirement
ECO 211	Microeconomics	3	Program Requirement
MGT 165	Global Business*	3	Program Requirement
PHI 150	Business Ethics	3	AAS General Education
SPE 101	Fundamentals of Speech Communication	3	AAS General Education

Cybersecurity Pathway

Earn Credit for What You Already Know:
Through prior learning assessment (PLA), demonstrate mastery of core skills for college credit, or with industry certifications.

Basic Networking & Security Certificate

20 credits/aligns with Security+, Network+ certifications
Core skills: networking, information assurance, network security, cloud computing

See Program Details

Career Opportunities

Entry wages: $18 per hour
With experience: $27 per hour
Potential positions:
Computer User Support Specialist
Computer Network Support Specialist

Learn more at:
My Colorado Journey

and/or

IT Tech & Support Certificate

22 credits/aligns with A+ certification
Core Skills: operating systems, project management, help desk skills, A+ technician skills

See Program Details

Career Opportunities

Entry wages: $18 per hour
With experience: $27 per hour
Potential positions:
Computer User Support Specialist
Help Desk Technician

Learn more at:
My Colorado Journey

Cybersecurity A.A.S.

60 credits/aligns with Security+, Network+, Cloud+, Linux+ certifications
Core Skills: networking, information assurance, network security, cloud computing

See Program Details

Career Opportunities

Entry wages: $25 per hour
With experience: $35 per hour
Potential positions:
Cybersecurity Analyst
Computer Network/Systems Administrator
Tech Support Engineer

Learn more at:
My Colorado Journey

Computer Science/ Engineering with Cybersecurity concentration B.S.

128 credits
Core Skills: computer architecture, programming and system analysis, cryptography, security system design, risk and policy analysis, investigation techniques, troubleshooting

Career Opportunities

Entry wages: $30 per hour
With experience: $50+ per hour
Potential positions:
Computer Network/Systems Architect
Cybersecurity Engineer
Business/Systems Analyst

Learn more at:
My Colorado Journey

COMMUNITY COLLEGE of AURORA

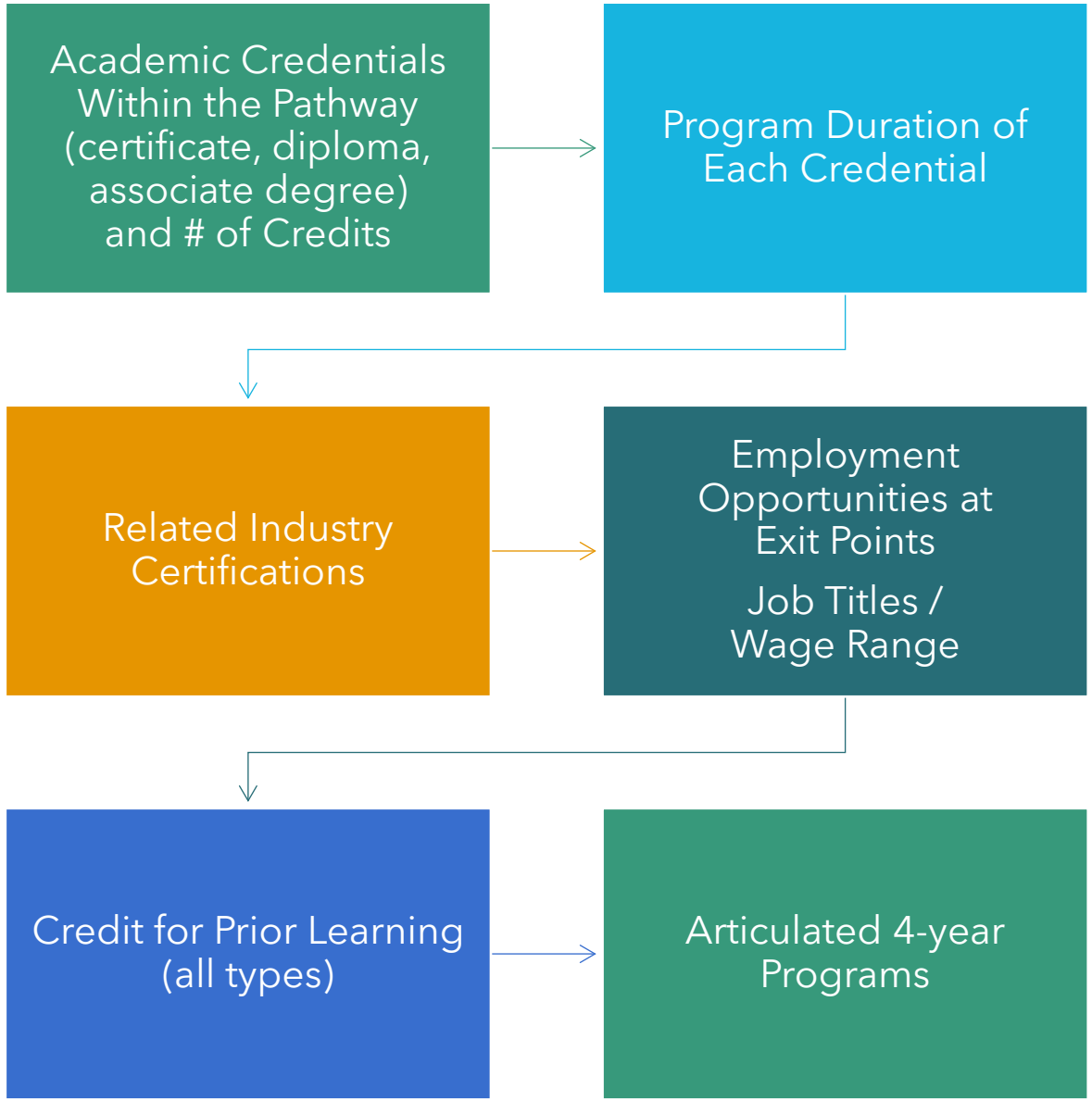
Who Benefits from Pathway Maps?

Students
- Identifies on and off ramps
- Identifies program outcomes relative to potential employment opportunities and wages, as well as program duration and stackable credentials
- Depicts career growth alongside education path

Employers
- Identifies multiple entry points for existing employees to upskill
- Validation of skills by industry means graduates are prepared to meet employer needs

Faculty
- Program and career information in one place – at-a-glance
- Employer-validated pathways relative to occupations and wages
- Clear depiction of completion options (certificates, diplomas and degrees) within a pathway

What to Include

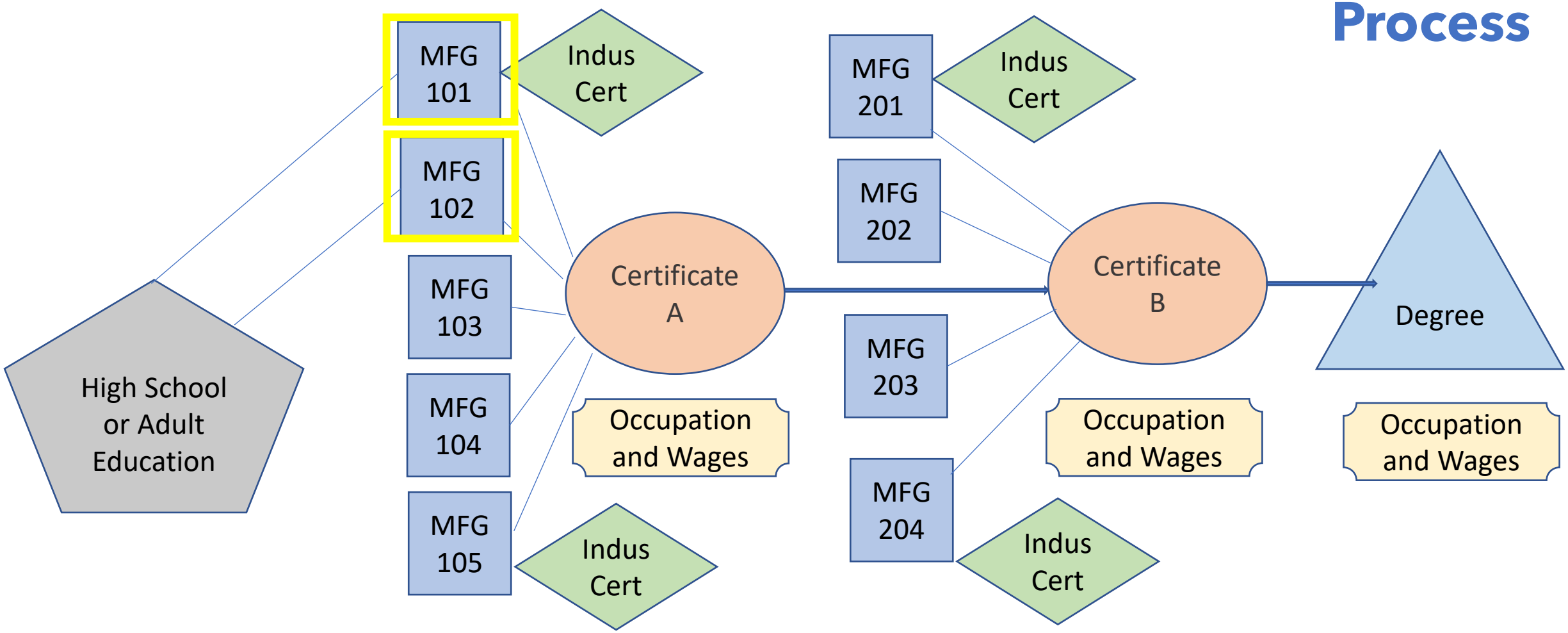


Employer Engagement

- Work with employer partners to:
  - Define job requirements
  - Map the structure of jobs to certificates and degrees
  - Identify related industry certifications
  - Identify career advancement levels within the pathway

    (i.e. Certificate A = Job Title X, Certificate B = Job Title Y, Degree = Job Title Z)
- Gather wage data for each job title
- Repeat/validate process annually

The Mapping Process



Lake Sumter State College

Career Pathways

Health Service Management Associate in Science

Prior Credit
High School Career Pathways Certificate

Administrative Office Specialist

Allied Health Assisting

Applied Cybersecurity

Applied Information Technology

Business Management & Analysis

Digital Design

International Business

Legal Administrative Specialist

Nursing Assistant

Web Development

Industry Certifications

Certified Medical Administrative Assistant (CMAA)

Certified Nursing Assistant (CNA)

Prior Credit
Technical College Certificate

Accounting Operations

Administrative Office Specialist

Medical Assisting

Practical Nursing

Industry Certifications

Certified Medical Administrative Assistant (CMAA)

Registered Medical Assistant (RMA)

College Credit Certificate

Medical Information Coder/Biller
(37 credit hours)

Industry Certifications

CCA; CCS; CCS-P; CPC

Career

Average Cost of Program

$4,100.00

Typical Starting Positions

Medical Records/Health Information Technicians, Insurance/Billing Specialist, Coding Specialist, Coder/Biller, Insurance Specialist

Average Starting Salary

$15.67 hourly

College Credit Certificate

Medical Office Management
(34 credit hours)

Career

Average Cost of Program

$3,750.00

Typical Starting Positions

Medical Secretary, Medical Receptionist, Insurance Clerk, Billing Clerk

Average Starting Salary

$15.67 hourly

Associate Degree

Health Services Management
(60 credit hours)

Industry Certifications

CAHIMS; CMM

Career

Average Cost of Program

$6,600.00

Typical Starting Positions

Medical Office Manager, Health Services Department Supervisor, Billing Supervisor, Revenue Cycle Analyst

Average Starting Salary

$18.00 hourly

Bachelor Degree

Strategic Leadership
(120 credit hours)

Career

Average Cost of Program

$7,200.00

Typical Starting Positions

Medical Practice Manager, Health Services Department Manager, Revenue Cycle Supervisor/Manager, Human Resouce Specialist, Entrepreneur

Average Starting Salary

$25.66 hourly

Learn more at www.LSSC.edu/academics

NORTH CENTRAL TEXAS COLLEGE

Electrical/Industrial Mechanics Career Pathway

Indusmechanics.nctc.edu

Career Overview

Opportunity exists working as an electrician, in manufacturing or in industrial mechanics. Each step in the pathway can lead to industry certifications and licensing. Student can work in many of these fields while attending classes and working toward additional certifications or a degree.

Other Credit

May be awarded from the following areas:

- Non-credit training
- Industry certifications
- College credit
- Military service
- Work experience
- Technical schools
- Study abroad
- Dual Credit

Short-term Certificates

Electrical Skills Course

- Self-paced online
- Potential starting wage is $14+ per hour
- Potential 3 hrs credit toward Electrical or Industrial Mechanics Level 1 Certificate
- Industry certification through SACA C-201

Mechatronics and Industrial Automation Technician Course:

- Self-paced online
- Potential starting wage is $18+ per hour
- Potential 6 hrs credit toward Electrical or Industrial Mechanics Level 1 Certificate
- Industry certification through SpaceTEC® and CTS.

Questions?
ACE@nctc.edu

Level 1 Certificates

Electrical Certificate

- 15 credit hours
- Potential starting wage is $14+ per hour
- Educational credit toward electrical journeyman licensing through TDLR
- Industry certification through NC3

Industrial Mechanics Certificate

- 30 credit hours
- Includes Electrical certificate
- Potential starting wage is $16+ per hour
- Educational credit toward electrical journeyman licensing through TDLR
- Industry certifications through NC3

Questions?
industech@nctc.edu

AAS Degree

AAS Industrial Mechanics

- 60 credit hours
- Potential starting income $18 per hour
- Educational credit toward electrical journeyman licensing through TDLR
- OSHA certification
- Industry certifications through NC3

Questions?
industech@nctc.edu

Bachelor's Degree

The AAS degree is part of the North Texas Community College Consortium Transfer Collaborative and can lead to BAAS programs at numerous universities.

Visit the site below and input the program title and college to check a pathway: NTXCCC

LEGEND OF TERMS

SACA	Smart Automation Certifications
CTS	Credential Testing Services
TDLR	Texas Department of Licensing & Regulation
NC3	National Coalition of Certification Centers
OSHA	Occupational Safety & Health Administration.
AAS	Associate of Applied Science
BAAS	Bachelor of Applied Arts & Sciences

SAN JACINTO COLLEGE

An Equal Opportunity Institution

nibrt

NIBRT Global Partner

CAREER PATHWAY

Biomanufacturing Technology

OCCUPATIONAL CERTIFICATE

in as little as

9 MONTHS

5 courses / **15** credits

LEVEL II CERTIFICATE *in as little as* 1 YEAR (3 TERMS)

11 courses / **37** credits

OR

6 courses / **22** credits

with Occupational Certificate

ASSOCIATE OF APPLIED SCIENCE DEGREE 2 YEARS (5 TERMS[1])

18 courses / **60** credits

OR

7 courses / **27** credits

with Level II Certificate

- Admission Interview
- Regular Gowning
- Industry Lecture Series
- Assigned Industry Roles

- Assigned Industry Roles
- Professionalism Series
- Regional internship subcommittee

TEXAS WORKFORCE COMMISSION

- Mastery Model for Assessment
- Open Lab Model
- Exit Points

An Equal Opportunity Institution

SAN JACINTO COLLEGE

UPDATES: Biomanufacturing Training Multiple Entry – Multiple Exit

Post-Degree Students

Currently Employed

Target Groups

Current San Jac Students

New Students

Upskill & Reskill

Short Courses & Corp Training

- Training Module A
- Training Module B
- Training Module C
- Training Module D

Post-AS or BS training

Advanced Technical Cert

Certificates

Occupational Certificate

Level II Certificate

Degrees

2-Year Degree

nibrt

NIBRT Global Partner

Name of Career Pathway:

Prior Credit

List any prior credits.
- Dual Credit
- Other College Credits
- Credit for Industry Certifications
- CLEP
- Advanced Placement
- Military
- Other

Adult education:
Concurrent or other coursework associated with the pathway (bridge programs, others)

List courses

Certificate

List certificates that stack toward the degree.

For each, list:
- Name of certificate
- Number of college credits
- Potential job with median income
- Aligned industry certification(s)

Additional Certificate or Diploma

List additional certificates or diploma that stack toward the degree.

For each, list:
- Name of certificate/diploma
- Number of college credits
- Potential job with median income
- Aligned industry certification(s)

Associate Degree

List remaining credits in the pathway to earn an Associate degree.

For the degree, list:
- Number of college credits
- Potential job with median income
- Aligned industry certification(s)

Bachelors Degree

List articulated 4-year degrees.

For each, list:
- Name of Degree
- Granting Institution

cord

ncpn

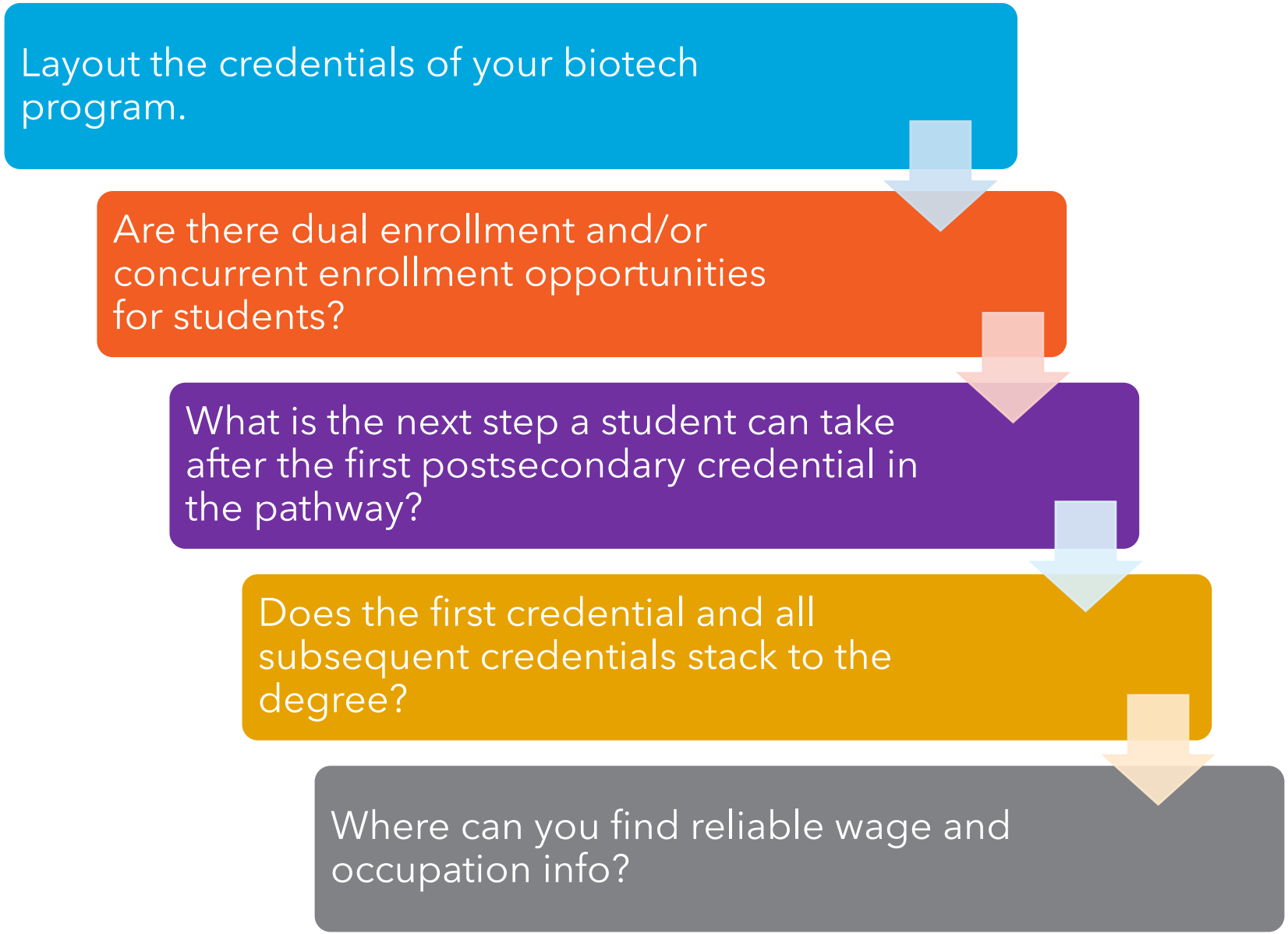
Using the Map Template

- **Use paper template**

  or

- **Download from Workshop Toolbox:**
  - Generic Map Template.pptx

Mapping Activity



How Will We Get There?

Consider the gaps moving from one credential or institution to the next:

- What needs to be done to address the gap?
- Is it a barrier related to process or policy?
- Who needs to be at the table to discuss the gap?
- What are the opportunities that haven't been mapped yet?

Action Planning

Framework for Career Pathways Alignment

LOCAL ACTION PLAN

Component 3: Design Career Pathways

What do we want to achieve?

What gaps and/or challenges do we want to address?

Action Steps: How will we achieve it?	**Roles/Responsibilities:** Lead/Team Member	**Resources Needed**	**Timeline:** By when?	**How can InnovATE BIO help?**	**Possible Funding Sources:**

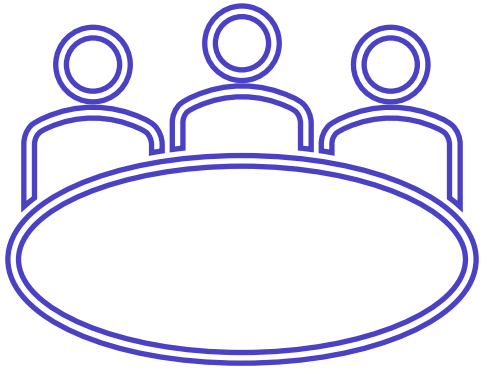
cord

- ✓ **Use Action Plan Template at your table**

or

- ✓ **Download Action Plan Template from Workshop Toolbox**

Goals, Reflections and Next Steps



Reach Out

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hcotner@cord.org

cord Center for Occupational Research & Development