

CTE TEKS Crosswalk to Industry Skills



Today...

Coming your way soon.....

Real-time.....

Data Driven.....

Skills System.....

to monitor secondary, postsecondary learning outcomes and their alignment to industry and regional job demand.

Is alignment REALLY possible?



How do we get
there from here?

With Vision, Leadership, and Scientific Rigor

Visionaries and Sponsors

**Texas
Workforce
Commission**

Mr. Tom Pauken
Chairman



Mr. Richard Froeschle
Director LMCI



Vangie L. Stice-Israel
CTE State Director



Practitioners:



“Everything should be made as simple as possible, but not simpler.”

Albert Einstein

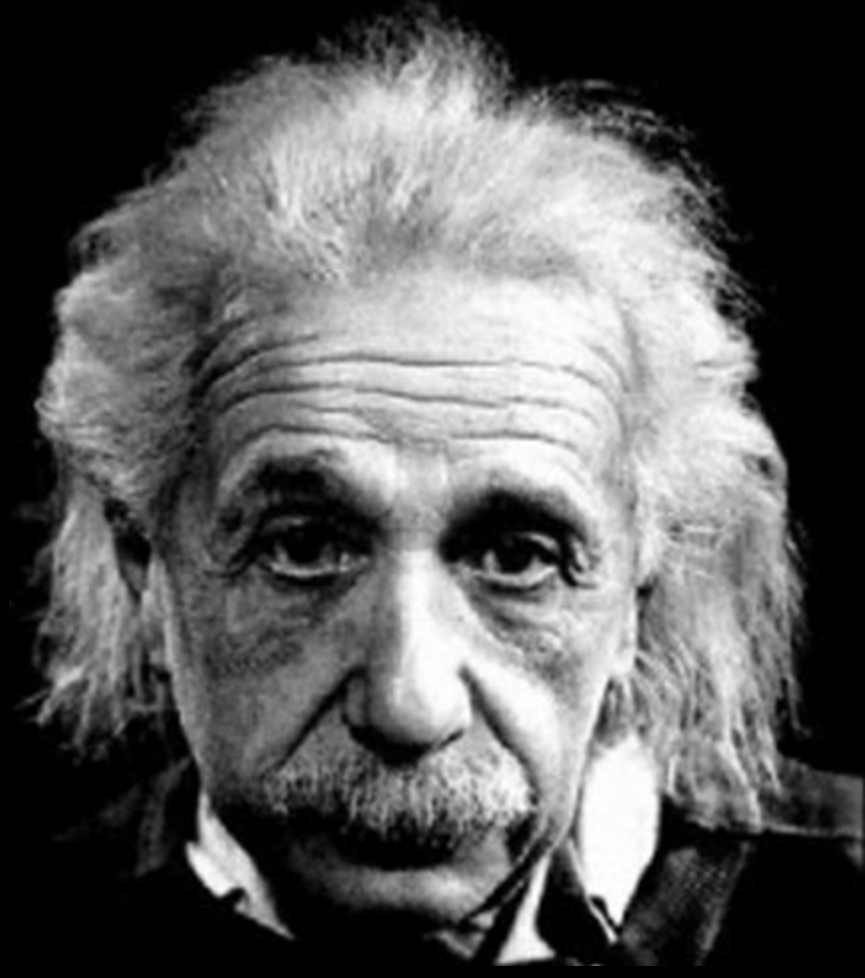
Alignment Foundational Criteria:

Keep it simple.

No duplication.

No adverse impact to workload.

See results or die.



It's a which hunt!

Which secondary and postsecondary organizations are preparing **which** students for **which** college or career opportunities in **which** labor market?

The witch connects **Readiness** Optimization components.

Trusted Skills Resource w/Performance Expectations supporting multiple crosswalks:

Skills to Employer Jobs

Skills CTE TEKS Student Expectations

Skills to Postsecondary Learning Outcomes

Skills & TEKS Workplace Basics

Skills & TEKS to Certificates/Certifications

Student Demonstrated Competence to SkillsPass.



Skills resource/performance expectations finished.

Detailed Work Activities



Weak-Link Initiative

Process and Challenges

Engaging Employers and SME Support

SkillsNET Team identified and contacted decision makers at employers via...

Workforce Solutions Leadership	Chamber of Commerce	Industry / Education Associations
Gulf Coast	Austin	INTERLINK
North Texas	Dallas	TBEC
Tarrant County	Ft. Worth	Aerospace Academy
Capital Area	Houston	TEXO
Central Texas	Waxahachie	Construction Ed. Foundation
Texoma	Wichita Falls	Healthcare Informatics Group
West Central Texas	Corpus Christi	DFW Hospital Council
	Garland	Convergence Technology Group
	Arlington	North Texas Restaurant Association

Higher Ed: TSTC System, Lone Star, San Jacinto, Brazosport, Dallas Community College, UT-Arlington, Collin County College, Texas Tech, University of Texas-Austin, University of Houston

Next. The CTE TEKS Industry Skills Crosswalk Project.

Goal: To compare TEKS student learning objectives against the DWA library to determine if DWAs could become a reasonable driver of future TEKS updates

If Successful.....

Would the crosswalk be overwhelming?

Limited Utility?

Is crosswalk maintenance affordable?

Would teachers use the crosswalk?

Does anyone really care?

Crosswalk findings and determinations

Yes. Crosswalk is possible.

Crosswalk can be mapped to multiple workforce education data sources.

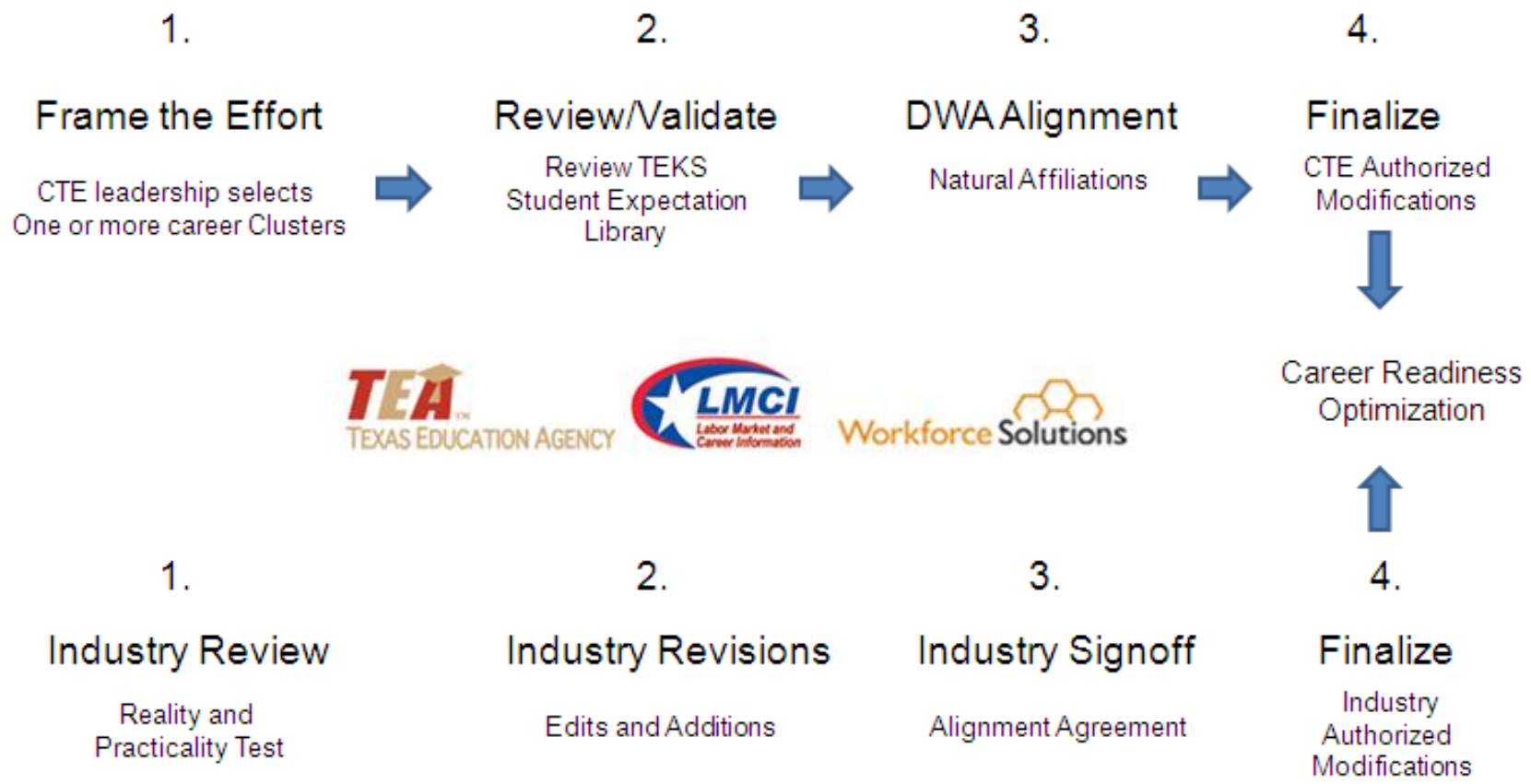
Technology improves efficiency.

Pilot teachers are using crosswalk to update curriculum and student orientation.



Glimpse of the cross-walk process.

TEKS>Skills Crosswalk Validation Process



TEKS>DWA Crosswalk Partners



TEA provided SkillsNET data for each Career Cluster....

	A	B	C	D	E	F
1	Cluster	Course ID	Course Name	Course Desc	Knowledge & Skills	Student Expectation
12115	Business Management and Administration	13012200	Practicum in Business Management	The Practicum is design	The student demonstrates prof	adhere to policies and procedures
12116	Business Management and Administration	13012200	Practicum in Business Management	The Practicum is design	The student demonstrates prof	adhere to policies and procedures
12117	Business Management and Administration	13012200	Practicum in Business Management	The Practicum is design	The student demonstrates prof	apply ethical reasoning to a variety of situations
12118	Business Management and Administration	13012200	Practicum in Business Management	The Practicum is design	The student demonstrates prof	complete tasks with the highest standards to e
12119	Business Management and Administration	13012200	Practicum in Business Management	The Practicum is design	The student demonstrates prof	complete tasks with the highest standards to e
12120	Business Management and Administration	13012200	Practicum in Business Management	The Practicum is design	The student demonstrates prof	complete tasks with the highest standards to e

Those data were transformed into a master database for analytics.

Research findings:

- 14,000 Student Expectations across all CTE PEIMS courses
- 4,300 duplicative student expectation statements
- Student expectations can be classified into three categories:
 - **Foundational / Theoretical / Conceptual** (65% of total)
 - **Skills** (30% of total)
 - **Task / Sub-tasks** (5% of total)
- The **Skill** level has best crosswalk accuracy with DWAs
- Large percentage of student expectations can be consolidated.
(same intent but stated differently)

TEKS Student expectation categories and DWA mapping rationale

1. Foundational / Theoretical / Conceptual Level

Learning outcomes difficult to measure.

“**REPRESENTATIVE DWA's**” are mapped

2. Skills Level ***

Learning outcomes easy to measure and share one or more career clusters. “**COMMON INDUSTRY SKILLS**” are mapped to this category.

3. Task / Sub-Tasks Level Learning outcomes are measurable and are generally specific to a career cluster. “**SPECIFIC INDUSTRY SKILLS**” are mapped to this category

Foundational / Theory / Concept Level Statements

Sample 1:

evaluate the impact of positive and negative personal choices, including use of electronic communications such as social networking sites

Sample 2:

describe methods to maintain and improve safety, health, and environmental systems in agriculture, food, and natural resources

Skill Level Statements

Sample 1:

select, maintain, operate, and use tools, equipment, and personal protective equipment common to food products and processing systems

Sample 2:

plan and deliver focused and coherent presentations that convey clear and distinct perspective and demonstrate solid reasoning

Tasks or Sub-Steps Level Statements

Sample 1: prepare personal income tax forms, including the 1040E

Sample 2: calculate Bernoulli's principle and Venturi effect as it relates to small engines

TEKS to DWA Crosswalk: Education and Training Cluster

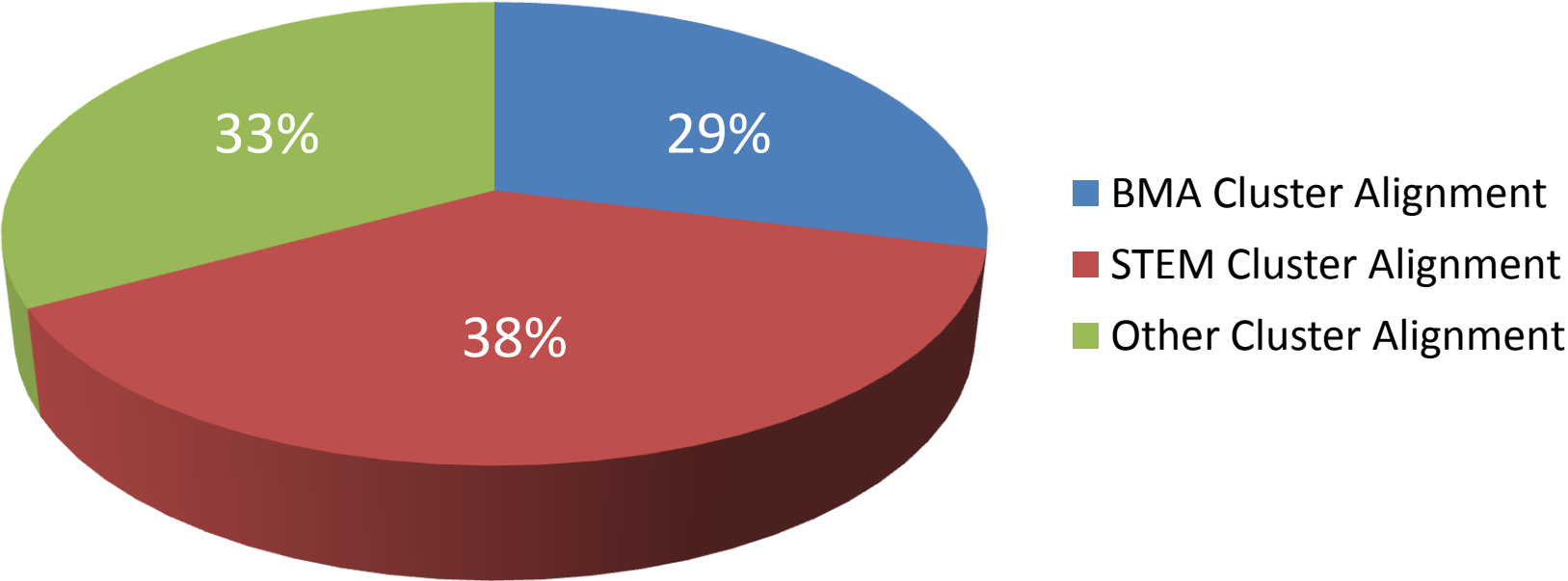
PEIMS#	Course Name	Student Expectations	DWA Code	Detailed Work Activity Statement	Accept (Y/N)	Comments
13014500	Practicum in Education and Training	analyze concepts for developing effective instructional strategies	6171	Train workers in use of equipment, computers, or work-related procedures		
13014500	Practicum in Education and Training	analyze concepts for developing effective instructional strategies	10262	Engage in training to maintain and improve physical conditioning, skill, or technique		
13014500	Practicum in Education and Training	analyze concepts for developing effective instructional strategies	5130	Work with management or employees to improve organizational systems and reduce costs		
13014500	Practicum in Education and Training	analyze concepts for developing effective instructional strategies	12158	Train others in work-related knowledge, skills, procedures, and techniques		
13014500	Practicum in Education and Training	analyze concepts for developing effective instructional strategies	581	Design informational presentations		
13014500	Practicum in Education and Training	analyze concepts for developing effective instructional strategies	5714	Develop course or training objectives		
13014500	Practicum in Education and Training	analyze concepts for developing effective instructional strategies	9517	Repair computers or related equipment		
13014400	Instructional Practices in Education and Training	analyze ethical standards that apply to the teaching and training profession	346	Follow professional ethics principles		
13014400	Instructional Practices in Education and Training	analyze expected effects of compliance and non-compliance	5149	Inspect facilities or equipment for regulatory, fire code, or fire hazard compliance		
13014400	Instructional Practices in Education and Training	analyze expected effects of compliance and non-compliance	5130	Work with management or employees to improve organizational systems and reduce costs		
13014400	Instructional Practices in Education and Training	analyze expected effects of compliance and non-compliance	861	Inspect products or systems for regulatory compliance		
13014300	Human Growth and Development	analyze forms, causes, effects, prevention, and treatment of child abuse	12158	Train others in work-related knowledge, skills, procedures, and techniques		
13014300	Human Growth and Development	analyze forms, causes, effects, prevention, and treatment of child abuse	14043	Report physical or emotional abuse		
13014300	Human Growth and Development	analyze forms, causes, effects, prevention, and treatment of child abuse	1444	Identify physical or emotional abuse		
13014300	Human Growth and Development	analyze forms, causes, effects, prevention, and treatment of child abuse	984	Maintain awareness of social trends		
13014500	Practicum in Education and Training	analyze instructional strategies for effectiveness	5774	Analyze data on curricula or instructional methods		
13014500	Practicum in Education and Training	analyze instructional strategies for effectiveness	12916	Calculate Return on Investment (ROI)		
13014500	Practicum in Education and Training	analyze personal behaviors and skills that facilitate the learning process	12221	Develop psychological, situational, or behaviorally based interviews		
13014500	Practicum in Education and Training	analyze personal behaviors and skills that facilitate the learning process	1205	Organize social behavior learning activities		
13014300	Human Growth and Development	analyze reasons for medical care and good health practices prior to and during pregnancy	1501	Research health improvement issues		

In addition to CTE team reviewing the crosswalk
The crosswalk was applied to several case studies.

1. Texas EERE emerging jobs
2. Garland Manufacturing jobs
3. Post Secondary Course gap analysis

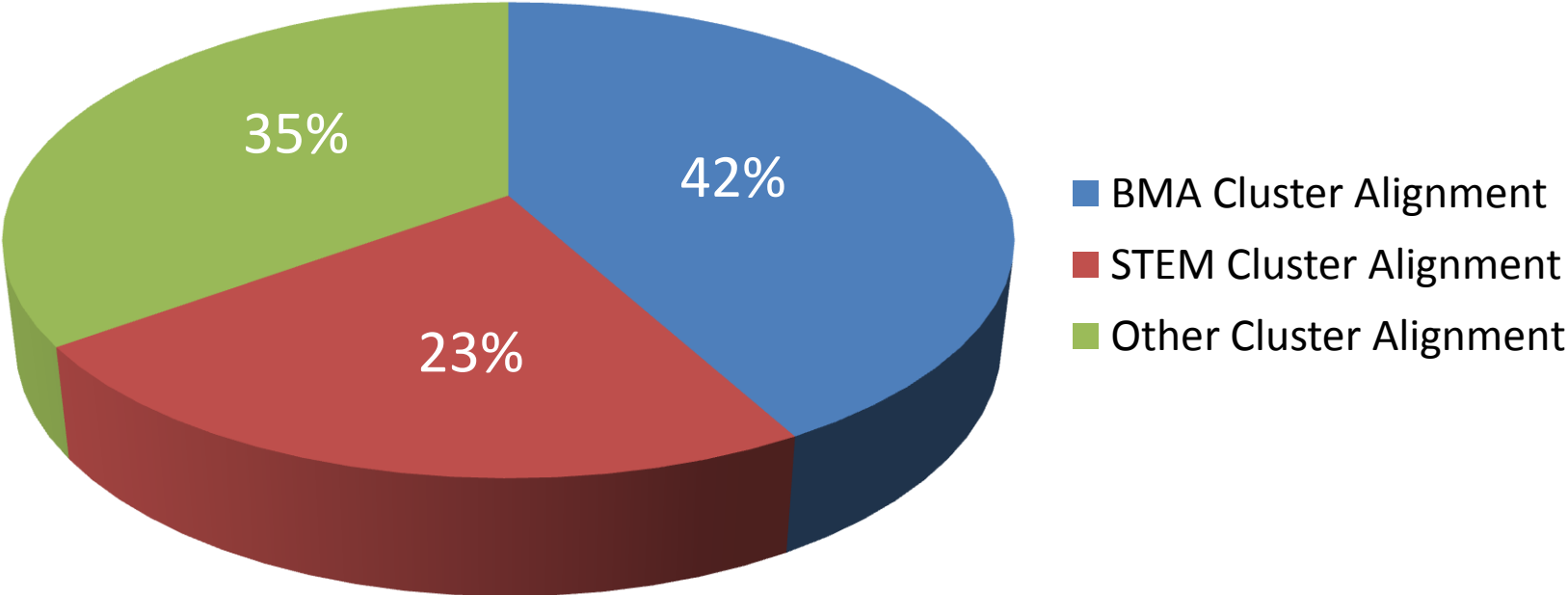
Commercial Energy Auditor

79 Industry Skill Statements



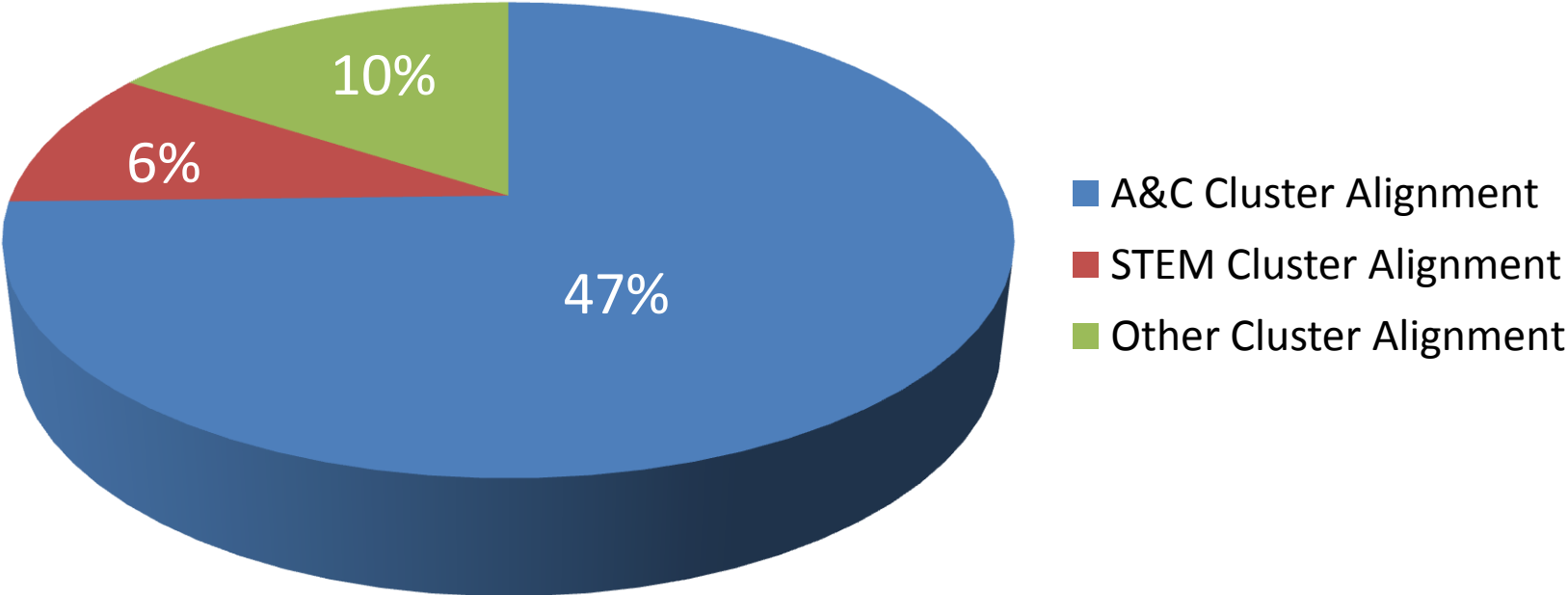
Residential Energy Auditor

62 Industry Skill Statements

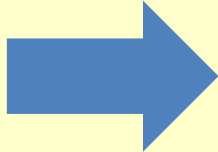


Solar Thermal Installer

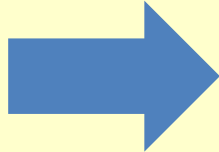
88 Industry Skill Statements



Postsecondary course translation to skill statements

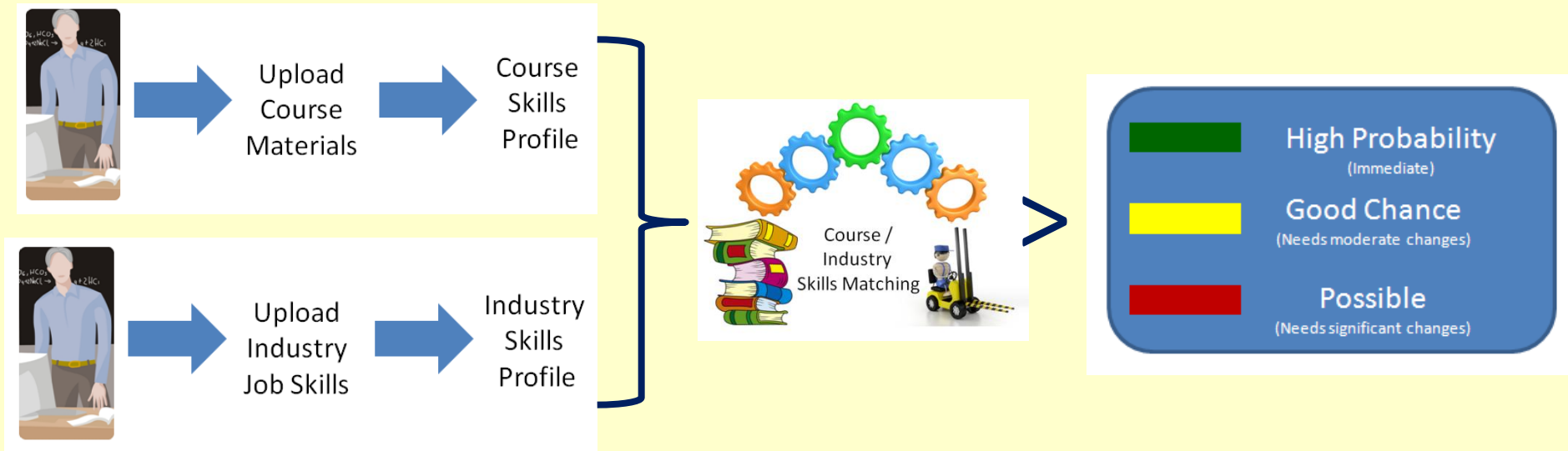


Upload
Course
Materials



Course
Skills
Profile

Postsecondary evaluates course and industry skills



TEKS>Post Secondary>Industry Pipeline Gaps

CTE Cluster: Health Science

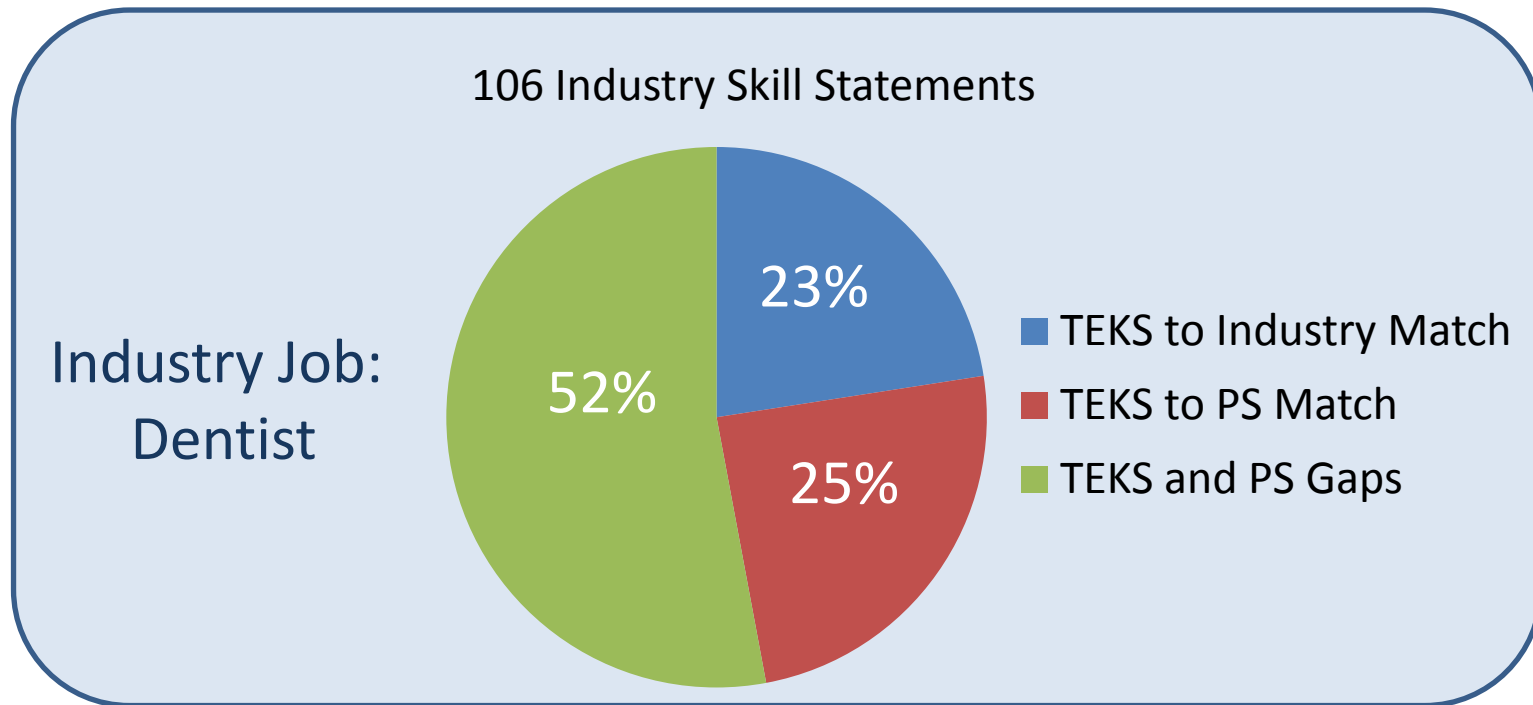
CIP: 51.0601: Advanced Dental Science

Courses

Principles of Health Science
Medical Terminology
Practicum in Health Science
Pathophysiology
World Health Research

Courses

Pharmacology
Office Emergencies
Community CPR
Pathology 1-15
Oral Photography



Secondary, Postsecondary and Employers
MUST Team to
Offer Learning That is Relevant

It's not **that** you study,
but **what** you study
in relation to **market** demand.

The North Texas Aerospace Consortium is a good example.

DWA Utility Lifecycle



TEKS-DWA Impact to Pipeline

CTE Academic Competencies

Post-Secondary Competencies & Skill Certificates

Industry Certification

Work-based Certification

TEKS Manufacturing Cluster

§130.XX. Principles of Manufacturing

The student describes the importance of teamwork, leadership, integrity, honesty, work habits, and organizational skills.

The student explores the employability characteristics of a successful worker in the global economy.

Career Context #1:

17-3021 Aerospace Engineering & Operations Technician

- DWA 1: Draws prototypes, plans, or maps to scale
- DWA 2: Evaluates Cost of completing engineering projects
- DWA 3: Evaluate engineering data.
- DWA 4:

Competencies:

- Team Work
- Systems Thinking
- Communications
- Accountability
-

Career Track Program

- Basic Engineering 205
- Advance Math 301
- Communications 101
- Basic Technology 201
- Social Science 200

Career Context #1

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-

Skill Certificates

- Mechanical Drawing
- Computational Math
- Systems Design
- Spatial Orientation

Career Certifications:

- MSSC
- CAD Technician
- Green Technician
- AMTP

Career Context #1

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Competencies:

- Team Work
- Systems Thinking
- Communications
- Accountability
-

Certification Competencies

- Process Management
- Business Awareness
- Computational Analysis
- Trustworthiness

Lockheed Martin

- Aerospace Apprentice
- Assembly Technician
- Design Technician
- Machinist level 1
- Machinist level 2
- Technology Technician

Career Context #1

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Competencies:

- Team Work
- Systems Thinking
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-

Foundational

Developmental

Employability

Interoperability



Education & Training Value Feedback / Best Practices

Workplace Basics Bring Value to Readiness Pipeline

Workplace Basics Skills for Baseline Job Preparation

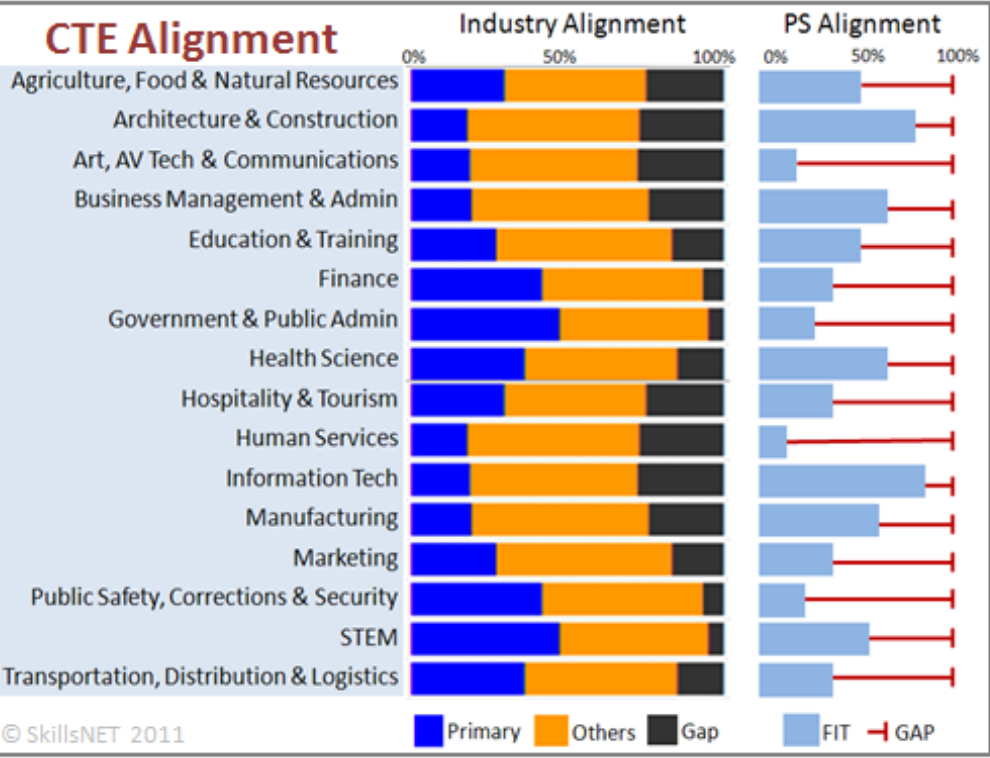
1. **Oral Communication** – skill in expressing ideas and messages to others in a clear, concise and effective manner, including explaining and justifying actions convincingly
2. **Written Communication** – skill in effectively conveying written information and messages in a socially acceptable manner that is easily understandable to others
3. **Numerical and Arithmetic Application** – skill in compiling data, using numbers in various formats, and performing job-appropriate numbers-based problem-solving
4. **Leadership** – ability to guide, support, mentor, encourage and influence others, passing on knowledge, expertise and training where possible
5. **Teamwork** – ability to cooperate, contribute and collaborate as a member of a group in an effort to attain agreement and achieve a collective outcome
6. **Appreciation of Diversity** – ability to show empathy and embrace multi-cultural diversity, including viewing new ideas and varying perspectives in a positive fashion
7. **Conflict Management** – skill in assessing interpersonal situations and resolving or mediating conflict, including taking steps to avoid potential or perceived conflict
8. **Customer Service** – knowledge of how to ascertain, and respond quickly to, the needs of internal and external customers to meet expectations and achieve customer satisfaction
9. **Work Ethic** – consistent demonstration of punctuality, dependability, reliability and responsibility in reporting for duty and performing assigned tasks as directed
10. **Professionalism** – knowledge of how to dress appropriately, speak politely, and conduct ones' self in a manner appropriate for the profession and work site
11. **Integrity** – ability to be trustworthy and honest, to choose the ethical course of action, and to comply with all applicable rules, laws and regulations
12. **Attention to Detail** – skill in reviewing with a critical eye the fine, detailed aspects of both quantitative and qualitative work process and end products
13. **Adaptability** – ability to adjust to changing expectations, and be flexible when confronted with new or ambiguous circumstances or situations
14. **Organization** – skill in imposing order and ranking to materials, concepts, and tasks to efficiently manage and balance all types of workplace and personal situations

15. **Stress Management** – skill in working under pressure and handling deadlines, including balancing work and family responsibilities
16. **Multi-tasking** – skill in handling multiple tasks and assignments simultaneously by setting priorities and managing work flow under varying deadlines
17. **Problem-solving** – ability to evaluate systems and operations, identify causes, problems, patterns or issues, and explore workable solutions or remedies to improve situations
18. **Decision-making** – knowledge of how to ask questions, consider options, rewards, and risks, set limits, plan goals, and apply information to the process of choosing the best alternative
19. **Intellectual Risk-taking** – acceptance of the importance of lifelong education, including learning quickly and thoroughly, and continuously applying new knowledge
20. **Thoughtful Reflection** – skill in logical reasoning, conceptualizing abstract ideas, organizing symbols and graphs, seeing systemic issues, and evaluating data or outcomes
21. **Initiative** – ability to show self-motivation in getting work done, or done better, in the course of routine, daily work, or to take the lead in an unique way
22. **Creativity** – ability to conceive of, and contribute, new ideas, alternative pathways, or unique responses to a variety of situations
23. **Dedication** – ability to demonstrate endurance, follow-through and capacity to complete work tasks, including proposing, negotiating and implementing alternative approaches
24. **Perseverance** – ability to improve work, continuously monitor progress, and persist in successfully achieving results and goals regardless of obstacles encountered
25. **Pride in Work** – ability to take personal ownership over the amount and quality of individual performance, team assignments and other duties carried out
26. **Following Directions** – ability to follow written and oral instructions, and to adhere to established business practices, policies and procedures, including health and safety rules
27. **Information Gathering** – ability to observe, to listen to information provided orally, and to read material to gather and interpret information presented in various formats
28. **Resource Allocation** – knowledge of how to identify, leverage and distribute financial and material resources effectively and efficiently
29. **Time Management** – skill in prioritizing tasks, following schedules, and tending to goal-relevant activities in a way that uses time wisely and optimizes efficiency and results
30. **Technology and Tool Usage** – knowledge of how to use and apply job-appropriate computer applications and other office equipment, such as copiers and fax machines

So, What can we do
with all this data?

Provide you with
meaningful
information dashboards!

CTE Alignment



Certifications

Cluster	Certification	In Progress
C1:	NCCR	34
C2:	MSSC	10
C3:	Cisco Tech	9
C4:	MS Excel 2007	47
C5:	Project Mgr.	5
C6:	Fire Protection	2
C7:	QC Technician	1
C8:	Fraud Analyst	7
C9:	Data Processor	11
C10:	Payroll Clerk	2
C11:	CPR	21
C12:	Time Mgmt.	6
C13:	Linen Technician	5
C14:	Home Tech Integr.	7
C15:	Business Planner	9
C16:	Image Tech.	3

Competencies

Workplace Basics	Target %	%
Attention to Detail	96.2	96.2
Creativity	128.8	128.8
Critical Thinking	96.4	96.4
Customer Service	80.0	80.0
Dedication	92.3	92.3
Following Directions	113.3	113.3
Initiative	115.3	115.3
Integrity	126.5	126.5
Leadership	95.2	95.2
Oral Communication	104.6	104.6
Pride in Work	94.0	94.0
Problem Solving	95.2	95.2
Stress Management	128.8	128.8
Team Work	141.6	141.6
Time Management	125.8	125.8
Work Ethic	96.2	96.2
Written Communication	94.0	94.0

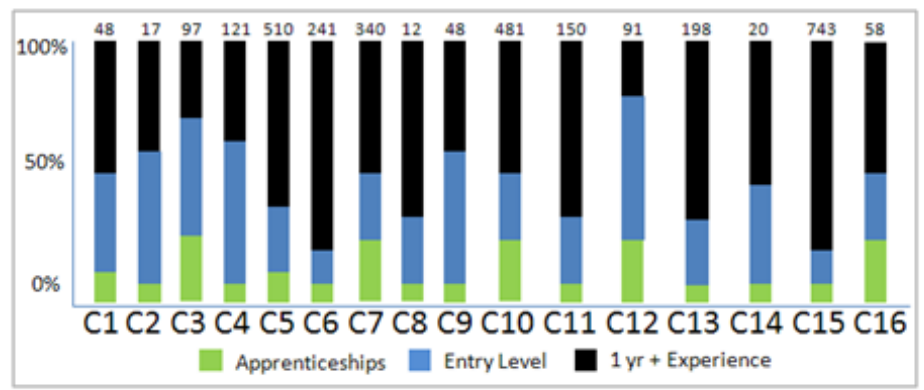
District Goals



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RK	Detailed Work Activity	Trends
1	Analyze Financial Data	↑
2	Design Solar Installation	↑
3	Evaluate engineering data	→
4	Layout masonry work	→
5	Manage cyber security system	New
6	Program web-based software tools	→
7	Troubleshoot network systems	↑
8	Plan oil & gas extraction	↑
9	Monitor worker performance	→
10	Prepare career management programs	New
11	Teach early childhood education program	↑
12	Sell stocks, bond, security products	→
13	Repair small engines	↓
14	Provide statistical analysis	New
15	Assess Customer Opportunities	→
16	Design molds for casting objects	→
17	Analyze Market/Sales Trends	↑
18	Maintain job descriptions	↑
19	Organize lesson plans	↑
20	Plan meetings or conferences	↓

Real-Time Job Demand



2 YR: ↑ 4 YR: → 4+: ↑ Certs: ↑

Key Economic Clusters	12 Months
Consumer Services	
Construction Materials	
Electric Equipment	
Paper Products	
Vehicle Manufacturing	
Chemical Products	
Plastics	
Telecommunications	
Finance/Insurance	
Biotechnology	
Aircraft Components	
Medical Supplies	
Environment Control Sys.	
Passenger Transit Services	
Commercial Construction	
Agriculture	
Healthcare	

Next Steps:

Expand the CTE TEKS>Skills Crosswalk to broader user population.

Join the Workplace Basics design/pilot team.

Join the CTE Talent Pipeline Skills Ticker team.

Engage more postsecondary participants.

Longitudinal study of Education and Labor Market Alignment Analysis

How. Join the DWA Research Institute Community.

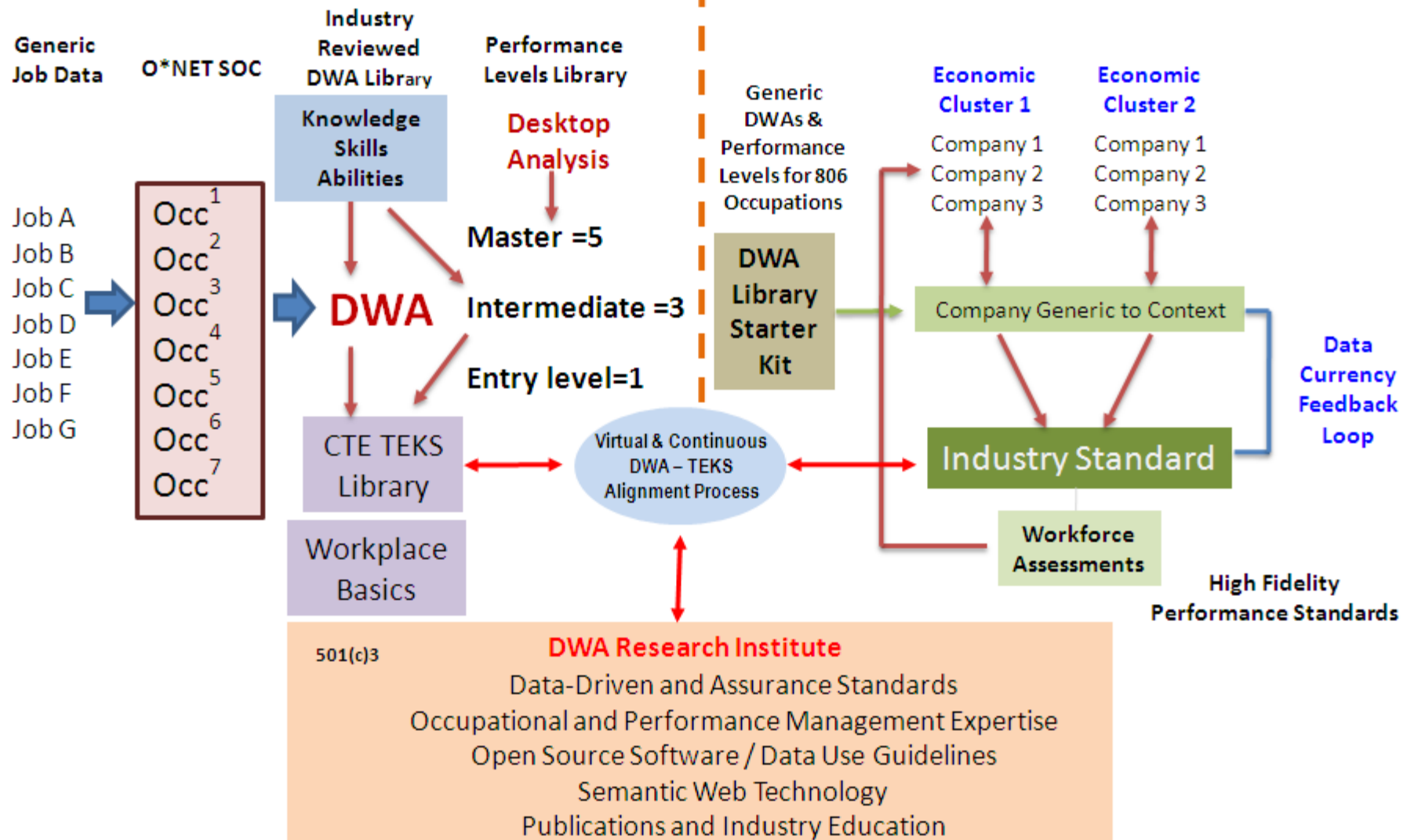


Has been establish to continue
skills crosswalk
research for Public/private
partnerships

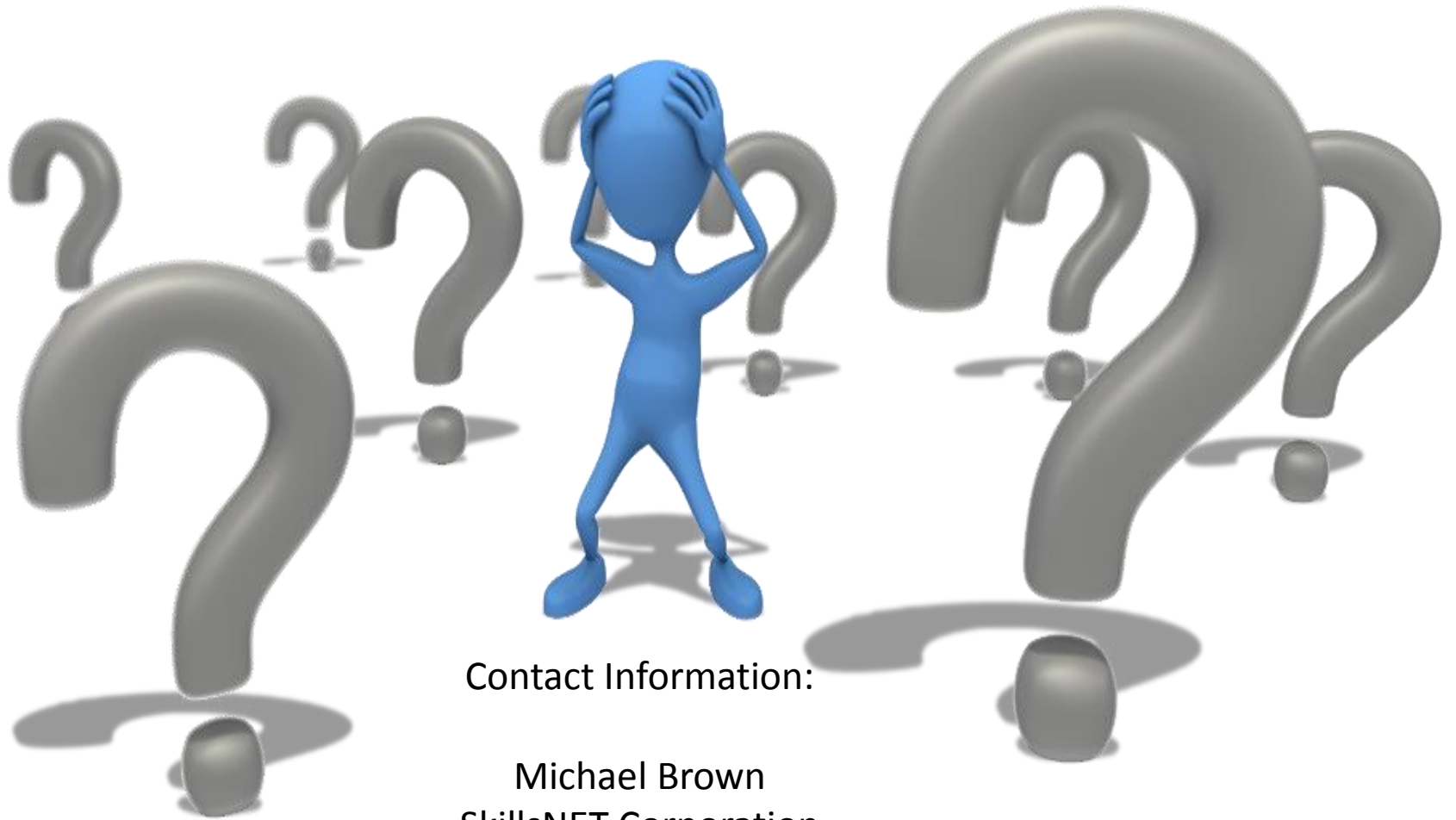
www.dwainstitute.org

TWC/TEA DWA Funded Research

Industry Application



www.dwainstitute.org



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