Educating and Training Tomorrow’s Workers

November 13, 2013
Garrett Groves
New Realities

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

I. Skill demands are changing in the U.S. labor market

II. Postsecondary education is the “New Minimum” for access to the middle class

III. We must address these challenges with fewer resources.
New Realities: Changing Skill Demands

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

High-skill Occupations:

Traditional Middle-Skill Occupations:

Low-Skill Occupations:

Source: Kansas City Federal Reserve Bank, Didem Tüzemen and Jonathan Willis, (2013). “The Vanishing Middle: Job Polarization and Workers’ Response to the Decline in Middle-Skill Jobs,”
High-skill Occupations: Managerial, professional, and technical occupations, such as engineering, finance, management, and medicine.

Traditional Middle-Skill Occupations:

Low-Skill Occupations:

Source: Kansas City Federal Reserve Bank, Didem Tüzemen and Jonathan Willis, (2013). “The Vanishing Middle: Job Polarization and Workers’ Response to the Decline in Middle-Skill Jobs,”
High-skill Occupations: Highly educated workers with analytical ability, problem solving, and creativity.

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New Realities: Changing Skill Demands

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

High-skill Occupations: Highly educated workers with analytical ability, problem solving, and creativity.

Traditional Middle-Skill Occupations:

Low-Skill Occupations: Service oriented occupations, such as food preparation, cleaning, and security and protective services.

Source: Kansas City Federal Reserve Bank, Didem Tüzemen and Jonathan Willis, (2013). “The Vanishing Middle: Job Polarization and Workers’ Response to the Decline in Middle-Skill Jobs,”
New Realities: Changing Skill Demands

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

High-skill Occupations: Highly educated workers with analytical ability, problem solving, and creativity.

Traditional Middle-Skill Occupations:

Low-Skill Occupations: Workers with no formal education beyond high school. They work in occupations that are physically demanding and cannot be automated.

Source: Kansas City Federal Reserve Bank, Didem Tüzemen and Jonathan Willis, (2013). “The Vanishing Middle: Job Polarization and Workers’ Response to the Decline in Middle-Skill Jobs,”
New Realities: Changing Skill Demands

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

High-skill Occupations: Highly educated workers with analytical ability, problem solving, and creativity.

Traditional Middle-Skill Occupations: Sales, office and administrative support, production, construction, extraction, installation, maintenance and repair, transportation, and material moving.

Low-Skill Occupations: Workers with no formal education beyond high school. They work in occupations that are physically demanding and cannot be automated.

Source: Kansas City Federal Reserve Bank, Didem Tüzemen and Jonathan Willis, (2013). “The Vanishing Middle: Job Polarization and Workers’ Response to the Decline in Middle-Skill Jobs,”
High-skill Occupations: Highly educated workers with analytical ability, problem solving, and creativity.

Traditional Middle-Skill Occupations: Workers who perform routine tasks that are procedural and repetitive.

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New Realities: Changing Skill Demands

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

EMPLOYMENT SHARES BY SKILL LEVEL

Source: Kansas City Federal Reserve Bank, Didem Tüzemen and Jonathan Willis, (2013). “The Vanishing Middle: Job Polarization and Workers’ Response to the Decline in Middle-Skill Jobs,”
New Realities: Changing Skill Demands

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

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EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

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Low-Skill Occupations = High School or Less
Workers with no formal education beyond high school. They work in occupations that are physically demanding and cannot be automated.
New Realities: Changing Skill Demands

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

New High-skill Occupations = Bachelors and Above
Highly educated workers with a college degree and above

High-skill Occupations: Highly educated workers with analytical ability, problem solving, and creativity.

New Middle-Skill Occupations = “Some College”
Highly educated workers with education above a high school diploma, but less than a 4-year degree.

Low-Skill Occupations = High School or Less
Workers with no formal education beyond high school. They work in occupations that are physically demanding and cannot be automated.
New Realities: The “New Minimum”

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT
New Realities: The “New Minimum”

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

Defining the Problem:
Increasing Need for More Education in Current Economy

Fewer workers with high school diploma or less make at least $25,000 per year

**Percent of workers making > $25K**

- **1973**: 59%
- **1983**: 49%
- **1991**: 41%
- **2001**: 45%
- **2011**: 36%

Source: Bureau of Labor Statistics
New Realities: The “New Minimum”
EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

OK’s Educational Gap for New Jobs

- High School Degree and less
- Bachelor’s Degree
- Some college/Vocational/Associate's Degree
- Post Bachelor’s Degree

OK New Jobs’ Requirements
- 22.9% High School Degree and less
- 48.9% Some college/Vocational/Associate's Degree
- 23.7% Bachelor’s Degree
- 4.5% Post Bachelor’s Degree

2010 OK Educational Attainment
- 45.8% High School Degree and less
- 31.3% Bachelor’s Degree
- 15.4% Some college/Vocational/Associate's Degree
- 7.5% Post Bachelor’s Degree

New Jobs defined as those jobs projected to be created between 2010 and 2020.
Source: 2010 ACS; EMSI Complete Employment - 2011.4
New Realities: The “New Minimum”

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

OK’s Educational Gap for New Jobs

- High School Degree and less
- Bachelor’s Degree
- Some college/Vocational/Associate's Degree
- Post Bachelor’s Degree

OK New Jobs’ Requirements
- 22.9
- 48.9
- 23.7
- 4.5

2010 OK Educational Attainment
- 45.8
- 31.3
- 15.4
- 7.5

New Jobs defined as those jobs projected to be created between 2010 and 2020.
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New Realities: Fewer Resources

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT
New Realities: Fewer Resources

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

Federal Employment and Training Expenditures

In Billions

14
12
10
8

New Realities: Fewer Resources

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

Federal Employment and Training Expenditures
New Realities: Fewer Resources

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

Federal Employment and Training Expenditures

In Billions

NATIONAL GOVERNORS ASSOCIATION
Survey of Adult Skills in brief

166 thousand adults...
Representing 724 million 16-65 year-olds in 24 countries/economies, including 5,010 Americans

Took an internationally agreed assessment...

in literacy, numeracy and problem solving in technology-rich environments.
Skills of adults

Numeracy

- Japan
- Finland
- Netherlands
- Sweden
- Norway
- Denmark
- Slovak Republic
- Czech Republic
- Austria
- Estonia
- Germany
- **Average**
- Australia
- Canada
- Korea
- England/N. Ireland (UK)
- Poland
- Ireland
- France
- **United States**
- Italy
- Spain
Skills of adults

Literacy

- Japan
- Finland
- Netherlands
- Australia
- Sweden
- Norway
- Estonia
- Czech Republic
- Slovak Republic
- Canada
- Korea
- England/N. Ireland (UK)
- Denmark
- Germany
- United States
- Austria
- Poland
- Ireland
- France
- Spain
- Italy

Score
Literacy skills in younger and older generations

- **KOREA**
- **Germany**
- **Norway**
- **US**
- **Spain**
- **Finland**

Average 16-24 year-olds:
- **Spain**
- **Finland**
- **US**
- **Norway**

Average 55-65 year-olds:
- **KOREA**
- **Germany**
- **UK**
- **Spain**
- **France**

Score range: 240 to 300
Sector Strategies Coming of Age:
EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

I. Education

II. Workforce Development

III. Economic Development
Sector Strategies Coming of Age:
EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

I. Education  Train & Pray

II. Workforce Development

III. Economic Development
Sector Strategies Coming of Age:
EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

I. Education → Career Pathways
II. Workforce Development
III. Economic Development
Career Pathways
Effective career pathways rely on coordination across education and training programs in order to offer a clear sequence of industry-relevant coursework and credentials to job seekers. Today's education and training programs include online and in-person opportunities.
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After being in the workforce, a person may choose to go back for more credentials to make an upward or lateral career move.
Sector Strategies Coming of Age: EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

I. Education  Career Pathways

II. Workforce Development

III. Economic Development
Sector Strategies Coming of Age:
EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

I. Education → Career Pathways

II. Workforce Development

III. Economic Development → ?

Career Pathway System:
- High school (diploma or equivalent)
- Adult Basic Education (credential)
- University (degree)
- Community college (degree or certificate)
- Workforce training (certificate)
- Organized labor training/apprenticeship (certificate)

Enter workforce in a variety of careers
Sector Strategies Coming of Age:
EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

I. Education

II. Workforce Development

III. Economic Development → Business Attraction
Sector Strategies Coming of Age: EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

I. Education

II. Workforce Development

III. Economic Development → Industry Clusters
Industry Cluster
An industry cluster consists of large and small firms in a single industry. Firms in industry clusters benefit from synergies of association related to shared labor, sources of innovation, suppliers, markets, technology, and infrastructure.
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- **Large/Anchor Firms**
- **Support Sectors**
- **Medium Firms**
- **Small Businesses**
- **Start-ups**

**MARKETS AND BUYERS**
**SUPPLY CHAINS**
**INFRASTRUCTURE**
**INNOVATION AND TECHNOLOGY**

- Includes transportation, utilities, broadband, etc.
- Includes access to university and federal lab research and development.
**Industry Cluster**

An industry cluster consists of large and small firms in a single industry. Firms in industry clusters benefit from synergies of association related to shared labor, sources of innovation, suppliers, markets, technology, and infrastructure.

- **Small Businesses**
- **Medium Firms**
- **Large/Anchor Firms**
- **Start-ups**

**Support Sectors**
- Markets and Buyers
- Supply Chains
- Infrastructure
- Innovation and Technology
- Labor

- Includes transportation, utilities, broadband, etc.
- Includes access to university and federal lab research and development.
- Includes education and training systems graduating jobseekers with skills for entry-level, mid-level, and advanced-level occupations.
Sector Strategies Coming of Age:
EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

I. Education  Career Pathways

II. Workforce Development

III. Economic Development  Industry Clusters
Sector Strategies Coming of Age:
EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

I. Education  →  Career Pathways

II. Workforce Development  →  ?

III. Economic Development  →  Industry Clusters
Sector Strategies Coming of Age:

EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

I. Education

II. Workforce Development  
   Labor Exchange & 
   Customized Training

III. Economic Development
Sector Strategies Coming of Age:
EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

I. Education

II. Workforce Development → Sector Partnerships

III. Economic Development
Sector Partnership
The partnership addresses common needs of employers and generates coordinated solutions that benefit workers.

Convener
Sector Partnership
The partnership addresses common needs of employers and generates coordinated solutions that benefit workers.

Industry members
(Representatives from firms in a single industry)

Convener
Sector Partnership
The partnership addresses common needs of employers and generates coordinated solutions that benefit workers.

Industry members
(Representatives from firms in a single industry)

Strategic partners

- Adult basic education
- Community colleges
- Universities
- Community-based organizations
- Human services organizations
- Organized labor
- Workforce boards, one-stops
- Economic development organizations
- K-12

Convener
Sector Partnership
The partnership addresses common needs of employers and generates coordinated solutions that benefit workers.

Outcomes for Employers
- 41% employers report reductions in turnover
- 84% employers report significant increases in productivity
- 100% employers report participation in Partnership was valuable

Outcomes for Workers
- 48% worker participants exited poverty
- 18% higher earnings
- More likely to work and in jobs with benefits
Sector Strategies Coming of Age:
EDUCATION, WORKFORCE & ECONOMIC DEVELOPMENT

I. Education  →  Career Pathways

II. Workforce Development  →  Sector Partnerships

III. Economic Development  →  Industry Clusters
Sector Partnership

Strategic Partners

Convener

Industry Members

Input from industry

Strategic Partners create a Career Pathway System based on industry needs

Career Pathway System

Workforce training (certificate)

Enter workforce in a variety of careers

University (degree)

Enter workforce in a variety of careers

Community college (degree or certificate)

Enter workforce in a variety of careers

Organized labor training (apprenticeship) (certificate)

Enter workforce in a variety of careers

Industry Cluster

Small Businesses

Medium Firms

Large/Anchor Firms

Support Sectors

Markets and Buyers

Supply Chain

Infrastructure

Innovation and Technology

Labor

NATIONAL GOVERNORS ASSOCIATION

Designs by THE WOOLSEY GROUP
Workers graduate with industry-approved credentials that get them hired.

Input from industry

Sector Partnership

Strategic Partners create a Career Pathway System based on industry needs

partnership synergies reverberate back
Workers graduate with industry-approved credentials that get them hired.

Strategic Partners create a Career Pathway System based on industry needs

Partnership synergies reverberate back

Input from industry

Sector Partnership
Virginia’s Regional Career Pathways Initiative

Located on the Virginia Peninsula

- Engaged 14 Major Manufacturers in the region
- Local Workforce investment board
- Community colleges
- Six school districts

Consortium Dedicated to:
- Research and Development
- Implementation and continuous improvement of career pathways
- Education & training specifically tailored to more than 11,000 jobs available in next 5 years

Regional Strategic Planning:
Skills to Succeed Inventory (2012 – 2016)
Road map to Success (Strategic Plan)
Virginia’s Advanced Manufacturing Consortium

The occupations and job openings include:

- CNC and Robotics Operators – 350
- Coating Specialists (Surface Prep Technicians) – 1,300
- Electricians – 1,700
- Engineers – 200
- Fabricators/SHEETMETAL Workers – 950
- Fitters – 1,600
- Machinists – 1,200
- Production and Account Managers – 150
- Pipefitters – 1,850
- Repair Technicians – 150
- Welders – 1,700
# Virginia’s Advanced Manufacturing Consortium

## Hampton Roads Higher Education and Workforce Credentials in Manufacturing Related Careers

<table>
<thead>
<tr>
<th>OCCUPATION</th>
<th>TNCC</th>
<th>HU</th>
<th>ODU</th>
<th>NSU</th>
<th>NNS-AS</th>
<th>NHREC</th>
<th>TCC</th>
<th>RCC</th>
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</thead>
<tbody>
<tr>
<td>Computer Aided Drafting/Design</td>
<td>AAS, CERT, CSC</td>
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<td>AAS, CERT</td>
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<td>Elec. Maintenance Tech.</td>
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<td>World Class Shipbuilder</td>
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Advanced specializations along Career Pathways are available through the community colleges and the universities in many degrees, and with the NNS Apprentice School in Advanced Shipyard Operations, Cost Estimation, Modeling and Simulation, Marine Design, Nuclear Testing and Production Planning.

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**Abbreviations:**
- AAS — Associate of Applied Science
- ARI — Apprenticeship Related Instruction
- AS — Bachelor of Science
- CERT — Certified Career Studies Certificate
- CSC — Career Studies Certificate
- HU — Hampton University
- NSU — Norfolk State University
- NNS-AS — Newport News Shipyard Apprentice School
- NHREC — New Horizons Regional Education Center
- ODU — Old Dominion University
- TCC — Thomas Nelson Community College
- TNCC — Thomas Nelson Community College
- RCC — Rappahannock Community College
## Virginia’s Advanced Manufacturing Consortium

### Current Peninsula Career Pathway Opportunities (High School – University)

<table>
<thead>
<tr>
<th>Employment</th>
<th>Youth</th>
<th>Adults</th>
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<tbody>
<tr>
<td>High School/GED</td>
<td>Dual Enrollment Program</td>
<td>Adult Basic Training (GED)</td>
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<tr>
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<td>One Stop Training Grants</td>
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<td>Pre-Hire Training</td>
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<td>On-The-Job Training</td>
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<td>Customized Training</td>
<td>Career Studies Certificate</td>
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<td>Bachelor Degree</td>
<td>Associate Degree</td>
<td>Bachelor Degree</td>
</tr>
<tr>
<td>Bachelor Degree</td>
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**TNCC Customized Training**
America Works: Education and Training for Tomorrow’s Jobs

A Better State System
A Better State System

1. Statewide Vision
2. Improved Data Systems
3. High-Quality Partnerships
4. Aligned Use of Incentives and Resources
A Better State System

**STATEWIDE VISION**

1. State goal or vision for postsecondary completion and attainment.

2. State vision or strategy for economic development.

- Are they connected?

- Is there meaningful activity taking place related to the vision?
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TENNESSEE

• Increase the percentage of Tennesseans with college degrees or certifications to 55% by the year 2025.

• A mission for higher education, workforce and economic development.

• A drive to reduce unemployment and improve the quality of life.

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2013
Drive to 55 measures our workforce readiness. Research shows: To meet the workplace demands, 55 percent of jobs will require a credential or degree beyond the high school level.

2017
Every percentage point below that means a full percentage of Tennesseans will be unemployed or underemployed.

2021

2025
55%

32%

Our Challenge:
494,000
Additional Credentials

39%

Because of natural population growth, this number will increase gradually over time.

Where we will be without additional strategies.

Drive to 55 is a must for the future of Tennessee.

NATIONAL GOVERNORS ASSOCIATION
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**IMPROVED DATA SYSTEMS**

- Identify Key Policy Questions
- Strengthen the State’s Data Infrastructure
- Produce Relevant Products

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The Maryland Longitudinal Data System (MLDS) links together data for Maryland students from preschool through college and out into their career. The data supports the continuous improvement of educational outcomes and research to increase student achievement and support accountability.

**Featured Dashboards (Click on a dashboard to View)**

- What percentage of high school students enroll in college?
- Are high school graduates college ready?
- How quickly do residents graduate college?
- Are we producing the right degrees for state jobs?
- What percent of students are engaged in STEM?
- How many degrees awarded are STEM related?
The Maryland Longitudinal Data System (MLDS) links together data for Maryland students from preschool through college and out into their career. The data supports the continuous improvement of educational outcomes and research to increase student achievement and support accountability.

**Featured Dashboards (Click on a dashboard to View)**

- What percentage of Maryland high school students enroll in college?
- Are Maryland's High School graduates college ready?
- How quickly and effectively do Marylanders graduate from college?
- Are we producing the right degrees for Maryland Jobs?
- What percentage of high school students are engaged in STEM education?
- How many 2-yr and 4-yr college degrees awarded in Maryland are STEM-related?
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**IMPROVED DATA SYSTEMS**

**KENTUCKY**

- State longitudinal data system that integrate education and workforce data
- Real-time labor market data

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**Healthcare Sector Kentucky**

- Low Wage & High Demand
- High Wage & High Demand
- KY Median Wage Line →
- KY 75th Percentile Wage Line →

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**Statewide Partnership Support**

- Where does statewide system alignment take place?
  - State Workforce Board
  - P-20W Council
  - Other Cross-Agency Entity

**Regional Partnership Support**

- Where are the strongest examples of local or regional partnerships?

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Regional Partnership Support

Colorado:

- Regional sector partnership & career pathway initiatives

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REGIONAL PARTNERSHIP SUPPORT

Colorado:

- Regional sector partnership & career pathway initiatives

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Region 6: Kiowa, Crowley, Otero, Bent, Prowers, Baca

- Expanding: Health & Wellness
- Exploring: Advanced Manufacturing
- Exploring: Food & Agriculture
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Regional Partnership Support

2013 Arizona Sector Partnerships

- **Yavapai County Region**
  - Energy/Renewable Energy Partnership: Status Active
  - Light Manufacturing Partnership: Status Active
  - Medical Services/Technology Partnership: Status Active
  - Viticulture Sector Partnership: Status Active

- **City of Phoenix/Maricopa County Region**
  - City of Phoenix Healthcare Services Partnership: Status Emerging
  - Greater Phoenix Manufacturing Alliance: Status Emerging
  - Maricopa Exploring: Energy, Logistics, Transportation and Warehousing: Status Active

- **Coconino County Region**
  - Astronomy Sciences Partnership: Status Active
  - Biomedical Science Manufacturing Partnership: Status Active
  - Coconino Collaboration for Advanced Manufacturing Sector Excellence: Status Active
  - Forest Products Partnership: Status Emerging
  - Logistics and Transportation Partnership: Status Emerging
  - Exploring: Energy, Software/IT: Status Active

- **Navajo/Apache Counties Region**
  - Health Services Partnership: Status Emerging
  - Real AZ Corridor - Natural Resources: Status Active

- **Gila/Clayton Counties Region**
  - Exploring: Healthcare

- **Yuma County Region**
  - Aerospace and Defense Testing: Status Emerging
  - Health Care Partnership: Status Active
  - Renewable Energy Partnership: Status Active
  - Yuma Manufacturing Association: Status Active
  - Exploring: Information Technology, Call Center Services: Status Emerging

- **Pima County Region**
  - Pima Aerospace & Defense Manufacturing: Status Active
  - Health/Bio Sector Partnership: Status Active

- **Southern Arizona Region**
  - Pima, Cochise, Graham, Greenlee, Santa Cruz and Yuma Counties: Status Active
  - Exploring: Border Security

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Sector Partnership

- Strategic Partners create a Career Pathway system based on industry needs

Input from industry

Career Pathway System

- Enter Workforce
- Retraining
- Community college partnership
- K-12 education partnership
- Industry cluster

Industry Members

Convener

Partnership strengths reinforce back

National Governors Association
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Regional Partnership Support

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Aligned Use of Incentives and Resources

State Examples

• Statewide Asset or Capacity Mapping
• Performance Funding Programs
• Workforce Board Certification Process
• Cross-System Grant Funding and Review

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