Collaborative initiatives to address STEM careers in manufacturing in North Central Idaho

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National Context

• With the exception of some PhD-level researchers in academia, the demand for workers in STEM occupations is increasing at every education level.

• The STEM supply problem goes beyond the need for more professional scientists, engineers, and mathematicians.

• More qualified technicians and skilled STEM workers in Advanced Manufacturing, Utilities and Transportation, Mining, and other technology-driven industries.
National Context

• STEM occupations will grow far more quickly than the economy as a whole (17% versus 10%),

• By 2018, roughly 35 percent of the STEM workforce will be comprised of those with sub-baccalaureate training, including:
  
  Associate’s degrees
  Certificates
  Industry-based certifications.

• Many students drop out of the STEM pipeline between high school and college.
Addressing STEM competencies

• Higher premium placed on the mastery of 21st Century skills; the separation of vocational/occupational and academic becomes untenable

• Cannot limit our vision that college is the sole desired outcome for secondary school students

• Just under 52 percent of Idaho’s high school graduates have enrolled in two-or four-year college.

• Researchers need to be engaged in helping employers and community understand the skills sets required for workforce (Marshall and Plotkin, 2010)
North Central Idaho Southeast Washington Context

Industrial Cluster defined

• A geographically bounded group of similar or related firms—connected by common markets, technologies or knowledge—suppliers, skilled workers and supporting institutions.
Metal Supercluster

- The Metal Supercluster is made up of metal fabrication manufacturers including:
  - ammunition and firearms makers
  - jet boat and trailer builders
  - equipment
  - machine shops and a foundry
- The cluster has similar workforce needs and cross over in their supply chains.
The Metal Supercluster Project Service Area:

Washington Counties:
1. Asotin
2. Columbia
3. Garfield
4. Whitman

Idaho Counties:
1. Clearwater
2. Idaho
3. Latah
4. Lewis
5. Nezperce
Metal Supercluster

- **National Location Quotient: 1.63.**
  Proportional the region has 63% more jobs in manufacturing than in the nation
Metal Supercluster


- In the first four months of 2013, manufacturers in the cluster added another 190 jobs.

<table>
<thead>
<tr>
<th>County</th>
<th>2001 Jobs</th>
<th>2012 Jobs</th>
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<tbody>
<tr>
<td>Total</td>
<td>1,416</td>
<td>3,513</td>
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<tr>
<td>Nez Perce</td>
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<td>Whitman</td>
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<tr>
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<td>97</td>
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<tr>
<td>Garfield</td>
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Rural Business Opportunity Grants Program

Strategy for Cluster Development

Metal Cluster

NAICS

CEDA, Walla Walla CS
CEDA
K-12
Manufacturers
Community Groups
Goals of Strategy

• Identify the regional resources for expansion.

• Determine how to create and sustain a regional resource “delivery system”.

• Identifying the five most critical occupations, devise strategy to develop training programs.
What is DACUM?

A process that uses expert workers in industry to identify occupational and job competencies. The profile generated is generally used to inform the development of training (curriculum) to meet industry needs.
DACUM

Used for:
• Job analysis
• Occupation analysis
• Functional analysis
Critical Occupations

• **DACUM** process was used to identify top five Jobs

• **8 Operations/HR managers participated**
  - Nightforce Optics
  - Hillco Technologies Inc.
  - Schweitzer Engineering Laboratories (SEL)
  - Howell Munition and Technologies
  - Seekins Precisions, LLC
  - Gem Chain Bar
  - ATK
Five Critical Jobs

1. Machinist
2. Fabricator
3. Electronic Technician
4. Machine Technician
5. Quality Assurance Supervisor
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ALL STEM OCCUPATIONS
MODIFIED DACUM
Identifying the Duties, Tasks, Skills & General Competencies top three job areas
INTROSPECTIVE APPROACH

technical knowledge, problem solving, coordination, communication, safety competencies
Moving Forward - Issues

Bodies
• Fewer youths
• About 4 out of 10 not going to college
• Hugh increase in employment
• More workers close to retirement

Changing Attitudes
• Tour of manufacturing facilities
• Career awareness and guidance
• Dream – IT Do – IT initiative
Moving Forward - Issues

Skills

• Higher Skill level required
• Need to acquire while still in school
• PTE in school need to align with manufacturers need
• Schools may not be equipped to deliver

Skills

• Technology education teachers do not have the skills to prepare students at the proficiency required
• Stronger collaboration will be needed between schools and technical colleges
• Innovative approach need to be found to deliver practical training in occupational areas
Moving Forward - Issues

Skills

• Manufacturers’ endorsed certificates acquired during high school
• Stackable credentials that pathway into associate degree programs
• Orientation to life long learning
Questions