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

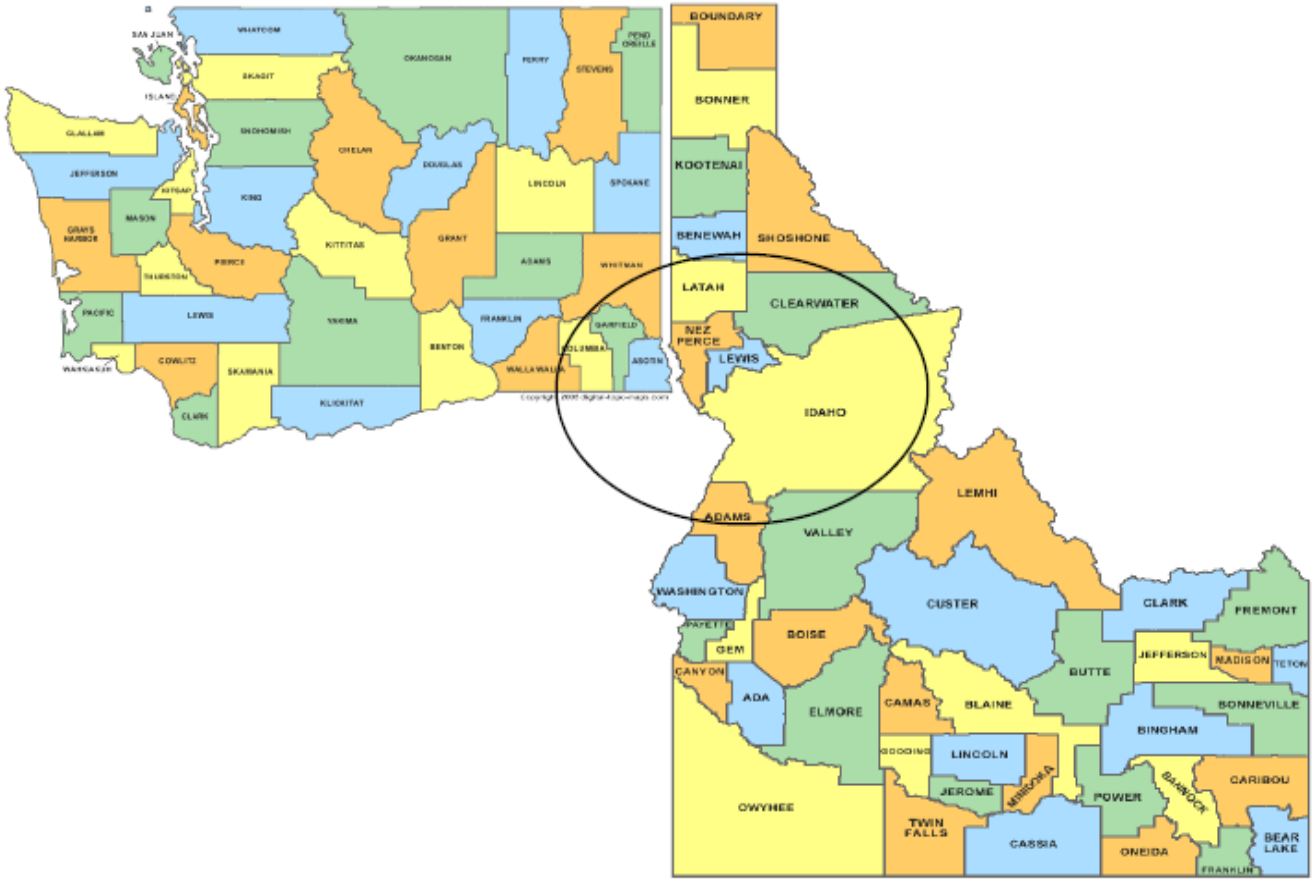
- A geographically bounded group of similar or related firms— connected by common markets, technologies or knowledge—suppliers, skilled workers and supporting institutions.

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.

National Location Quotient: 1.63

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

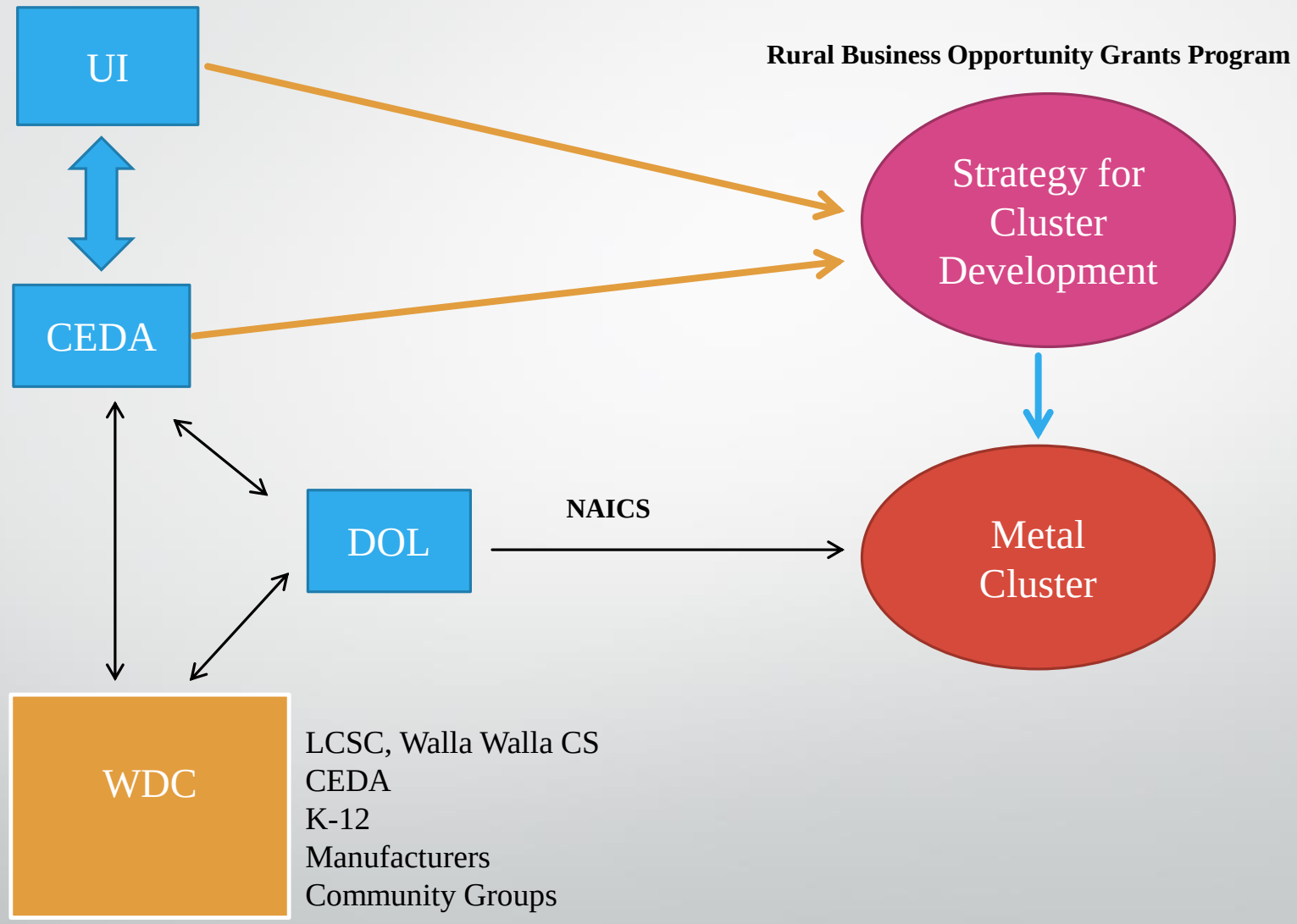
Metal Supercluster

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

Metal Supercluster

County	2001 Jobs	2012 Jobs
Total	**1,416**	**3,513**
Nez Perce	902	1,440
Whitman	200	1,553
Asotin	108	132
Latah	81	97
Idaho	50	79
Columbia	34	34
Clearwater	20	121
Lewis	21	57
Garfield	0	0

- Between December 2011 and December 2012, north-central Idaho and southeast Washington added 700 jobs in the Metal cluster.
- In the first four months of 2013, manufacturers in the cluster added another 190 jobs.


Rural Business Opportunity Grants Program
UI
CEDA
DOL
WDC
Strategy for Cluster Development
Metal Cluster
NAICS
LCSC, 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

DACUM Research Chart for Entry Level Machinist

DACUM Panel

Rick Peterson
Owner/Machinist
Gem Chain Bar
Grangeville, ID.

Hoss Eaton
Manufacturing Engineer Manager
Howell Munition & Technology
Lewiston, ID.

Willie Willis
Machine Shop/ Facilities Manager
Night Force Optics
Orofino, ID.

Craig Shantie
Machine Shop Coordinator
ATK
Lewiston, ID

Ed Endebrock
President/Machinist
Hydraulic Warehouse Inc/Ende Machine & Foundry
Lewiston, ID.

Mark Seubert
Machinist
Clearwater Paper Corp.
Lewiston, ID.

Tom Sonnen
Machining Manager
J.C. Uhling Products Co.
Cottonwood, ID

Robert Bell
Machinist
Lewiston, ID

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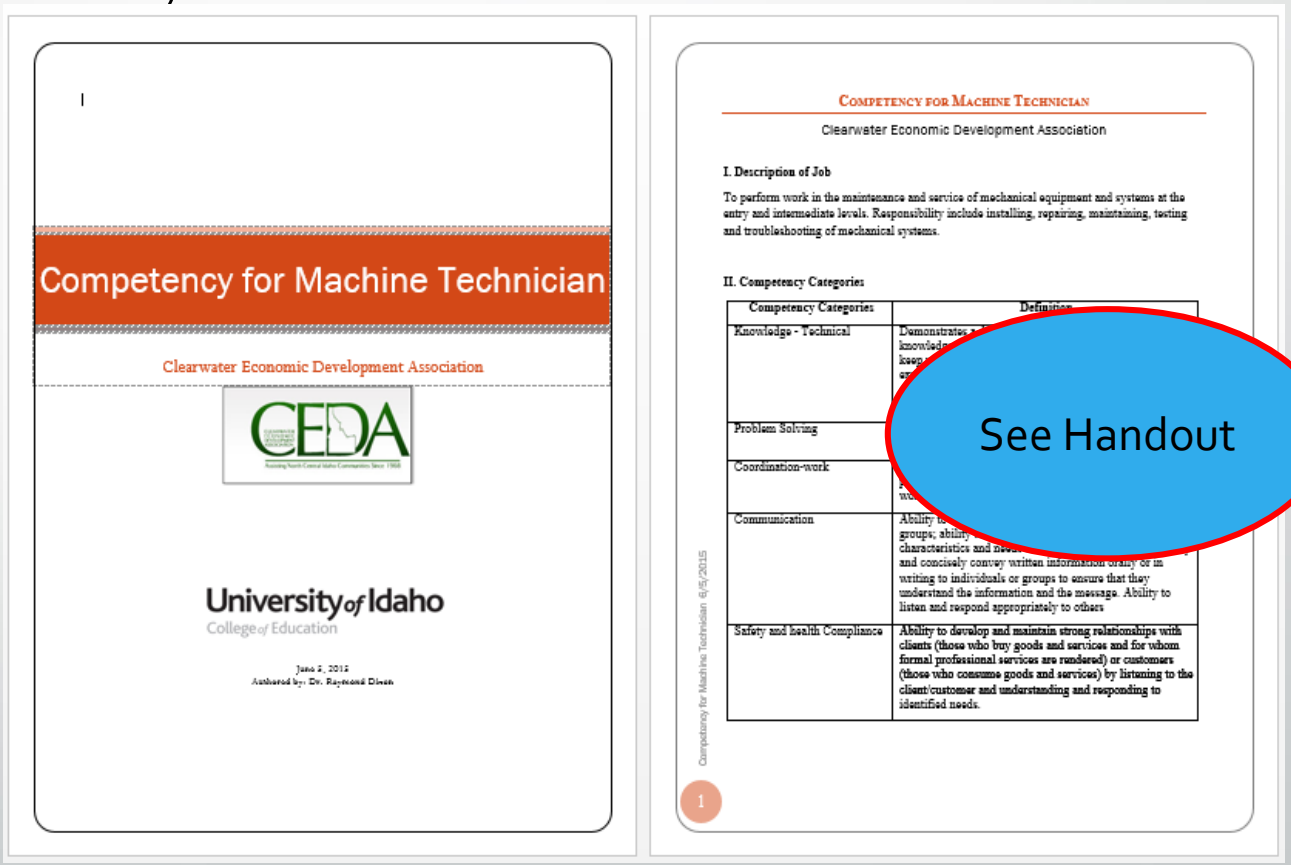
See Handout

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