A National Workforce Development Action Plan
For Employers and Community Colleges – Together!

General findings report of the invitational strategy forum sponsored by the HR Policy Association Workforce Development Roundtable and the Community College Workforce Consortium.

Hosted by: Lone Star College
December 5 – 6, 2013

Presented by: Linda Leto Head
Associate Vice Chancellor, Workforce Education & Corporate Partnerships
Lone Star College, Houston, Texas
General Findings Report

For Employers and Community Colleges

Submitted to:
The Community College Workforce Education Consortium & HR Policy Association

Submitted by:
Linda Leto Head
Associate Vice Chancellor, Workforce Education & Corporate Partnerships
Lone Star College, Houston, Texas
January 22, 2014
INTRODUCTION

One of the key aspects in the development of a competitiveness agenda for the United States is for community colleges and large corporations to work together to confront the talent management issues the United States faces. This has motivated HR Policy Association and the Community College Workforce Consortium to hold a series of regional meetings of community college workforce development leaders and senior management of major American companies to discuss their future skill needs.

On December 5 and 6, 2013, more than 120 individuals met at Lone Star College in Houston, Texas, to understand the broad skills needs of corporations in several key sectors of the American economy, and to develop real strategies and action items to meet these workforce needs. A list of participants is included in the Appendix of this document along with specific comments from the workshops and the agenda of the meeting. The group was convened by Lone Star College System, Community College Workforce Education Consortium, and HR Policy Association.

CONFERENCE GOALS

The primary goals for this strategy forum were to determine some key information to assist our national and multi-national employers identify the right talent with the right skills, quickly and efficiently.

1. What are the current workforce needs?
2. Why aren’t businesses using community colleges as their key source?
3. What are the policy issues in training and/or identifying trained talent?
4. What occupations should serve as our initial focus, and which skills to develop national programs of study?
5. Which community colleges are committed to address internal and external hurdles and help with this collaborative national effort?

SUMMARY OF THE MAJOR POINTS MADE BY PARTICIPANTS

Companies clearly articulated that many fundamental skills necessary for success in the workplace were often non-cognitive work readiness skills that many community colleges tend to over look in their technical preparations. In addition, there was a need for students to “know the industry and its culture” to be successful. In particular, for some sectors of the energy industry, it was the understanding and knowledge of continuous flow operations, often in remote parts of the United States and the world, that were important for workers to accept. In the case of the manufacturing industries, there was a need for workers to accept the need to have multiple manufacturing skills that often combine mechanical, electrical and computer based operations. For the companies in the information technology area, the critical skills were often team work, learning on the job, and the ability to think through problems. Companies
have trouble retaining new, young employees indicating a possible disconnect between what the student thinks the career entails versus what it actually is. Colleges should take more action in helping students understand what they will be getting into early on in their college careers.

All companies believe that compared to other sources of their workforce, community colleges were better at stressing some of these qualities. Many pointed out the success of colleges such as Lone Star, in these areas but they still believed there was more the colleges could do.

DEVELOPMENT TIME AND STUDENT COMPLETION OF COMPETENCY BASED PROGRAMS IS IMPORTANT

A second major theme that emerged from the discussions was the speed and assessment of the programs developed to prepare students for work. Colleges should consider instituting more competency-based programs to ensure that students have the skills they need to meet the demands of industry. There was general feeling that certificates and degrees did not matter as indications of job performance. Companies wanted to shorten the time they had to spend preparing students for work. In addition, even the major corporations operate on very quick labor market demand and time lines. They were critical of the length of the programs from the community colleges, believing that there needed to be ways in which preparation could be accelerated. There were some discussions about new learning technologies, but many of the companies still maintain that hands-on familiarity with equipment and processes were very important for the future success of these students. Online courses could be beneficial as long as the learning outcomes can be successfully achieved.

COMMUNICATING SECTOR KNOWLEDGE TO COLLEGES

A third theme raised was whether there was adequate, up to date familiarity by community college instructors about the industries they were preparing the students to enter. Communication between industry and education increases as subject-matter-experts explain their training issues in detail to the training provider college. It allows colleges to stay on the cutting edge of industry needs in technology as they continually ramp up fresh, new programs while the company can focus on its core mission. This new core competency can be proliferated throughout the for-credit side of the college resulting in a steady stream of candidates for the companies. In this regard, there was an interest among many of the companies in the development in corporate “interships” where technical experts from the companies would be able to teach within the colleges. Especially in the area of information technology and business practices—there was a real interest in having flexible ways the talents of the private sector could be utilized by community colleges to make sure students were mastering the up to date skills of the industry.
RELEVANT NATIONAL POLICIES MATTER

Finally, there were also broad policy issues raised by many of the speakers that were summarized well by the keynote address given by Allan May from the Boeing Company. He compared the way other nations that purchase Boeing planes are very eager to have their citizens develop the technical skills to master the production of sophisticated aircraft, with the haphazard and inconsistent support of public policy for a well-skilled workforce in the U.S. He discussed the long-term technical needs of a large company such as Boeing, which, when it opens a facility, needs literally hundreds of trained staff immediately, with often the size of small advanced manufacturing programs that many colleges maintain. The need was for a broader industry/management approach that involved the changing of governmental policies to insure there was regular support for the types of collaborations that are needed in the future.

PLAN OF ACTION

What is most important to both business and community college leadership is a succinct Plan of Action. Attached to this document are three other documents to reference.

1. Appendix A. The Plan of Action lists specific action items with projected timeline for delivery of the results for each.
2. Appendix B. The Description of Conveners and Agenda from the December 2013 meeting in Houston with names of participating employers, colleges and professional organizations.
3. Appendix C. A complete set of the December 5 – 6, 2013 Conference Meeting Notes.

We look forward to working together to make a real difference in providing the trained workforce that employers based in the U.S. need and helping them complete these programs of study.

The community colleges will engage the employers in a continuous, transparent and inclusive manner.
Appendix A: Plan of Action

For Employers and Community Colleges
U.S. COMMUNITY COLLEGES WILL:

<table>
<thead>
<tr>
<th>Item</th>
<th>Deliverables and Status</th>
<th>Resources Needed</th>
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</table>
| Continued engagement between employers and community colleges.        | Participate in another conference like those held in Chicago and Houston              | • Sponsorship(s)  
• Keynote speaker(s)                                                    |
| Identify the top 3 – 5 most needed corporate positions requiring less than a bachelor’s degree. | 1st quarter 2014  
| Develop national programs of study curriculum for the 12 occupations identified in #1: | 2nd & 3rd quarters 2014  
- Develop common foundation competencies for each occupation (recommend a new process such as PCAL in combination with a labor market analytics tool).  
- Identify faculty champion for each program.  
- Add other competencies identified from national certifications if they exist for that occupation.  
- Crosswalk competencies identified to state curriculum.  
- Determine from employers, required pre-screen items.  
- Develop state curriculum and submit for state education board approval.  
- Identify which colleges will implement for fall 2015 start. | • Workforce co-leaders (north and south regions of US)  
• 2 full-time labor market analysts and labor market analytics software license.  
• 24+ faculty champions. (2 for each occupation.) |
| Design labs/classrooms needed and identify additional resources required for fall 2015 start. | 4th quarter 2014  
- Workforce project co-leaders                                      |                                    |
| Market programs to community members.                                | 1st and 2nd quarters 2015                                                              |                                    |
| Begin programs with common core curriculum for 12 occupations.        | 3rd quarter 2015 – Fall Semester                                                       |                                    |
| Find new ways to coach students to prepare for the job Search, utilizing programs such as Jobapedia.org, Burning Glass, DOL and others as resources for students completing programs. |                                                                                      |                                    |
EMPLOYERS WILL:

<table>
<thead>
<tr>
<th>Item</th>
<th>Deliverables Due</th>
<th>Resources Needed</th>
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<tbody>
<tr>
<td>Continue engagement with community colleges</td>
<td>Participate in another conference like those held in Chicago and Houston</td>
<td>• Sponsorship</td>
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<tr>
<td>Identify the top positions requiring less than a bachelor’s degree</td>
<td>December 6, 2014</td>
<td>• Keynote speaker</td>
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<td>Participate in surveys and meetings during the college curriculum development process</td>
<td>1st and 2nd quarters 2014</td>
<td></td>
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<tr>
<td>Assist with identification of faculty and SMEs for college programs</td>
<td>2nd quarter 2014</td>
<td></td>
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<tr>
<td>Assist with development of marketing the need for the new programs</td>
<td>4th quarter 2014</td>
<td></td>
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<tr>
<td>Assist with funding for resources needed to teach courses and programs identified</td>
<td>1st quarter 2015</td>
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<tr>
<td>Interview our qualified student graduates</td>
<td>2nd quarter 2016</td>
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Aligning Demand, Skills & Training with Industry Needs

Appendix B: Strategy Forum Overview

For Employers and Community Colleges

- Description of Conveners
- Agenda
- Participants
DESCRIPTION OF CONVENERS

The **Lone Star College System** workforce initiatives are led by Dr. Richard Carpenter, Chancellor, Dr. Rand Key, Chief Operating Office and Ms. Linda Head, Associate Vice Chancellor for Workforce Education & Corporate Partnerships. Lone Star College, the largest institution of higher education in the Houston area, is nationally recognized, globally connected and locally focused. Known for its innovative and visionary thinking, Lone Star College System is the fastest-growing community college in the nation and a major contributor to the local and regional economy. With more than 90,000 credit and non-credit students, an extensive list of associate degree and fast-track workforce programs, a successful Corporate College that designs customized training employer incumbent workers, and fully comprehensive continuing education programs, the college has deep relationships with the citizens and employers in the greater Houston area.

**Community College Workforce Consortium:** In 2010 community college presidents in midwestern states hit hard by the 2008 recession initiated a common coordinated approach to address the permanent economic losses to their communities resulting from the downsizing of the domestic auto industry. The community colleges’ leaders located in auto communities shared three common challenges. They were 1) workers needing new or improved skills or knowledge; 2) an inadequate supply of workers with the appropriate skills and knowledge and; 3) community economic development activities not directly linked to workforce education and training.

Since the group formed, auto communities have seen signs of recovery such as decreasing unemployment rates, an increasing number of manufacturing jobs and the opening of new facilities. This resurgence is now challenging these same leaders to prepare thousands for jobs in advanced manufacturing, which require a “new” set of technical skills requiring post-secondary education and specialized training. To address the needs of employers in manufacturing, these colleges joined forces with the H.R. Policy Association’s Workforce Development Roundtable to build connections with some of the largest employers in the United States. The groups have united and expanded their effort bringing together community college leaders and human resource leaders to align demand skills and training in information technology, healthcare, logistics and supply chain materials management, manufacturing and retail.

The **HR Policy Association** is the leading national policy association representing senior HR executives from national and global organizations. This organization is led by Mr. Jaime Fall, Executive Director, and Mr. Alan May, Boeing Corporation, who serves as chairman of the HR Policy Association’s Workforce Roundtable.
# Aligning Skills Strategy Forum Agenda

## Thursday, December 5, 2013

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>2 p.m.</td>
<td><strong>Introductions</strong>&lt;br&gt;Dr. Rand Key, Sr. Vice Chancellor/COO, Lone Star College System&lt;br&gt;Dr. Jim Jacobs, President, Macomb Community College and Community College Workforce Consortium (formerly Auto Communities Consortium)</td>
</tr>
<tr>
<td>2:15 p.m.</td>
<td><strong>Conference Purpose and Scope</strong>&lt;br&gt;Linda Head, Associate Vice Chancellor, Lone Star College System&lt;br&gt;Dan Yager, Associate Vice Chancellor, Lone Star College System&lt;br&gt;General Counsel, HR Policy Association</td>
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<tr>
<td>2:30 p.m.</td>
<td><strong>The Economic Recovery in the United States and the Houston Region</strong>&lt;br&gt;Dr. Ray Perryman, President, CEO, The Perryman Group</td>
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<tr>
<td>3:30 p.m.</td>
<td><strong>Current National and Regional Labor Demand</strong>&lt;br&gt;Enrique Cruzalegui, Director of Business Development, Burning Glass Technologies&lt;br&gt;Kelly Bailey, Director of Partnerships and Alliances, Burning Glass Technologies</td>
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<tr>
<td>5 p.m.</td>
<td><strong>Reception</strong></td>
</tr>
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<td>6 p.m.</td>
<td><strong>Dinner with Keynote Address: Talent Needs of America's Large Employers</strong>&lt;br&gt;Alan R. May, Vice President of Human Resources, Boeing Commercial Airplanes</td>
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<tr>
<td>8 p.m.</td>
<td><strong>Adjourn</strong></td>
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## Friday, December 6, 2013

<table>
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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>8:30 a.m.</td>
<td><strong>Lone Star College Impact on Developing the Workforce Pool</strong>&lt;br&gt;Dr. Richard Carpenter, Chancellor, Lone Star College System&lt;br&gt;and Chair, Texas Association for Community Colleges</td>
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<td></td>
<td><strong>Introduction of Skills Panels</strong>&lt;br&gt;Nelda Blair, The Blair Law Firm and former chair, University of Houston Board of Regents</td>
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<td>9:15 a.m.</td>
<td><strong>Manufacturing Skills Panel</strong>&lt;br&gt;Baker Hughes&lt;br&gt;FMC Technologies&lt;br&gt;Stewart &amp; Stevenson</td>
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Continues on page 4.
### FRIDAY, DECEMBER 6, 2013

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</table>
| 10 a.m.| **Energy Skills Panel**  
ENSCO  
National Oilwell Varco  
Shell  
Xtreme Drilling        |
| 10:45 a.m. | **Break**                  |
| 11 a.m. | **Information Technology Skills Panel**  
EMC Corporation  
IBM  
Lone Star College  
UTHealth, The University of Texas Health Science Center at Houston |
| Noon   | **Lunch with Keynote Address**  
Dr. Jim Jacobs, President, Macomb Community College  
Dr. Bill Law, President, St. Petersburg Community College |
| 1:15 p.m. | **Sector Breakouts: Future Partnerships**  
- **Manufacturing**  
  Baker Hughes  
  FMC Technologies  
  National Association of Manufacturers  
  Weatherford  
- **Energy**  
  GE  
  International Association of Drilling Contractors  
  National Oilwell Varco  
- **Information Technology**  
  VCE  
  Houston Airport System  
  HP |
| 2:45 p.m. | **Wrap Up**                |
| 3 p.m.   | **Adjourn**                |
A SAMPLE OF EMPLOYER PANELISTS:

- Baker Hughes
- EMC Software
- FMC Technologies
- GE Oil and Gas
- Hewlett Packard
- Houston Airport System
- IBM Corporation
- Lone Star College
- National Oilwell Varco
- Shell Oil Company
- Stewart & Stevenson
- The University of Texas Health Science Center
- Xtreme Drilling

COMMUNITY COLLEGES THAT PARTICIPATED INCLUDE, BUT ARE NOT LIMITED TO:

- Cuyahoga Community College
- Des Moines Area Community College
- Eastfield College
- Harper College
- Ivy Tech Community College
- Lone Star College System
- Macomb Community College
- Mississippi Gulf Coast Community College
- Mott Community College
- San Jacinto Community College District
- Southwest Texas Community College
- Tallahassee Community College
- Washtenaw Community College

NATIONAL/GLOBAL ASSOCIATIONS FOR BUSINESS AND/OR EDUCATION INCLUDE:

- American Association of Community Colleges
- Community College Research Center
- HR Policy Association
- International Association for Drilling Contractors
- Manufacturing Institute
- Workforce Education Community College Consortium
Appendix C: Forum Meeting Notes

For Employers and Community Colleges

• Workforce Education Talent Development — The Issues

• Panel and Workshop Notes and Discussion Items
  • Manufacturing
  • Energy (focused on oil and gas)
  • Information Technology
WORKFORCE EDUCATION TALENT DEVELOPMENT – THE ISSUES

Panel discussions were organized in three areas: manufacturing, energy (oil and gas), and information technology (companies and departments from non-IT companies). Panelists of executive level company representatives were posed the following questions:

1. What keeps you up at night?
2. What skills are missing?
3. What is it about a veteran that you are not finding from others in the workforce pool that makes the returning veterans viable job candidates for your company?
4. What skills or personal attributes does an employee at your company need to have to move up to first line supervision?
5. What is the community college you work with doing right?
6. Why aren’t community colleges your sole source for new hires and for training incumbent workers?

MANUFACTURING

1. What keeps you up at night?

- Safety.
- Is my employee giving a customer satisfaction?
- $7 M a year training budget – have the funds for excellent partners.
- Training and competency management. Can we prove the employees use the equipment properly and safely? We can prove it in oil and gas but never documented whether or not they can really do it.
- 14 major operations facilities across the world – need a global solution and/or a local workforce pool that are willing to move around the world.
- Did the training they received come from a qualified trainer?
- Document the training – transcript - for audit purposes. Since recent spill, manufacturers realize that they have to create a competency management program for their folks.
- Standardization.
- Changing regulations also demand that industry keep up. Training must be relevant and updated often.
- One speaker noted the congressional hearings and concerns for government oversight. Wants us to develop a solution first.
- OJT training- sounds unstructured, and accountability requires that it is not. Therefore need a more standardized model that combines on the job work experience and training – and not just at “the end” such as the traditional co-op at colleges.
2. What skills are missing?

- Lack of basic skills such as remedial math, even fractions.
- Baker has to move people around the world because of the lack of skills.
- The ability to follow procedures, especially those that are not negotiable.
- Time to competency.
- Pass a drug test.
- Show up to work on time.
- Basics of hydraulics, pneumatics, electrical, energy, torque and pressures.
- Working safely - Mistakes cause an unsafe environment. Safe lifting. 7,000 pounds of steel.
- Root cause investigation.
- Multiple soft skills.
- Basic hand tools.
- Safety mindedness – in all aspects of the job.
- Curiosity about how things work.
- Understanding the consequences of not paying attention to tasks. Serious injuries.
- Understanding the money lost when you don’t show up for work.

3. What is it about a veteran that you are not finding from others in the workforce pool that makes the returning veterans viable job candidates for your company?

- We love to hire veterans.
- Very disciplined.
- Ability to work in a team environment.
- Great work ethic.
- Navy machinists are the best. Half of Stewart and Stevenson technical employees are veterans.
- Structure.
- Very grateful for the opportunity to come to work.
- Adapt and manage change.
- Mechanics from the navy are the best.
- Time to competency is superior.

4. What skills or personal attributes does an employee at your company need to have to move up to first line supervision?

- Work in a team environment.
- Interpersonal skills (recommend more cohort model).
- Accepting diversity.
- Grads who had done group projects.
- CCs seem to be concentrated on skill-building rather than team work.
• Oil and gas is not in nice places, therefore supervisors have to be willing to move where the job is.
• How to be a gentleman, manners including how to eat properly. One company has spent $27,000 on current class and this is part of “Stepping up to Supervision.”
• Managing people.
• Excellent business communication skills.
• Long work days – one employer schedules training for 10 hours per days, assigns homework so that they know what it is like at work.
• Leadership behaviors – integrity, teamwork, performance, learning, courage.
• Thinking systemically – big picture thinking.
• Understanding of value chain.

5. What is the community college you work with doing right?

• Presentation this morning hit it. Really listening to each other.
• Understand their partners really well – know their culture – and adapt to it.
• Identify success with oil and gas technician program at Lone Star College System.
• Diesel engine program at San Jacinto College.
• Real interest in employer needs – for a new workforce and to train incumbent workers.
• Programs like this are great to pull us together for a common goal.
• Someone like Lone Star College System has to keep working with us, respond to our needs with Action Plans and Results! Communicate often but only about the important conversations. Respect our time and our position by including the right people in the right conversation.
• Action, not just talk.
• This forum.

6. Why aren’t community colleges your sole source for new hires and for training incumbent workers?

• Need broader impact and larger capacity. Or we need to understand your local capacity to help us state-wide, nationally and globally.
• We need short time certificates. Associate degrees take too long to turn around students and are not typically required for the jobs we are discussing for the less than four year degree jobs. Need more of a certificate platform. Then, reduce the amount of time it takes to complete certificates.
• Lack of educational infrastructure in some areas of the state and country, (i.e., North Dakota.)
• Apprenticeship conversation for machinists – but do not call it apprenticeship, call it a new name. Students go to class for a year and then they work half time for a day and work for half a day.
• National certifications should be part of the curriculum for credibility.
• Make sure students learn to work with steel. Not inexpensive materials. We do not use inexpensive materials such as aluminum very often.
• The EMI under the Corporate College at Lone Star College System should be used as the model.
• As Lone Star College System has done, help us by developing campaigns to promote manufacturing and oil/gas jobs to the community.

7. Additional notes from audience questions:

• Some of the positions are very physical. We need physical requirements for our students or let them know it will be required when interviewing.
• Age matters, not every age can work every job.
• Demand drives everything. Educators need to follow the stock market and corporate annual reports.
• Not just skilled trade jobs are open. Could work in other areas of a manufacturing company, such as supply chain and project management.
• Community college comment: As we work with industry to develop programs, we are struggling to get qualified instructors, especially during the day. One employer allows their full-time personnel to help community colleges now and they are willing to help more. Another reported that their retiring population is a great potential pool. Industry admitted that they struggle with this as well.
• We hire many veterans so focus on those personal attributes when training your students.
• Find better ways to articulate work experience to college credit for our employees and veterans.

MANUFACTURING DISCUSSION ITEMS

1. What 3 – 5 job titles should community colleges focus on fine-tuning and expanding first?

• Machinists (15/month).
• Assemblers.
• Mechanical/Electronic Multi-skilled Technician.
• Welders.
• Welding Engineers.

Note: Explore fabrication

2. Please list Soft Skills in addition to those listed in the morning panel sessions.

• Communication (vertical and horizontal).
• Courage.
• Understand overall impact.
• Critical thinking.
• Flexibility.
• Teamwork.
• Initiative.
• Trainable/adaptable.
• Appreciation of health/safety.
• Strong work ethic – work all day, every day.

3. Please validate these technical skills.

• Lean.
• Six sigma.
• Specific curriculum for different partners.
• Understanding use of final product.
• Understanding of industry.
• Specific machines – the kind industry uses – train on those.
• Incorporate the competencies from National Industry certifications: NIMS, AWS, MSSC CPT, MSSC CL.

4. Describe any continuing education professional development certification courses we should offer.

• Leadership skills.
• GD&T.
• Lean & Six Sigma.
• CMFGE – Certified maintenance engineer (for degreed engineers).
• Machining/welding for engineers.
• Faculty exchange – CE for our own faculty – externships to train faculty to industry certifications.

5. Community College Consortium Action Items:

• Determine 3 – 5 general job titles that have a common core – COMPLETE 12/6/2013.
• Develop common foundation competencies for each occupation (do not use DACUM, try a new process, recommend PCAL).
• Determine core courses of related programs based on the common competencies for the stackable curriculum (certificates to degree).
• Crosswalk the competencies from the core National Industry Credentials our curriculum core, identify gaps, then add to the community college list – SCHEDULE in collaboration with the Manufacturing Institute. Include supervisors for our U.S.-based employers that are familiar with their global needs.
  • Welding – with AWS competencies and to prepare for AWS tests;
  • Machining – with NIMS competencies and to prepare for NIMS tests;
  • Logistics.
• Submit the curriculum to our various educational regulation agencies for approval
• Finalize pre-screen items and get approval within our various colleges/states
• Market as one consortium to employers, nationally.
• Create one point of contact at each college for internships and permanent job placement for students.
• Determine whether or not there should be a lead college for each occupational area as they are being developed to keep the program relevant and coordinate on-going curriculum updates for the future.
• Consider program evaluation for the programs included in the consortium.
• Engage employers to assist with identification of faculty (FT and PT).
• Engage employers to assist with identification of and funding for equipment and supplies needed.

Other discussion items to note:

• Think globally – opportunities in other countries where we have employees (i.e., in Africa and Angola there is no skilled workforce).
ENERGY (FOCUSED ON OIL AND GAS)

1. What keeps you up at night?

- That someone they hired and trained cannot come to work because they hurt themself. Safety goal is “0.” Safety is a core value not just a one-time event.
- Recognizing unsafe situations. This is a big problem - they’re simply not seeing the unsafe situations. Safety training built into craft training. Note: Shell training can be in CCs.
- We are all haunted by recent fatalities and spills, blowouts.
- Having competent crews every day. There is a scarcity of competent crews. Shell will pay $5-6,000 per day to rent a drill ship.
- Performance excellence rather than safety.
- Worrying whether employees are actually well-trained and truly absorbed what they were supposed to learn. This includes basic competencies, but also safety.
- Documenting this for audit purposes as well. Since recent spill, manufacturers realize that they have to create a competency management program for their folks. Standardization.
- Changing regulations also demand that industry keep up with the entire value chain: was the instructor qualified?
- One speaker noted the congressional hearings.
- OJT training- sounds unstructured, and accountability requires that it is not.

2. What skills are missing?

- Everything. All jobs have open positions.
- Drilling and manufacturing skill sets are the same core skills. Technical math, electronics, systems, electricity, hydraulics, PLCs, motors. The company will train on higher level skills.
- Having adequately competent crews on all rigs. This goes to both safety and performance. Drillers can’t keep up right now - huge competition for people. Drill ships. Big question about whether to build the next one came down to whether they could staff it.
- A solid roustabout certificate program. And it has to have basic entry skills.
- There is a general shortage of qualified people. Need warm bodies that can be trained.
- Process technologists.
- Electronics technicians.
- The United States cannot have energy independence without a qualified workforce.
- Looking for same basic skill sets as manufacturing.
- On a rig, you have technical people (who probably aren’t fresh out of school). They need fresh grads to have basic skills in electronics, hydraulics, and they need accelerated development programs.
- Guys who are physically ready to do the jobs with the technical training.
- Lack physical capacity to be wet, dirty, cold, and hot.
- Lack of perpetuating pathway – career development. Going on to engineering school after having worked in the field.
• Missing GRIT and GUTS.
• Basic math and reading skills. Getting up and going to work on time. CCs are in the best position to train for this.
• Someone coming out of a two-year program in a CC may not be interested in the entry-level work – the dirty work. New grads have to realize there’s a longer view. They don’t seem to have this.
• Basic skills and tools - basic hand tools and their use.
• Basic math such as fractions. Have to have this before they go on a manufacturing line.
• Simple things like showing up for work on time, passing a drug test. Hinders ability to get folks to the line-time to competency.
• Following procedures and policies that are not negotiable.
• Example, tightening a flange to a certain pound, imprecise in following guidelines.
• Basics of hydraulics, pneumatics.
• Electrical.
• The energy, torque and pressures.
• Safety in all aspects of jobs. Mistakes cause an unsafe environment. Safe lifting. 7,000 pounds of steel. How we are supposed to do things and how it gets done. Understanding the real consequences of not paying attention to tasks. Serious injuries.
• Disconnects between how we are supposed to do things and how they actually get done.
• Curiosity about how things work.

3. What is it about a veteran that you are not finding from others in the workforce pool that makes the returning veterans viable job candidates for your company?

• We love to hire veterans.
• Prior military folks are prepared for real entry-level work.
• Work in a team environment, interpersonal skills (need more cohorts), oil and gas are not in nice places...having to get people interested in best practices.
• They are disciplined, understand teamwork (and in diverse settings), follow instructions, have a good work ethic.
• Need navy machinists!
• Vets are grateful to come to work - others often expect more for doing less.
• They are adaptable. They get the negative ramifications of not doing things according to instructions.
• Time to competency is superior.

4. What skills or personal attributes does an employee at your company need to have to move up to first line supervision?

• Ability to work in a team environment.
• Soft skills.
• Having grads who have done group projects.
• Understanding of bigger picture of what they are going into.
• Working in remote areas such as North Dakota, when you have to get people to work there, putting schools and training where there are truly needed. There is a lack of educational infrastructure in some areas.
• Best practices: Identifying leaders: “stepping up to supervision” Stewart & Stevenson. How to present oneself as a professional. $27,000 spent on current class.
• Business communications. Even stuff like table etiquette.
• Managing people.
• Problem-solving.
• Systemic thinking.
• Big picture thinking.
• Understanding the value chain.

5. What is the community college you work with doing right?

• Understand who our employer partners are – their real needs, not what we think they need.
• Identify success with oil and gas technician program. Diesel engine program. Interest from community colleges.
• Need a state-wide interest. Recruit from other areas. Things like this are great to pull us together.
• Develop fast track training certificates for roustabouts and roughnecks, LSCS and HCC are both producing these.
• They are smart in that they are doing assessments at the outset to pick the fit people for this training. Presentation this morning hit it. Really listening to each other.
• LSCS has an Oil and Gas technician program that prepares students well.
• LSCS is doing a great job at this. Lots of value in reaching out to industry to redesign programs, but you could be more aggressive. Think about what head hunters do. They identify specific skills and market people with them. We should be doing that with our basic skills folks- market them to ENSCOs training programs.
• Helping with diesel engine program- not enough trained diesel folks.
• The interest from TSTC, HCC, LSCS is excellent. Statewide interest needed.
• The EMI we should follow as the model.
• This forum.

6. Why aren’t community colleges your sole source for new hires and for training incumbent workers?

• We need short time certificates. Associate degrees take too long to turn around students. Need more of a certificate platform.
• Apprenticeship conversation for machinists. A student would take classes with NIMS credentials connected to follow. And start for electro mechanical assemblers. Student go to class for a year and then they work half time for a day and work for half a day. Make
sure they learn to work with steel. Not inexpensive materials.

- Reduce the amount of time it takes to complete certificates.
- Use NCCER training and customize
- Several panelists stated the need to move to a blended approach- the apprenticeship model and starting earlier.
- CCs may be concentrated more on skill-building than teamwork.
- Alan wants his one problem to be worrying about his entry-level guy. He wants his people to develop WHILE they are working for him- create the pathway. Give them credit for the learning they get on the job. It’s better for the industry to develop from within. He wants them to know his culture and reduce turnover. Help him take the existing workforce and develop it.
- Need to move more and more of the training back into community colleges, especially basic skills. Industry doesn’t want to have to train on basic hydraulics, reading blueprints, etc.
- Partner with us so they can see how the job really is. Externships for faculty internships for students.
- Note “apprenticeship” has specific implications for the government. Better to have a “partnership.” USE A NEW TERM!
- Timelines: we need more short-term certificates because we can’t wait for folks to get an associates.
- Time to competency is becoming longer, industry needs it to be shorter.

7. Additional notes from Audience questions:

- Cultivate manufacturing engineers who are the go-to people.
- Canada has a great technical skills training foundation.
- Apprentice program for machinists: would like to continue that (Baker). Why not institute programs where classes and work are intermingled?
- Recommend that the community colleges have their program last one year, then let them get a job. The second year would be an internship where the temporary employee works half a day and attends class half a day. After two years, FT employee with benefits.
- Working with steel: not much of this in training programs. STEEL
- Continual battle between understanding competencies and the fast progression of those competencies in industry.
- Relationships with secondary education to get this started earlier would be excellent.
- Would love to partner going into high schools to talk to counselors and parents.
- Some of the positions are very physical in nature.
- Not just skilled trade jobs are open. Could work in other areas. Supply chain and project management are often good fits.
- As we work with industry to develop programs, we are struggling to get qualified instructors, especially during the day. Industry is willing to help by allowing their employees to serve as instructors part time.
ENERGY DISCUSSION ITEMS

1. What 3 – 5 job titles should community colleges focus on fine-tuning and expanding first?
   • Floor-hand
   • Motor-hand
   • Field Service technician
   • Process technician
   • Pipefitting

2. Please list soft skills in addition to those listed in the morning panel sessions.
   • SAFETY mindedness
   • Financial planning
   • Introduction to Oil & Gas with a field trip to a real rig
   • Business Principles with the differences between working for a small, mid-size or corporate organization
   • Following procedures/directions
   • Big picture thinking
   • Interpersonal skills
   • Communication
   • Proper attire
   • How to behave in the work place
   • Work hard, long hours
   • Make no assumptions/ask questions

3. Should the community college pre-screen students entering the program and if so, what types of items should be used (relate this to healthcare programs)?
   • Yes, due to safety reasons.
   • Yes, students who cannot pass the following are not job eligible no matter how excellent the training and trainer/faculty:
     • Drug/alcohol test;
     • Valid driver’s license;
     • Mechanical aptitude test (employers will develop a valid mechanism to test, recommend WorkKeys);
     • Basic math (employers will determine a valid testing level, recommend WorkKeys)
     • Physical ability (specific to each position);
     • Criminal background check (don’t require it, but be sure the students know it is a job entrance requirement);
     • NCCER (work readiness certificate).
4. Community College Consortium Action Items:

- Determine four general job titles that have a common core – COMPLETE 12/6/2013.
- Determine core courses of related programs based on the common competencies for the stackable curriculum (certificates to degree) – COMPLETE 12/6/2013.
- Crosswalk IADC competencies to today’s list and identify gaps, then add to the community college list – SCHEDULED January 2014.
- Submit the curriculum to our various educational regulation agencies for approval.
- Finalize pre-screen items and get approved within our various colleges/states.
- Market as one consortium to employers, nationally.
- Create one point of contact at each college for internships and permanent job placement for students.
- Determine whether or not there should be a lead college for each occupational area as they are being developed to keep the program relevant and coordinate ongoing curriculum updates for the future.
- Consider program evaluation for the programs included in the consortium.
- Engage IADC and employers to assist with identification of faculty (FT and PT).
- Engage IADC and employers to assist with identification of and funding for equipment and supplies needed.

5. Action Item #3 above – Develop the National Core Curriculum (Oil and Gas Foundation Courses) for the floorhand, motorman, process technician, and field service technician.

- Introduction to the Oil and Gas E&P process:
  - Not the history but the various operations and equipment;
  - How a Well is Drilled and Completed;
  - The Drilling Rig & its Systems (Petex Drilling Technology);
  - Land Platform, TLP, Semi-Submersibles, Drill Ships;
  - Hydraulic Fracturing Operations- high level understanding.
- Basic Rig & Machinist Math (Applied).
- Basic Hand Tools- What they are and How to use them properly.
- Basics of Electrical/Mechanical (Mechatronics Skills):
  - Electricity principles;
  - Print reading;
  - Motor controls;
  - Hydraulics & pneumatics;
  - Pumps, compressors & mechanical drives;
  - Programmable controllers;
- Rig pass.
- Well cap – basic.
Special Notes:

- Valid certificates may trump degrees because the degree is not required for these jobs and the certificates are shorter from start to completion.
- Find a sponsor in the company to be sure all experts in the company are included and to avoid bothering those who are not truly invested in this project. It will also save time.
- Find one person at CC who the one employer representative will communicate with most often. Don’t have multiple voices – employers do not have time.
- Retired employees make great instructors.
- Naming classes in such a way that it does not scare the student from taking the course—more user friendly name (energy math, energy chemistry etc.).
- Safety incorporated into every class to include:
  - How to Complete a Job Safety Analysis (JSA) (Applied);
  - Hazard Analysis (Applied).
INFORMATION TECHNOLOGY

1. What keeps you up at night?
   - Omitted for this panel.

2. What skills are missing?
   - Business skills.
   - Technology skills.
   - Practical skills.
   - Collaboration.
   - Networking.
   - Cloud Computing.
   - Communications and other soft skills – This point was repeated by several.
   - Team work.
   - Project management.
   - Dress appropriately.
   - Show up to work on time.

3. What is it about a veteran that you are not finding from others in the workforce pool that makes the returning veterans viable job candidates for your company?
   - For our industry they typically do not have the right type of IT skills so we hire very few.

4. What skills or personal attributes does an employee at your company need to have to move up to 1st line supervision?
   - Omitted for this panel.

5. What is the community college you work with doing right?
   - Omitted for this panel.

6. Why aren’t community colleges your sole source for new hires and for training incumbent workers?
   - Do not teach in silos. Convergent technologies have to be taught. Our technicians have to have training in everything – broad skills. Then specialize after basic skills learned.
   - Workforce programs used to be either broad or deep. Now we need both. At IBM, you have to be PMP to be a project manager. We want same skill sets that everyone else has.
   - Lots of remediation after high school – puts us behind already.
• Other countries are hungrier than we are as a country. When Tom Clancy travels to India, he gets swarmed with people who want their programs. Here he begs people to take their content. Instead colleges use old content and curriculum. They do training in nine weeks, followed by a couple of years once employed to pursue a degree.
• UTHSC- education has turned into big business and making decisions based on the business model not actual needs. Would you hire a dentist who trained online? Soft skills can’t be obtained online. In fact, we market online degrees that cater to a lack of discipline in the target market.
• Student needs: entering workforce in two years.
• Must have CURRENCY among faculty: Challenge is to get faculty to embrace this rather than seeing it as an inconvenience to a lesson plan. Get faculty into industry even if internal (links shop).
• Colleges will have to take down their walls as well if they are going to actually achieve what is needed.
• Students need basic skills plus external opportunities and have to have experience not just information. Internships.
• Understanding of real work schedules.
• Colleges need to work together for national needs. No college has the capacity for all the required workforce needs

7. Additional notes from Audience questions:

• Colleges need someone who actually coordinates internships and co-ops to place students. One clearinghouse that works nationwide.
• Externships: for faculty to gain current relevant work experience and for industry to see what occurs in the classroom.

INFORMATION TECHNOLOGY DISCUSSION ITEMS

1. What 3 – 5 job titles should community colleges focus on fine-tuning and expanding first?

• IT Architect. Business context along with technical knowledge is very important. Understanding business objectives and translating these into architecture is key. Levels of architecture skill: in thinking about size and complex of IT environment they are working in, 89% of Irving will be in small and medium businesses of next few years. Needs are complex, as with enterprise systems, but no economies of scale. Person needs to understand whole business.
• IT Business Analyst: job is to manage geeks running around on the IT side making sure that what IT is doing is relevant to business and serving its needs.
• Converged infrastructure spec/cloud spec.
• Cisco Networking Technician (CCNA).
• Microsoft Certified Professional (MCP).
Occupational Notes:

• What about software programming? No. Two-year degree is not adequate. They’d be competing with four year degreeed people.

2. Please list Soft Skills in addition to those listed in the morning panel sessions.

• Problem-solving skills.
• Fundamentals.
• Service delivery.
• Two dimensional thinking.
• Communication – they have not typically had a seat at the table and now they are being asked to come to the table, but are unable to effectively convey their needs and requirements without ticking people off. (They lack the personal skills.)
• Ability to research.
• Teambuilding.
• Understanding and willing to work a real schedule – long days, holidays, Sundays.
• Practice behavioral interviewing techniques.
• Critical thinking skills.
• Getting the vision of what the customer wants.
• 3D thinking applied not just to infrastructure (technical, physical), but of business parts.
• Business Savvy and Communication skills – appropriate for board room level conversations.
• Leadership skills.

3. Please validate these Technical Skills.

• IT business models.
• Networking.
• Storage.
• Virtualization.
• Security.
• Back up and disaster recovery.
• Data classification.
• Compliance.
• End-to-end solutions: from mainframe computing behind a door to desktop PCs to cloud.
• Introduction to concepts and benefits of converged infrastructure.
• Big data concepts and data analytics.
• Service delivery (business analyst role): predictive, analytical concepts and principles that govern the IT.

Note: Introduction to Computers is a joke and no longer needed.
4. Describe any continuing education professional development certification courses we should offer.

- For Students: internships & co-ops with one internship coordinator per college system. Employers want one point of contact for internship and maybe a 2 for permanent job placement. Or one for both.
- For Faculty: they should shadow or work in externships in enterprise IT departments and/or IT firms.
- IT companies should shadow the community and/or send their supervisors to teach as adjunct.

5. Community College Consortium Action Items:

- Determine 3 – 5 general job titles that have a common core – COMPLETE 12/6/2013.
- Develop common foundation competencies for each occupation (do not use DACUM, try a new process, recommend PCAL).
- Determine core courses of related programs based on the common competencies for the stackable curriculum (certificates to degree).
- Crosswalk the competencies from the core National Industry Credentials our curriculum core, identify gaps, then add to the community college list – SCHEDULED in collaboration with the Manufacturing Institute. Include supervisors for our U.S.-based employers who are familiar with their global needs.
  - Welding: with AWS competencies and to prepare for AWS tests.
  - Machining: with NIMS competencies and to prepare for NIMS tests.
  - Logistics.
- Submit the curriculum to our various educational regulation agencies for approval
- Finalize pre-screen items and get approved within our various colleges/states
- Market as one consortium to employers, nationally
- Create one point of contact at each college for internships and permanent job placement for students
- Determine whether or not there should be a lead college for each occupational area as they are being developed to keep the program relevant and coordinate on-going curriculum updates for the future.
- Might also consider program evaluation for the programs included in the consortium.
- Engage employers to assist with identification of faculty (FT and PT)
- Engage employers to assist with identification of and funding for equipment and supplies needed.

Notes:
- Are these really two-year degrees? Yes. The specialty should be learned after they become a generalist.
- Students complete now with just one stack of skills, not broad knowledge.
- Current curriculum prepares the student for one room networks rather than virtualization.
solutions and enterprise networks.

- Students don’t get to the point where they consider the company’s needs and how to craft solutions to those needs. Important to teach from business perspective and go down instead of going from component-level up. It is as much about consulting as it is about IT.
- I’ll take a fully trained convergent guy over a seasoned technician any day.
- Stackable credentials should be the standard. All credit certificates should have a common core among related occupations, then stack into specializations and degrees. Non-credit should typically be a stand-alone for the fast-track certificate student, or for fast-track specialization or test preparation for a working professional or after an associate degree. It is the certification that articulates to credit.
- Biggest sin we’ve committed is starting with bits and bites rather than holistic approach.
- Who is going to deliver this? HP’s program is designed to have faculty get certified on this and then go back and teach it.
- Pathways have to be from certificate to associate degree and to bachelor’s degree to get to architect level.
- Soft skills soft skills soft skills.
- Must have CURRENCY among faculty. The challenge is to get faculty to embrace this rather than seeing it as an inconvenience to a lesson plan.
- HP Curriculum Development Program – could take the lead with community colleges.
- IBM apprenticeship program in Florida: Employers will be able to take apprentices and get them trained in specific curriculum. Youth career: connect U.S. government program. GRANTS to develop programs for high schools, CCs and industry. This program design is ideal for colleges with close shortly.