Meeting Minutes

Regional CTE Advanced Manufacturing Advisory Community – 2.14.18

DoubleTree Hotel, Ontario

Skills Panel Moderator – Paul Granillo President/CEO Inland Empire Economic Partnership

- IE could be the 25th largest state by itself with 4.5 million people
- 21% of IE has Bachelors' Degree | 49% have no more than High School (or less)
- 69% of jobs in IE could be automated in future
- Need for skills set for today's jobs
- Soft skills are not academic.
- There is a need in this region for JOB degrees that allows people to have a job now.
- There are jobs, but students are not prepared

Panel Experts:

1. Dan Betchel (*President/CEO Deep Energy Solutions*)
2. Jonathan Mills (*Sales Manager – Precision Stampings*)
3. Stacy DeVoll (*General Manager – DeVoll Rubber*)
4. Steve Tyrell (*Maintenance Manager – Mitsubishi Cement*)
5. Kevin Stevenson (*VP FDS Manufacturing*)
6. Bill Scott (*General Manager – Scott Mixer*)

Question 1 Responses: What types of training, education, certifications, or credentials are desirable for entry level positions in your field?

3. Kids straight from HS - no soft skills – not prepared to work – hires older students from CC's with families that want/need to provide – wants to hire someone with machinery background & maintenance repair, which is hard to find.

5. CNC is great – great machinist would be conventional first and then be able to set up – few years' experience would be great.

2. Problem is from taking programs out of HS – Tool and Die is an art process – a good maker can make 100k a year – some employers will pay for education – students do not make an effort anymore – they are late – not responsible enough to stay employed – interested in finding the right person that fits job and can move up – they invest time and must show interest.

6. Depending on job – aptitude – be willing to get hands dirty – all have worked all aspects of company, even managers – be able to read a caliber – know electricity and mechanics – general automation has caused some of the problems when you are not used to working on autos or machines – There is a need to go back into the high schools and say it's ok to have a "blue collar" job.

4. Need a high school graduate or GED - Reaching out to Community colleges for certifications to get them up to speed on what we look for in an employee. Putting the education to work in real life use in the workplace – offers internships as "try before you buy" concepts – also offers teacher externships

1. Entry level: Someone experienced with forklifts – Skilled workers with chemical engineering background, strong mathematics, and understands energy efficiency

Question 2 Responses: What does your hiring process look like?

4. Be a High School graduated or had GED – reached out to K-12 and CC's about certifications – complete a pathway for industrial mechanical – has a 4 step program with mentors with Chaffey College and Victor Valley College – also learned to put education to work through internships – gets the practical side across and put to use –has a 2 year level Electrician program with Chaffey and will accept those who are willing to put forth the effort to obtain an education through a CC – either an Electrical or Mechanical Pathway would work – the industry can build on that education – industry wants bar to be hit in High School – need to put what they are telling students in place – Instructors need to know what industry experts expect out of employees.

Question 3 Responses: What interpersonal skills are most important in your industry?

1. Need skilled workers in chemical engineering, energy, mathematics – cannot find those skills and are looking at CC's for them – communication skills – one-on-one skills – be able to follow instructions – understand what's being explained and apply.

4. Requires more input from managers to know and understand how the employee understands and takes direction – work on both parts and adapt.

2. Wants "Fire in the Belly" and a "Go Getter" – doesn't have to have college education but has the drive and passion to succeed – be able to start at the bottom sweeping floors, cleaning machines, and work their way up – have a desire to be more than average or just "getting by" – believe that there is hope in future students – need to get High School students interested.

Question 4 & 5 Responses: What foundational/technical skills are necessary for entry level positions within your industry? - What skills/knowledge is being required of new employees to address the latest trends in technology, equipment, regulations, laws, etc.?

6. Needs basic team work skills – Honesty! – Integrity! – work hard and be helpful / courteous

3. Safety – has a lot of in-house training and regulations

4. Occupational Safety and Health Administration (OSHA) and Mine Safety and Health Administration (MSHA) – know that machinery does not forgive – there are guards in place for a reason – holds safety toolbox meetings and inspections – environmental regulations to follow as well (cement)

5. Food packaging regulations all the way to the manufacturing level – regulations and meetings weekly – hygiene – they are able to generate 1/3 of electricity with clean energy.

Question 6 Responses: What skills have become obsolete in your industry due to changes in technology, equipment, regulations, laws, etc.?

5. Automation is his passion – lots of equipment and machines – more processes under one roof than most – can only get to a certain point to be effective or cost efficient – up to 5% before it's no longer valuable – does not replace people with machines – just makes it more effective – twice the output with the machine, but still needs people to make it work correctly.

Question 7 Responses: What new technology and/or equipment should we be incorporating into our courses?

6. Bought a jet water machine years ago to replace 4 people who went to work in other areas in the company – never laid anyone off in 37 years – if employees work hard the will make money – has machines but cannot get away from being a manual machine shop – have the employees embrace automation and create new jobs – let them grow with the company and get everyone motivated

4. You can only automate so much – has 500 employees and 150 are eyes and ears for the machines.

3. Even with automation you still need people with interpersonal skills and imagination – key is employees with drive that keep things moving forward.

2. 85% labor intensive – hard to automate metal stamping – they will not be able to automate as much as other industries – need mixture of manual labor and automation.

Question 8 Responses: Where do you see the field going from here? Important Trends?

6. Needs to impress on CC faculty the skill sets needed to teach – basic skills sets – basic and hard automation needed to be efficient – but not all about automation.

4. Here to make sure the communication continues – to tell everyone what is needed to make their mark.

2. Here because they will not always be around – we need the students and young people to continue on – eyes and ears on campus – looking for certain things – to get help to stay in business

Question 11 Responses & Q&A from Audience:

- Faculty asked industry to be a champion to the state in their behalf for faster curriculum turnaround
    - Industry agrees with above statement – but it is easier for programs to go through the not for credit side, but that does not help those seeking AA/BA degrees
- High Schools are starting to respond to not teaching the fundamentals anymore and industry agrees
- RCOE agrees that a CTE course phased out at high school level and thinks the pendulum is starting to swing back the other way with CTE programs reopening – they are starting to emerge
- CEO Chamber of Commerce – quality of employees count – unless they earn 100k a year they don't stay in the community – it's about quality of life
    - Panelist #2 responded - agrees that 100k a year makes it easier to buy a house – he's seen an increase in business on his end – is making an effort from his industry to High Schools and CC's
- San Bernardino county schools are building shops at the kinder level with miniature machines – solid works and tinker CAD – middle school has CAD – high school has conventional machine shop with CNC – goal is to get students interested before the 6th grade
- What interpersonal skills are required?

    Communication skills, understanding and being able to apply the skills.

    Employees who have a desire to work and set goals to achieve success. The desire to be more than just average. "The fire in the belly".

    Important to learn teamwork skills and not just individually. The stronger the team, the more work gets done. Also, honesty is very important. Integrity.

- Regulation that are on the industry, safety? How to deal with your employees on these issues?

    3. Safety protocol requires a lot of safety training, earthquake training

    4. OSHA and EMSHA are on our business. Safety is a large part, so training meetings are always required and practiced.

    5. with the food modernization act, they are changes in packaging. So more training is needed with our employees, such as practicing good hygiene with our employees.

- When is automation cost effective?

    5. Automation is performed daily in our business. Once 5% of the labor cost is reached, we have met the goal. Embracing the automation to a certain level is effective.

    6. As employers we have the responsibility we can keep our employees employed. It's a fine line, if employees see that they are being replaced we need to have them embrace the automation and teach them to grow. If they are dedicated employees you need to motivate the team.

3. Automation will not replace those employees that have “the fire in the belly”, or whom are creative and eager to help. Therefore, automation will not replace employees, but they can be trained to work in a different department.

2. Automation is used to the degree that we can.

- How many allow CC students to come and see your business?

  All rose hands. (6 hands)

  High school students? 3 out of 6, they don’t show up to work and don’t have the passion to be there

Keynote*: Todd Boppell* National Association of Manufacturing (NAM)

- Manufacturing does matter- our economy needs to be built on a manufacturing base.
- Very important to economic prosperity.
- 6 out of 10 jobs open skilled positions are going unfilled.
- 2 million jobs unfilled due to the skills gap, predicted by 2025
- Apprenticeships, internships, etc. are expanding in America.

Manufacturing day- Oct. 5, 2018

- Our kids today do not understand how important the manufacturing world is. The making of a cell phone or how chairs and tables are made, is not something that kids are aware of.
- What influences careers? #1 is personal experience.
- Hands on experience is what matters. It allows these kids to understand what they are working on.
- STEP ahead: honoring women in manufacturing. Getting more women into the manufacturing workforce is very critical.
- Manufacturing is high tech. 66% of U.S. Manufacturers are using 3D printing.
- 3D printing in metals is where the future is.
- 60% off businesses are hacked and can lose the business completely, if occurred.
- Augmented reality is going to be the key human machine interface, to make all your employees more productive at their job.
- Robots are not stealing manufacturing jobs.

The education council at NAM was created to see the perspective of the educational systems, local educational level, and federal levels.

We need to keep in mind that millennials are different from us and we need to understand that they think differently and communicate differently.

Breakout Sessions

Breakout Session – Additive Manufacturing:

Question 1 - What changes are currently taking place in your program on your campus?

- Colton HS has welding pathway / program – a 4-year model with math and English – project based learning – making things for the school (benches, bike racks)
- Keep in mind welding is not always in a clean shop – outside/real world environment as well – manufacture something from a drawing – train with mentors
- Take an employee that has been around awhile – use the Ramsey Aptitude test – train once they show they are responsible – needs social skills
- Eisenhower HS – transitioning to a pathway model – teaching beginning and advanced welding – also digital electronics – needs CALPADS numbers or cannot teach course in high school – state wants everything in a pathway or it cannot be offered

Question 3 - What new courses and technology do you see in your departments in the next five years?

- Basic industrial pathways from Chancellor's Office – 4 levels – industrial, electrical, not in High School yet but in CC's
- Looking for heavy diesel from CC's – gets diesel mechanics from UTI – can't happen at HS level statewide – some in the desert and high desert
- Dual Enrollment – maybe help HS students
- HS is saying the state's engineering model doesn't fit needs
- Start manufacturing – build a Makerspace – make a go cart – multiple concepts in one thing (math, gearing, welding, wheels, etc.)
    - Catapults as well – effort to incorporate engineering into class
- Solar panels that follows sun – wiring – compete in "Solar Cup"
- Loyalty is needed

Question 4 - What advice would you give to ROP and high school teachers that would help them better prepare students for transition to community college?

- Transitioning military needs extra assistance – currently does not meet needs
- Needs to work with transitioning military that will stay in IE and work in the region that trains them
- Asking how do we get a better work ethic instilled into student and how we get them to see the value – ask students to have personal responsibility and lower expectations
- HS administrators and counselors need to be attending these meetings
- Seeing a change of focus – rather than "go to college" it's "get a skill"
- HS and MS programs are expensive to maintain (PLTW)
- CC's want employers on campus to speak directly to students
- Need to change the dialogue to "if you go through this program you can love here and maintain a good quality of life" – IE has negative stats and people are moving out
- Earn a living while you are going to college – "Earn while you learn"
- Get involved with the major employers around schools – industry is interested in maintaining the pipeline and communication

- Find a way to cover the liability down to 15 years old through department of labor – some local support now
- Industry using interns – from Chaffey College – 400 hours – if intern wants to be hired they have to go through the normal hiring process – drug and background check – interview
- Intern will have a chance to learn practical uses of skills and needs to listen
- Simulators are good, but still needs hands-on
- Project based curriculum – design build – HS it sometimes works – works with other teachers – communication and division of labor
- Math – algebra, trig, geometry – be able to read a tape measure – make change – scale
- Read blueprints – no software – just be able to read and understand scaling and use practically
- Know how to use an engineering scale

Question 5 - What are some of the biggest skills gaps that you have identified within the incoming student population?

- Industry has desire to hire graduates – but they don't want to work – no follow through
- Hurdles in work force is the work experience – not allowing those under 18 years old to be exposed because of liability
- Authored legislation for civilian equivalency for military service – welding, EMT, mechanics – to assist with becoming employable
- Most internships are 18 years old and over because of liability - Employers don't want to cover costs and schools can't always assist
- Need to start advising and educating parents about benefits of a skilled trade – college is not for everyone – skilled workers can make good money without the debt
    - Parents are not aware of skilled trades leading to a good life

      CTE classes are showing students problem solving skills

Breakout Group Questions: Traditional Group

Question 1 - What changes are currently taking place in your program on your campus?

- Red East Valley HS, Redlands HS/CRYROP – Have Advanced Manufacturing 1 & 2, STEAM shop, train students in CNC, robotics, mechanics, electrical, pneumatics, PLC's, (they are using quickcam, Fusion, Mastercam for computer design), and they are also teaching soft skills to all students.
- Colton HS – Has added a welding class and pathways in the last year, they use welding simulators as well.
- Eisenhower HS (Rialto) – Has a new Makerspace class
- Chaffey College - The Engineering and architecture classes under the math and science department are getting students ready for employment.

Question 2 - What technology are you currently using?

- Employers are using PLC programing, drafting, vision systems, chemistry in plating, quality control, instrumentation, calipers, micrometers, CNC, CMM's, SBC education, 3D printing, metal printing.

Question 3 -What new courses and technology do you see in your departments in the next five years?

- Employers need people to learn metal stamping and injecting mold machines.

Question 4 - What advice would you give to ROP and high school teachers that would help them better prepare students for transition to community college, jobs?

- The employers would like the entry-level applicants to be taught how to work safe in a manufacturing environment.
- Employers would like to see more training on mills and lathes and in electrical and heat treating.

Question 5 - What are some of the biggest skills gaps that you have identified within the incoming student population?

- More training is needed for soft skills – communication, face to face, writing, attire, personal grooming, punctuality, perseverance to get the job, self-confidence.

Breakout Group Questions: Support Programs (Electrical/Motor Control/PLC/Welding/Other)

Question 1 - What changes are currently taking place in your program on your campus?
Have some components, but no real programs to speak of. Most programs do not offer college credit with very few signing up of the classes and very few classes being offered. Only 2 classes in 2 years have occurred with Chaffey College and Intech which was hosted at their college.

Question 2 - What technology are you currently using?
Laser cutters, sewing machine, button maker, welding equipment, filtration, as mobilizing equipment, and some equipment that wasn't being used.

Question 3 - What new courses and technology do you see in your departments in the next five years?
Courses will be more digital and have more involved with computers and similar. Graphic design will be the future of courses.

Question 4 - What advice would you give to ROP and high school teachers that would help them better prepare students for transition to community college?
Emphasize the need for soft and financial skills. Basic interview and job skills would need to be discussed in higher detail such as dressing properly, resume writing, and broad STEM skills such as writing and basic math. Also students will need to work on their portfolio and social media awareness.

Question 5 - What are some of the biggest skills gaps that you have identified within the incoming student population?
Communication and interpersonal relationships are some of the first to come to mind. Hands on skills are also a problem as many students have very little experience. Also an improvement on their employability skills.

Other questions
Dual enrollment, early college credit, more college credit courses being offered, and State policy that would encourage and make this process easier.