A White Paper: Aligning Demand Skills and Training with Sector Needs

This white paper presents the results of an invitational conference sponsored by the HR Policy Association’s Workforce Development Roundtable and the Community College Auto Communities Consortium, and hosted by William Rainey Harper College and Motorola Solutions, April 11-12, 2013.
Aligning Demand, Skills and Training with Sector Needs

A Convening in the Heartland

This convening of industry and education leaders addressed current and future workforce needs across the manufacturing, retail, health care, information technology and logistics/supply chain sectors. To meet the human capital needs of these high-demand employment sectors, national models for regional industry and educational collaboration are required. Critical success factors were developed by sector to support model development. Common critical success factors across the five sectors include aligning current and emerging workforce needs with feeder educational programs; investing in partnerships; providing early sector awareness and workplace experiences; integrating communication and employability skills; creating regional customized programs based on national models; aligning and marketing the value of industry certified and community college credentials.
Contents

A Convening in the Heartland .................................................................................................................................... 1
Introduction ................................................................................................................................................................ 1
Key Findings.............................................................................................................................................................. 2
   Cross-Industry Critical Success Factors ........................................................................................................... 2
Key Findings.............................................................................................................................................................. 3
   Industry Sector .................................................................................................................................................. 3
      Manufacturing Sector ................................................................................................................................. 3
      Retail Sector .............................................................................................................................................. 4
   Health Care Sector .......................................................................................................................................... 6
   Information Technology Sector ....................................................................................................................... 8
   Logistics/Supply Chain Sector ........................................................................................................................ 9
Proceedings............................................................................................................................................................... 10
   A Common Understanding .......................................................................................................................... 10
   Real-Time Labor Marketing Information – Burning Glass Technologies ........................................................ 10
   The Pace of Business Change – Keynote ....................................................................................................... 10
Skill Requirements and Workforce Gaps Panel Discussions ........................................................................... 11
   Manufacturing Sector ....................................................................................................................................... 11
   Retail Sector .................................................................................................................................................. 12
   Health Care Sector .......................................................................................................................................... 12
   Information Technology Sector ....................................................................................................................... 12
   Logistics/Supply Chain Sector ........................................................................................................................ 13
Career Readiness and Credentialing - Keynote .................................................................................................... 13
Sector Breakout Sessions...................................................................................................................................... 13
   Critical Success Factors and Required Partners ........................................................................................... 14
Appendices ............................................................................................................................................................... 15
Appendix A........................................................................................................................................................... 16
   A1. Advanced Manufacturing Competency Model .......................................................................................... 16
   A2. Retail Competency Model .......................................................................................................................... 17
   A3. Health Care Competency Model ................................................................................................................ 18
   A4. Information Technology Competency Model ............................................................................................ 19
   A5. Logistics/Supply Chain Competency Model .............................................................................................. 20
Appendix B ........................................................................................................................................................... 21
   B1. Earn and Learn Model ............................................................................................................................... 21
Aligning Demand, Skills and Training with Sector Needs

A White Paper

Introduction
The Auto Communities Consortium, in partnership with the HR Policy Association, Motorola Solutions and Harper College hosted a convening of community college presidents, workforce leaders and human resources professionals from Fortune 500 companies to determine how to align current and emerging workforce needs with skilled workers. The convening focused on five high-demand employment sectors including manufacturing, retail, health care, information technology and logistics/supply chain. The goal of the convening was to determine the critical success factors required to develop collaborative national models for aligning the supply of qualified individuals with the sector demand for employees. There was widely held agreement that employers, educators and workforce systems can no longer operate independently of one another if the United States is to address our current and future workforce skill gaps. National models that address sector-required competencies as well as systemic partnerships are required to guide regions in creating viable and sustainable workforce solutions.

This white paper is divided into two sections:

◊ Key Findings: The major outcome of the convening is the Key Findings that outlines the commonalities across the five industry sectors as well as the critical success factors and next steps for each industry.
◊ Proceedings: This section provides a recap of the convening including its approaches, presentations and panels as context for the findings.
Key Findings

Cross-Industry Critical Success Factors

Critical success factors across all five sectors revealed that national sector models should:

◊ Validate and align community college curricula with sector employment needs and industry credentials.

◊ Create systemic partnerships between employers and community colleges.
  ▪ Employers need to be more open-minded about skill sets and level of degrees required.
  ▪ Community colleges need to respond in an increasingly timely fashion, validate program outcomes with employers and work with their recruiters for placement.

◊ Improve opportunities for apprenticeships, internships and fellowships in order to provide early sector workplace experiences.

◊ Provide early career awareness opportunities starting in middle school continuing through high school and into college in partnership with local industry.

◊ Integrate the following skill sets into sector program curricula:
  ▪ interpersonal and industry contextualized communication,
  ▪ teamwork,
  ▪ planning/organization,
  ▪ innovative thinking,
  ▪ problem solving,
  ▪ comfort with change and decision-making.

◊ Create and document a common language between corporate and community college partners in each sector.

◊ Create customizable solutions for local regions which include industry and community college credentials.

◊ Grant Credit For Prior Learning by conducting prior learning assessments and granting credit for prior learning in sector certifications.

◊ Establish benefits and promote advantages of industry credentials to companies and community colleges.
  ▪ Balance the number of program graduates with industry needs.
Key Findings

Industry Sector
The consensus points unique to each of the sector-based discussions can be found below.

MANUFACTURING SECTOR
The national manufacturing model would need to address the following critical success factors:

Awareness and perception of opportunities in manufacturing
This could be addressed by early access to industry opportunities through classroom speakers, plant tours and shadowing experiences in middle school and high school. Early experiential learning could include early certification (both national and local college) and embedding workforce-based experiences.

Regional flexibility in a national program model
Since each region has its own community and lateral barriers, the model would need to provide common program elements like early work experience and dual credentials as well as regionally defined elements based on workforce and employer needs.

Data tracking and transparency
A common model would require data tracking, sharing and transparency between both the manufacturers and credentialing institutions. Information/data required from employers would include recruitment policies, salaries, skill requirements, career paths, current and projected job openings.

Educational partners need to provide credentials that match the common career paths
This would include stackable career educational pathways, integrated student support, internship experiences and credentialing aligned with industry career paths.

Awareness of and buy-in for standardized industry credentials among manufacturers
Work collaboratively to inform manufacturers of industry-recognized credentials and the value they provide in developing consistent skill competencies.

Industry experienced and up-to-date faculty
Industry partners would provide access to subject matter experts that could teach or supplement instruction at community colleges.

Regionalized program names tie to regional industry-based names
Example: Electro-mechanics vs. Mechatronics.

Market value of industry/college credentials (dual credentials)
Credentials need to have the national recognition of industry credentials as well as equate to community college certificates that can be stacked to achieve an associate degree. All partners need to sell the importance and value of industry credentials to support industry growth and workforce stabilization.

Modeling of professional work expectations in the educational programs and labs
Dress code, time expectation and other workplace expectations should be required in the educational setting.
Integrate workforce/employability skills
Embed work ethic and other employability skills in technical curricula.

Early job experiences
As soon as students qualify for entry-level tasks, a workplace-based experience should be required.

Recruitment and staffing
Outreach efforts are critical and could include high school specific programs, pre-college industry ambassador programs, and high school and unemployment/WIB counselors receiving industry awareness training.

Look at Automotive Manufacturing Technical Education Collaborative (AMTEC) for best practices/lessons learned
Refer to this model for best practices in curriculum modeling, certification requirements for students/faculty, alignment of career paths to stackable credential programming and utilization of current industry subject matter experts in curriculum development.

Employers as process owners
Manufacturers need to sell other manufacturers on the value of creating common regional competency expectations, what credentials mean and how they translate to improved industry outcomes, and the value of aligned workforce skills and educational competencies and educational partnerships.

Impact state policy
There is a lack of state policy to address manufacturing workforce development issues. State policy can impact manufacturing workforce development including the level of retraining funding, equipment reinvestment and off-shoring.

Next Steps
Take the partnership with the Manufacturing Institute to the next level. The current level of partnership is not currently on a scale to produce national results. These efforts should include manufacturing companies and educational institutions.

RETAIL SECTOR
The national retail model would need to address the following critical success factors:

Vet and increase awareness of the current Department of Labor (DOL) competency model
For entry-level associate jobs, the foundational skill sets noted in the current competency model seem valid. While the current model is a great start, it needs to be further vetted. All industry representatives were not aware of the DOL standards.

Common entry-level skill set
Community colleges would offer an entry-level certificate training program that would address skills defined in the Industry-wide Technical Competencies level and below, as defined in the DOL model.
Require an early internship
After entry-level certificate is earned, introduce an internship experience into the model.

Sell the need for and value of industry-wide technical retail competencies
A credentialing program would need to be vetted and supported by industry associations and employers nationwide. The credential would be a certificate that is recognized throughout the industry. The value proposition of this would need to be sold to retailers by retailers.

Balance retail credential holders with industry need
Do not overproduce “certificate” graduates and saturate the market with qualified workers.

Industry-wide credential acceptance
Certificate curriculum has to be comprehensive to accommodate the needs of an entire industry sector.

Rebranding retail career opportunity
This is required so that students don’t think of the “old retail” model; for example, many stores no longer have cash registers.

Program flexibility
Offer programs in a variety of modalities, at flexible and convenient times and locations. Programs should be developed to fit needs of current retail workers as well as both traditional and working adult students.

Grant Credit For Prior Learning
Conduct prior learning assessments and offer Credit For Prior Learning credits in certification.

Include passion in program competencies
A passion for retail is required for success in the industry. The program needs to help students be able to demonstrate their passion.

Early internship
The model must include an early experience via internship/hands-on work; individuals must have an understanding of the job before they complete the certification. Careers in the retail sector are not for everybody.

Industry internship support
Companies offering internships for credentialing programs would need to commit the time/personnel to manage the program. This will require concrete data that demonstrates the value added in order for companies to invest in this effort.

Comprehensive industry knowledge
It is imperative that students understand the depth and breadth of the entire retail sector. This includes sales,
merchandising, marketing, design, and operations. One may enter in one niche, but will need to be prepared to move to another specialty.

**Business management skills**
It is important to understand all aspects of running a business and why each part is important in the overall success of the corporation.

**Quality program outcomes**
Companies need to value and trust the quality of the competencies taught.

**Next Steps**
The following groups should be involved in engaging their representatives in the development of the model: The Council for Adult and Experiential Learning (CAEL), HR Policy Association, industry associations and community colleges.

**HEALTH CARE SECTOR**
The national health care model would need to address the following critical success factors:

**Validate competencies and degree levels**
Industry alignment is critical. The first step is validation. What is really needed: a two-year or a four-year degree?

**Industry alignment on required competencies**
Health care includes manufacturing, pharmaceuticals, etc., but colleges are training only for the “clinical” careers. Colleges are not training heavily in health information technology (HIT) or in health care manufacturing, and both are job growth areas. Community college curriculum needs to be validated and aligned with industry.

**Cross-specialty career pathways**
Employees tend to grow and build their careers within specialty areas, such as IT, R&D, regulatory, finance, call centers, etc. The model should account for this but it may not be possible in all instances. Currently, quality, engineering and manufacturing are interdependent and employees progress from one area to the other.

**Support adult transition issues**
What support or systems would be required to transition unemployed or underemployed adults into the available health care jobs? Suggestions included targeted transition programs to “re-school” individuals to support career transformation. Increase awareness of community colleges as transition enablers. Employers need to be open-minded about hiring the recently reskilled unemployed adults.

**Critical thinking and information processing skills**
Critical thinking and problem solving needs to be included in curricula. Should not have to hire someone with a bachelor’s degree to obtain these skills.
Multiple sector requirements
Health care is a very broad sector which makes model development complex.

Account for HCA (Health Care Reform Act) impacts
HCA is going to cause new positions (e.g. community health care worker) to be created but every community is doing it differently.

Faster development cycles
Curriculum will need to be created and deployed much more quickly and allow for regional differences as HCA and other initiatives impact the sector.

Alignment between employers’ needs, educational programs and state/federal regulations
Partnerships between employers/community colleges/state regulators are required. Employers need to be more open-minded about required degree levels and community colleges need to ensure required competencies are validated by employers and aligned with licensure.

Data transparency
Employers need to use data analysis to determine whether they should hire externally or “grow their own” and share these decisions with educational partners to support the balancing of workforce supply and demand. Employers should also consider community colleges as a resource in growing their own.

Align career paths with stackable credentials
Educational providers need to understand internal promotion structures and policies of companies to align credentials with promotional opportunities.

Strong tie of recruiters to educational institutions
Community colleges should be working with corporate/organizational recruiters and become the supply chain for human capital. Clarity is required from the sector to ensure alignment of hiring needs with skilled future employees.

Systemic connections
Need broader and more defined connections between universities, community colleges, business partners and recruiters.

Multigenerational workforce
Skills sets involving communication must be included in the model to address issues stemming from the growing generational differences in the sector’s workforce.

Next Steps
The following groups should be involved in engaging their representatives in the development of the model: HR Policy Association, industry associations and community colleges.
INFORMATION TECHNOLOGY SECTOR
The national information technology model would need to address the following critical success factors:

**Common sector work readiness skills**
There is a general lack of preparedness to effectively participate in the information technology sector among recent graduates. Students are entering the industry with a lack of personal effectiveness and workplace competencies. The lack of these competencies is exacerbated in the current context of telecommuting, mobile technologies and social media, where work readiness skills are highly needed to function.

**Early work experiences**
Improve opportunities for apprenticeships, internships and fellowships in order to get early work experiences that are authentic, entry-level industry expectations.

**Common core technical competencies**
Include technical competencies which are consistent across the sector including software testing, technical writing and quality assurance.

**Increase the supply of certified workers**
The pipeline of students is insufficient and results in unfilled positions and loss of productivity.

**Increase diversity of graduating students**
There is currently a lack of diversity (females and minority students) which negatively impacts the sector.

**Systematize partnerships**
Create strategic advisory committees from higher education and industry to develop partnership ideas.

**Awareness and perception of opportunities in Information Technology**
This could be addressed by early access to industry opportunities through classroom speakers, tours and shadowing experiences in middle school and high school. Develop programs to engage low participation groups at the high school and middle school levels.

**Common competencies for “soft skills”**
Integrate interpersonal and contextualized communication, teamwork, planning, innovative thinking, problem solving and decision-making competencies into the curriculum.

**Business simulations**
Ensure students have a true understanding of what the expectations and environments are in the sector.

**Shorten curriculum development and delivery timeframes**
Current level of educational and industry partnerships have failed to create the needed “speed to delivery” of students. This sector changes very quickly and education has exhibited an inability to keep up. Industry experts need to be engaged in this process to expedite curriculum and program development.

**Flexible and on-demand educational delivery**
Use alternative modes of educational delivery (online, simulations, virtual reality) in order to create accelerated and effective learning experiences.

**Align workforce supply and demand**
Both sides need to quantify their need or supply. In some cases, higher education develops programs intended to support a specific IT industry need (and incurs the time and expense), and the job openings
fail to meet projections. Likewise, the sector continues to experience a lack of qualified workers from existing programs in multiple areas.

**Create a common language for competencies**
Engage the sector employers in the education process in order to create mutual understanding and trust, as well as first-hand knowledge by educators of industry’s needs.

**Next Steps**
The following groups should be involved in engaging their representatives in the development of the model: HR Policy Association, industry associations and community colleges.

**LOGISTICS/SUPPLY CHAIN SECTOR**
The national logistics/supply chain model would need to address the following critical success factors:

**Common language**
Corporate and community college partners need to be more precise about the competencies required to prepare students for jobs in this sector.

**Industry standard competency base**
Clarify specific skills (soft and technical) that are a requirement for employee success on the job and incorporate them into the college curriculum.

**Shorten curriculum development and delivery timeframes**
Current level of educational and industry partnerships have failed to create the needed “speed to delivery” of students. This sector changes very quickly and education has exhibited an inability to keep up. Industry experts need to be engaged in this process to expedite curriculum and program development.

**Embracing change**
This is a critical competency in this sector. Employees must be able to embrace change and be prepared for the pace of change, and this skill set must be addressed in the educational program. This is most important for entry-level workers in the lowest two tiers of the DOL competency model.

**Determine “make/buy” value proposition**
Sector companies currently have robust resources for their own specific corporate employee training. When does it make sense to leverage community colleges to build competencies and when should they “build their own”? Success depends on a common industry standard for this at a defined competency level in the model. Some competencies will be delivered through the companies due to the proprietary nature of information and practices.

**Next Steps**
The following groups should be involved in engaging their representatives in the development of the model: HR Policy Association, industry associations and community colleges. All partners agreed that they need to deepen their understanding of one another’s needs and resources/capabilities.
Proceedings

A Common Understanding

In order to ensure an informed discussion of the supply and demand side of current workforce challenges, the convening progressed through a series of informational sessions and discussions that set the stage for industry-specific dialogue. The topics addressed included:

◊ Real-Time Labor Market Information
◊ The Pace of Business Change
◊ Skill Requirements and Workforce Gaps
◊ Career Readiness and Credentialing
◊ Sample National and Regional Models

With common understanding of the issues, the attendees then dispersed into facilitated discussions by the five industry sectors to determine:

◊ The critical success factors a national model would need to address
◊ Required partners to develop a national sector model

Real-Time Labor Market Information – Burning Glass Technologies

The meeting began with an overview of real-time labor data related to the five sectors. This information was presented by Burning Glass Technologies. Information garnered from job postings on job boards and company Web sites were analyzed to determine common skills, knowledge and abilities that employers were seeking. The analysis showed that many of the jobs posted (63%) required bachelor’s degrees. Interestingly, even more (75%) required a four-year degree and three or more years of experience. Employers at the convening revealed that jobs requiring less than bachelor’s degrees are frequently filled from within—thus they are not posted. Other employers stated that they sometimes require bachelor’s degrees “because they can,” as large employers draw interest from job seekers at all educational levels. There were more postings in manufacturing and production occupations, suggesting that manufacturing employers have more difficulty finding qualified workers than employers in other sectors. Additional comments revealed that large employers are largely unaware of the pool of highly qualified talent that is available via community colleges. Connections to this talent pipeline needs to be further explored.

The analysis conducted by Burning Glass Technologies indicated that common skills, knowledge and abilities noted throughout the five sectors were consistent and included: communication, organization, leadership, writing and problem solving. The need for customer service skills was predominant in retail positions. These universal skills, commonly referred to as “soft skills,” are highly valued and thus noted in job postings. Discussion revealed that communication can also refer to the ability to work with team members and that development of these core competencies can be accomplished through embedded exercises and experiences in career and technical programs, as well as through general liberal arts courses.
The Pace of Business Change – Keynote

A keynote presentation by Senior Vice President Bruce Brda from Motorola Solutions highlighted the quick pace of change in today’s business environment. Change occurs quickly, thus businesses must respond in order to remain viable. This makes identifying precisely the types of employees that may be needed in two or three years very difficult. It was stressed that the most compelling way community colleges can assist is by remaining flexible and working in partnership with businesses to help deliver on-demand training as opportunities arise.

Skill Requirements and Workforce Gaps Panel Discussions

Panels representing the five sectors took center stage in identifying skills that were lacking in their current workforce and job applicants. These panels consisted of two to three human resources professionals from each sector. Questions they were asked included:

1. What are the jobs in your sector that require more education than a high school diploma, yet less than bachelor’s degree?
2. What knowledge and skills need to be represented by newly hired employees for those jobs?
3. What do you perceive to be the “skills gap” between the abilities presented by the candidates you are currently seeing and/or entering employees and those that they should possess?
4. What is the current demand for these jobs?
5. Do you believe there is, or will be, a gap between the demand for employees to fill those jobs and the supply of talent to fill them?
6. Turning from the problem to better understanding some solutions, what specific recommendations do you have from your sector that the educators in this room need to hear in fashioning better solutions to both the skills gap and supply gap we’ve just been discussing? How do you believe we might best enhance the education and training solutions we provide to better serve your sector?

Following are the key themes mentioned within each sector skills panel.

MANUFACTURING SECTOR

◊ Approximately half of the job openings do not require an undergraduate degree.
◊ The majority of jobs require technical skills.
  ▪ Examples: Welding has become more automated through robotics or laser welders; components within products produced require knowledge of electronics/mechanics.
◊ Basic math skills are important.
◊ Aptitude testing is completed.
  ▪ If aptitude is evident in job applicants, employers will provide training.
  ▪ Training ranges from 40-60 hours per year per employee.
◊ Nationally recognized credentials are not required; however, applicants who have them are given priority when hiring.
◊ Promotion from within to higher level positions is common.
  ▪ Employees need education/training to advance.
- Tuition reimbursement is available.
  - Image of manufacturing is challenging in attracting individuals to this career path.
  - Common skills needed fall into two categories:
    - Soft skills – Communication, teamwork, accountability.
    - Technical skills – Mechanical as prescribed by the job allowing for troubleshooting.
  - 30% of the workforce will retire soon. This is a huge concern.
  - Need common definitions of what is needed in the future workforce.

**RETAIL SECTOR**
- Most jobs require more than a high school education.
- Experience in retail or a degree (associate or bachelor’s) highly desirable and viewed as an accelerant for proficiency.
  - Continued education is supported through tuition reimbursement.
- Social skills used in relating to customers are paramount.
- Enthusiasm for the product or service is critical.
- Problem solving while working with customers is important.
- High turnover is a challenge in human resource management.
  - Seek career-minded individuals who wish to stay in retail and understand the full scope of the industry, which includes logistics and visual merchandising.
  - Seek individuals who are coachable.
- Senior leadership is retiring which will provide a career ladder to those entering retail.

**HEALTH CARE SECTOR**
Companies represented were in health care device development, manufacturing and pharmaceutical (not allied health providers such as hospitals and nursing homes).
- Safety is paramount in this industry.
  - Need individuals who are accountable and can problem solve; lives may depend on this.
- Technical skills are necessary as many products produced have electronics or computer-type parts.
- Engage in behavioral interviewing where applicants are asked to provide examples of behaviors or past experiences.
- Contingent labor provided via staffing companies tends to have less than a bachelor’s degree.
- Multigenerational and a global workforce require individuals that are culturally competent.
- Mindset for all employees should be continuous improvement.
- On-demand hiring is common, making exact hiring needs difficult to project.

**INFORMATION TECHNOLOGY SECTOR**
- Those with less than a bachelor’s degree work in call centers, help desk, data analysis, inside sales, billing, project management and account management.
- Demand industry certifications including Six Sigma, ITEI, CompTIA, LAN, IT networking, Project Management, APICS and Microsoft.
- Integrity of the company brand is paramount.
- Follow their customers’ needs, thus critical skills including relationship management, problem solving, critical thinking and listening are needed.
- Anticipating future workforce needs is difficult, as it hinges on the needs of clients and disruptive/emerging technologies.
**LOGISTICS/SUPPLY CHAIN SECTOR**

◊ Promoting from within is common.
  ▪ Companies provide extensive training to help employees advance.
  ▪ Tuition reimbursement is available for formal education.

◊ Key skills included leadership and intrapreneurism (individuals who work as if the company was theirs) to help the business move forward.

◊ Broad job categories are common within the industry and include:
  ▪ truck driving, food safety, business analysts, safety engineers.

◊ Accountability, problem solving and a strong work ethic is critical to the sector.

◊ Follow their customers’ needs as a service provider moving products.

---

**Career Readiness and Credentialing - Keynote**

These skills panels were followed by a keynote presentation by President and CEO of Gateway Technical College, Dr. Bryan Albrecht. The main focus of the keynote was the importance of career readiness skills and credentials with labor market value. Students must imagine the types of careers they are interested in, and more importantly the types of careers that offer a family-sustaining wage. This early introduction to the world of work is critical in developing habits and competencies that make community college students viable workers in today’s environment. Mimicking employment practices throughout coursework is key. This allows students the opportunity to begin work experiences as they complete shorter-term credentials such as certificates. Partnership with business and industry is critical in identifying core competencies, and then working collaboratively to design coursework and experiences that are relevant and needed.

**Sector Breakout Sessions**

The final activity in the convening was individual breakout sessions that were held concurrently for each sector. The following questions were asked within each of these breakout sessions:

1. What critical success factors would be required to develop an educational pathway to high employment growth in your sector?
   a. Do the critical success factors in the Earn and Learn Model apply to your sector’s needs?
   b. Are there industry-recognized certifications related to these skill sets?

2. In order to build a model for your sector:
   a. Who needs to be involved in the discussion to advance the identified critical success factors to a model that is consistent and scalable?
   b. Who should lead the effort for building the national model?
   c. What action steps are needed to move this effort forward?
Critical Success Factors and Required Partners

Each sector breakout discussion followed the same three step process:

- Review the U.S. Department of Labor’s Competency and Earn and Learn Model.
- Development of Critical Success Factors that a national model should address.
- Determination of pathway partners required for model development success.

Copies of the five DOL Competency Models, as well as the Earn and Lean Model, can be found in Appendices A and B.
Appendices

A. Department of Labor Competency Models
   1) Manufacturing
   2) Retail
   3) Health Care
   4) Information Technology
   5) Logistics/Supply Chain

B. Earn and Learn Model Manufacturing Career Lattice
Appendix A
A1. Advanced Manufacturing Competency Model
Appendix A
A3. Health Care Competency Model
Appendix A
A4. Information Technology Competency Model
Appendix A
A5. Logistics/Supply Chain Competency Model
Appendix B

B1. Earn and Learn Model

[Diagram of the Earn and Learn Model showing the pathway from Point of Entry through various education and training stages leading to Job Placement and Bachelor Completion and Beyond.]
Thank you to our participants:

Abbott Laboratories
Accenture
ADM
American Association of Community Colleges
AT&T
Baxter Healthcare
Burning Glass Technologies
CAEL
Caterpillar, Inc.
CDW
Central Piedmont Community College
Community College of Allegheny County
Cuyahoga Community College
Department of Workforce Investment
Des Moines Area Community College
Gap Inc.
Gateway Technical College
Grand Rapids Community College
Hospira
Ivy Tech Community College
Jefferson Community and Technical College
Kellogg Community College
Lansing Community College
Lone Star College System
Lorain County Community College
Macomb Community College
Maher and Maher
McDonald’s
Montgomery County Community College
Mott Community College
NJ Community College Consortium
Parkland College
PTB & Associates
Salt Lake Community College
Stark State College
The Aspen Institute
The Boeing Company
The Joyce Foundation
United Stationers
US Foods
Wegmans Food Markets
White Mountains Community College