

ANNEX 11
WORKFORCE DEVELOPMENT:
Overview

Workforce Development

The goal of Advanced Manufacturing Partnership 2.0 was to build on the outcomes of the Education and Workforce Workstream in the AMP 2012 report, and to determine best-in-class demand-driven workforce solutions to develop technical skills and implement models that generate long term employment opportunities. The outcomes are pragmatic, scalable and sustainable.

Background

The 2012 report of Advanced Manufacturing Partnership Steering Committee presented the following key findings. AMP2.0 used these as guiding pillars to drive its efforts in developing its solutions.

Colleges and Universities: Develop more manufacturing-based courses and degrees that are linked directly to manufacturing job opportunities, and increase student interest in manufacturing.

Project -Based Learning: Educational programs should base curricula on project-based experiences so graduates have the skills desired by employers in advanced manufacturing.

Veterans: Build channels that provide access to service members exiting the military, as they possess many of the needed technical and work-life skills needed for advanced manufacturing.

Community Colleges: Leverage Community Colleges to serve today's need for advanced manufacturing education and training.

Certifications and Accreditation: Define the accreditations for assessments. Build a critical mass of national recognition through acceptance and adoption by industry, education, and government.

Public/Private Partnerships: Drive these partnerships in all solutions to help ensure that the outcomes contribute to society and provide for long term well being.

Scope of Work

The goals of AMP2.0 Working Team-2 (Demand-driven Workforce Education and Training) were achieved through the efforts of four "work creeks" whose members come from five universities (Georgia Institute of Technology, Massachusetts Institute of Technology, University of Akron, University of Michigan, and University of California, Berkley), two community colleges (South Central College and Harper College), 1 Union (United Steelworkers) and six companies (Alcoa, Caterpillar, The Dow Chemical Company, Global Foundaries, Northrop-Grumman and Siemens).

The work creeks took a holistic approach to build scalable and sustainable solutions to address the talent pipeline challenge beginning with childhood education and ending with long term

employment models. Outcomes are in the form of Guide, Playbook and Recommendations based on current best practices, and are available in Annexes 12-24.

Following is the overview for each of the four work creeks:

Work Creek 1: Advanced Manufacturing Education - Increase career pathways and “dual credit” opportunities across education (K-12 schools, community colleges, and Universities) to increase number of qualified technical employees in advanced manufacturing.

Deliverables (Annexes 12-13):

- Identified Exemplary Programs that engage Advanced Manufacturing and Product Realization (Design, Manufacturing, Operations, System Support) starting from the 7-12 grade level to Certificates, Diplomas, and Associate Degrees at Community Colleges, and Bachelors and Master’s Degrees at Universities.
- Identified examples of exemplary Career Education Pathways from other industries (e.g. automobile) in order to build our own pathways model for Advanced Manufacturing.
- Recommendations on how to duplicate scale-up and improve on the best practice programs.
- Developed a template for “pathways” model for Advanced Manufacturing training and education with multiple on and off ramps and multiple completion options (certificate, diplomas, degrees) that are stackable.

Work Creek 2: Portable and Stackable Credentialing System - Increase nationally portable, stackable credentialing systems through certifications and work-based learning elements.

Deliverables (Annexes 14-22):

- Build awareness of credentialing through Employers, Educators and Certification of Train-the-Trainer Toolkits.
- Demonstrate evidence of success of credentialing via employer case studies and best practices at educational institutions.
- National roadmap for action with guidelines for implementation on state level, including way to address the challenges in implementing credentialing systems.

Work Creek 3: Regional Apprenticeship/Internship Models - Establish regional work/project-based study apprenticeship models with a coalition of companies and in partnership with labor market intermediaries and capture the learning and best practices from these and past Apprenticeship programs in a “How To” Instruction Manual targeted specifically for Employers the Playbook will prove the building of the apprenticeship model to be a reliable, valid and repeatable process that others can implement.

Deliverables (Annex 23):

- The Playbook is a practical “How-To” manual designed primarily for employers looking to implement an Apprenticeship model as a way to build their advanced manufacturing pipeline.
- These Apprenticeships entail the completion of an Associate Degree and Department of Labor Certification.
- Proof of Apprenticeship Concept pilots in two regions – Northern California and Southern Texas
 - Alcoa, and Dow Chemical in Texas: in partnership with Victoria College, for General Maintenance Techs
 - Siemens in California: in partnership with Los Rios District of Community Colleges, for Welders

Work Creek 4: Bridging Modules for Veterans - Develop practical competency based “bridging modules” for transitioning Veterans focused on private sector manufacturing skills certifications.

Deliverables (Annex 24):

- Completed inventory of Veteran resources – key tools and applicable links that catalog and summarize the resources for Veteran use.
- Developed a practical guide for Veterans, Employers and Academic Institutions on Transitioning Veterans to non-military advanced manufacturing careers.
- Made recommendations for skills translators & Veterans Skill Badging that enable
 - Translation of military experience to civilian jobs
 - Transfer of competencies and skills in an electronic format
 - Alignment with current work being done on badging systems by federal agencies and other entities

The four work creeks worked to achieve their independent deliverables, and came together to leverage synergies where possible, and collectively achieve Workforce Working Team goals. Detailed deliverables can be found in Annexes 12-24.

Work Creek 1: Advanced Manufacturing Education

Background

“Work Creek” I was specifically focused on **increasing career pathways and “dual credit” opportunities** across education (K-12 schools, community colleges, and Universities) to increase number of qualified technical employees in advanced manufacturing. The team focused on providing clarity to stakeholders involved (including individuals, institutions and employers) with respect to available and trending jobs within the manufacturing sector and identifying various educational pathways that are linked to related careers as follows:

- An ability to identify best practices in advanced manufacturing education/training
- Ready access to relevant educational resources
- An ability to identify gaps in education/knowledge required to succeed in a given field/career
- An ability to identify existing/trending careers and information about those careers
- An ability to easily match one’s knowledge and/or interests with current/trending careers
- Ease in identifying various educational pathways linked to careers based on one’s personal needs
- Ease of entry and exit to and from education/careers to facilitate continual learning.

Scope of Work

Members of the Work-Creek set out to identify programs across the country related to advance manufacturing with the following considerations:

- High school programs that offer dual credit, internships, and lead to industry certifications
- Undergraduate programs with strong industry connections
- Master’s programs with strong industry connections that bring students to business and business to college

Steps followed to accomplish Work-Creek goal included the identification of existing pathways in the US education system leading to manufacturing careers, identification of exemplary programs, and recommendations as to how best to duplicate, scale up and improve on those best practice programs.

The focus of these recommendations includes:

- A mechanism to identify examples of current exemplary demand-driven programs
- A means to measure the effectiveness of programs via defining attributes of successful programs
- A method/scalable platform to more clearly identify existing careers & various educational pathways linked to those careers
- Direction on how to scale best practices and promote regional & national connectivity.

Rather than mapping/surveying all existing regional pathways that lead a student through the US education system to a manufacturing career and identify exemplary programs, these recommendations provide a scalable platform and tools to help provide each region of the country a means for stakeholders to:

- Evaluate their programs and identify those that are effective
- Identify trending careers and various educational pathways linked to those careers
- Match careers to ones capabilities and/or passions
- Identify gaps in required knowledge and how to fill those gaps via existing applicable programs
- Ensure education is demand driven; connected to/fully leverages regional businesses

We identified Exemplary Programs (around 29 in total) that engage Advanced Manufacturing and Product Realization (Design, Manufacturing, Operations, System Support) starting from the 7-12 level to Certificate, Associate, Bachelors and Masters level (details follow below). The process followed was in no way exhaustive and what was developed was a representative list of some exemplary programs having the above considerations. There are many similar programs across the country and it is almost impossible (within the time and resource constraints) to highlight and document all those programs.

Key Findings

The first part of our key findings relate to best practices of advanced manufacturing programs across educational levels. The second part of our key findings relate to the development of career pathways for Advanced Manufacturing education.

Best practices from Existing Programs

Our key finding at this educational level are divided for the K to 6 grade levels and then for the 7 to 12 grade levels and beyond.

K-12 and Community College Programs

The curriculum focus on the K-6 grade levels is currently on students making useful, tangible objects from materials, developing and demonstrating an appreciation for the power of teamwork and exhibiting discipline balanced by ingenuity. Students at this level must be trained to take calculated risks, and should be assessed not by the failure, but by successful recovery from failure, which encourages trying new ideas.

At the 7 to 12 grade level and beyond, the focus of programs was on the key attributes necessary to develop the workforce required by advanced manufacturing in sustainable, scalable models, which include/employ:

- Development of career pathways across education system
- The use of portable and stackable/mobile credentialing

- The use of experiential learning, including actual workplace exposure through internships/apprenticeships
- Certification, and rationalizing DOD training modules with certifications and accreditations familiar to the private sector
- Skill based certifications
- A blend of online and traditional program delivery
- Focus on energy, biotechnology, healthcare, semiconductor industries
- A combination of resources both at the middle/ high school and community college level – for example, faculty from community college delivering some of the programs at the high school

Some important elements of these programs involve:

- They offer flexible pathways (and not rigid pipelines)
- Flexibility with multiple on and off ramps/ points to leave and (re)join the education stream
- Start awareness about advance manufacturing programs early (preferably in the 7th grade or even earlier).

Undergraduate and Advanced Degree Programs

- Undergraduate programs – with strong industry connection, such as co-op programs focused on manufacturing.
- Professional Masters programs – with strong industry connection – with students doing projects in companies and companies and company employees engaging in the academic process in the school and coming back to school.

Some of the Intermediaries involved in the identified programs include labor market intermediaries, middle schools, high schools, the US Department of Education, Community Colleges, Universities and Manufacturing Associations/Industries.

Career Pathway Programs for Advanced Manufacturing Education

If one is attempting to select a program to prepare for a career, develop a new program or decide whether or not to fund an existing one, it is important for stakeholders to be able to determine if a program is effective, driven by real demand, and includes components that are widely accepted and beneficial. The Work Creek has developed a general list of essential components of effective, demand driven programs and has compiled a list of representative programs that include those components. The Work Creek has also developed a pilot web based tool that will help connect searchers to effective educational programs matched to their individual needs. In addition to the stated usages, the web based tool incorporates the following essential components of advanced manufacturing education programs.

Essential Components of Education Programs Captured in Career Pathways model:

- Programs of study aligned to area industry growth sectors

- Active employer engagement
 - Curriculum design/evaluation
 - Mentoring, internships, apprenticeships
 - Experiential learning opportunities
- Career awareness, exploration, development
- Rigorous, sequential, hands-on, contextualized curricula
 - Middle school through graduate level
 - Project based learning
 - Problem based learning
 - Targeted learning matched to career field
- Employability skills development
- Multiple entry and exit points
 - Includes bridge programs for underserved, lower-skilled adults
 - Provides veterans an on-ramp to skills upgrade/credential attainment
 - Facilitates movement between workforce and continued education
 - Fosters lifelong learning
- Work-based learning opportunities
 - Field Experience
- Continuum of certificate and degree options aligned to industry credentials
 - Articulated credit/dual credit/concurrent enrollment/prior learning assessment
 - Stackable, portable industry credentials
- Alternative scheduling options and support services for adult students
- Collaboration among local/regional stakeholders
 - Education (school district, community college, university)
 - Business and industry
 - Workforce development
 - Social service agencies
 - Community-based organizations

Leveraging Existing Efforts Focused on/Conducive to Scaling

Our Work-Creek has identified efforts already underway in upstate New York to develop a scalable platform to facilitate the sharing of best practices, better connect businesses to education, people to careers and educational pathways, and in general, facilitate better connections between programs, the needs of teachers and students and solutions to meet those needs. This effort, which is being led by GLOBALFOUNDRIES and is in its fourth year of development, is aligned with the activities we are undertaking and includes:

- An organizational structure that allows for connectivity within regions and between regions, facilitated by a standard organizational platform that can be employed in regions throughout the country
- A web based platform/portal that can be customized in each region while maintaining consistency and connectivity nationally that connects businesses, education, students,

parents and teachers to the tools they need to succeed as well as innovative, demand-driven programs

- A pathways component that will provide visibility into trending careers and what it takes to be successful in those careers, and the various applicable educational pathways
- The development of generic templates that can be used by each region to collect and input required data so as to maintain needed consistency in the system while allowing for differing regional priorities and focus areas

The Career Pathways Model

Rather than develop theoretical recommendations as a final work product, our Work-Creek has partnered with the design group on the GLOBALFOUNDRIES initiative to put in practice our recommendations via providing input into the design of the pathways model being developed in the upstate NY region. The model includes a web-based, user friendly, scalable pathways portal that is generic and intended to be made available to regions across the country. The portal is driven by data that is collected via templated questions which facilitates the gathering of consistent data conducive to the “match-making” functions that are at the heart of the design.

The model is being launched in a pilot region in NY, with initial data from the manufacturing sector and various educational institutions in the pilot region being collected to populate the system. While the AMP focus is the manufacturing sector, the GLOBALFOUNDRIES initiative in NY is intended to ultimately cover all business sectors and educational pathways, as different regions of the country have different businesses anchoring their regional economies. One of the key recommendations from our Work-Creek is that the NY model be used as an example for other regions developing such web based career pathways tools to ultimately provide a national platform (or to be used as a guide for a national platform) for building a career pathways model for advanced manufacturing education.

Recommendations

People of all ages and from all walks of life struggle to understand where there are jobs and how to position themselves to be gainfully employed. It is not easy for one to fully understand the growth trends in careers, what skills are required to position themselves to succeed in various careers, what educational pathway options are available to prepare for various chosen career paths and how to fill gaps in their skills and knowledge base.

These recommendations are intended to provide direction on the development of tools to address the problem as stated above. As mentioned, the Work-Creek has taken the task to the next level, leveraging existing assets and work to model recommendations in a pilot region.

Recommendation I

Development of regional web-based career pathways tool

The model being piloted in the upstate New York region can be used as an example to develop similar models in other regions. This model is anchored by a user friendly, simplified, standardized, scalable, web based platform that allows the user to find existing and trending careers, understand what skills are required to succeed in those careers and match her or his current skills and knowledge base to those required. The tool will also help to identify gaps and easily find educational options on the path to preparing for those careers. The platform will lend itself to use nationally, allowing each region of the country to populate it based on regional business/industry needs and educational assets, providing visibility into regional job availability, trend and career pathways. The platform will also help ensure education remains demand driven by providing real-time information to educational institutions and program developers on career trends, job requirements and available educational assets. This will help educational institutions monitor trends, understand required curriculum and the attributes of successful programs, and identify gaps in education and training programs.

The portal employs a design that embodies a principle of ease of use; it will be inviting to the eye and mind in that all components, beginning with the opening page, are direct and simple, without being burdened with too much information or complication. It will be easy to navigate and understand regardless of one's age, ability or familiarity with such tools.

The tool provides access to information by initiating a search via either:

- Browsing by career category
- Browsing by company
- Browsing by finding a personal fit

Regional Focus with National Connection

While each region can be provided the same tool for consistency, it is important that these regions be connected nationally. In order to enable users to see what careers are available nationally, how they are trending in various regions and the available educational assets to position them to succeed around the country, the regional portals should ultimately be linked nationally. It is proposed that each region have mirror sites, operating the same way and with data loaded via the same templates, and that ultimately the design allows searchers to view national trends and educational assets. While some individuals are interested in targeting specific areas for job opportunities, certain educational institutions are focused on specific regional needs, other individuals are open to moving to areas of the country where there is work related to given fields and some educational institutions may have national/international student populations.

Templates

In order to sustain the site, each region will have to have the ability to collect relevant data on programs and careers in a uniform manner and ensure it is loaded into the system. Simplified templates have been developed and can be provided to facilitate the process and ensure consistency/continuity. In addition to the templates, each region's administrator will be able to facilitate the process via the same "playbook" that explains their role, the role of the stakeholders as well as instructions on how to operate and use the system.

A separate but, complementary piece of the system will be a list of program attributes that are seen as best practices. This will provide a guide to the searcher on what program attributes are seen as desirable in preparing the student for success. This can act as not only an evaluation tool for the searcher/student, but as a guide for program developers as well.

Summary of Key Attributes of the Career Pathways Portal

- Simplicity of use
 - Not too busy or complicated; no busy matrixes or diagrams
 - Doesn't attempt to display all information on opening page, but rather helps to make the linkages between educational pathways and careers make sense
- Multiple entry points to access careers and educational pathways
- Provides a systematic gateway to information via different entry points depending on the perspective of each searcher
- Matching capability
- Scalability
- Simplified templates for ease of administration, consistency and facilitation of matching

Administration and Required Data Sets (by region)

The process is anchored by the gathering of specific data sets. These required data sets will ultimately be gathered by/provided to regional administrative entities. The information will be supplied via templates, loaded by regional hub administrators or by the individual institution (in which case it would be reviewed/approved by administrator before being loaded into the system).

In the pilot region, an economic development entity and the region's Manufacturing Extension Partnership (MEP), the Center for Economic Growth, is the facilitative entity. While other regions of the country may have similar organizations with connections to industry/business and education that are in a position to administer the program, that is not always the case. State entities/agencies, universities, community colleges, or other organizations who are seen as regional facilitators may be well equipped to play a similar role. It is important to remain

flexible, engaging the best equipped organization or the entity positioned to be the regional facilitator responsible for the administration of the program. This entity would be provided administrative access to the portal, information on how to use it, templates and the “playbook” defining their role in the process. Various states and regions may already have similar tools they are using however, it is important that they are user friendly and can ultimately be connected to a national platform so one can access national data. Given this need, it may well make sense to market and make this (or a similar) platform available nationwide.

Recommendations Specific to the Private Sector

- Support and align recruitment and promotion of skilled workforce based on individual credentials that are portable, stackable and nationally recognized
- Provide input to regional educational institutes to help them develop educational programs that are demand driven (in tune with current workforce needs)
- Collaborate with educational institutions to develop regional work/project-based study apprenticeship models with input from labor market intermediaries
- Collaborate with public entities/ educational institutions and labor market intermediaries in the development of regional web portals for career pathways in advanced manufacturing education (please see below).

Recommendations Specific to Educational Institutions

For K-12

- Provide curriculum with assignments that instill pride in workmanship (assignments that require building or assembly of actual material items – especially at the K to 6 grade level)
- Explicitly incorporate quality improvement thinking into day-to-day K-6 learning (how do I do it better the next time)
- Develop programs that support early involvement and kindle interest in advanced manufacturing careers
- Develop and provide dual credit courses for 11th and 12th graders related to advanced manufacturing
- Place emphasis on STEM topics in grades 7 to 12
- Enable students to take classes (dual credit) at local colleges or facilitate local college faculty to teach some classes at the school for advanced manufacturing

For Community Colleges and Beyond

- Collaborate pro-actively with industry partners to develop programs that are demand driven
- Focus on developing educational programs that are flexible and stackable
- Design programs with easy on and off ramps, including providing credit for prior learning (including for veterans) which is clearly defined
- Establish regional work/project-based study apprenticeship models in partnership with labor market intermediaries

- Take a lead role in the development of regional web portals for career pathways in advanced manufacturing education.

Recommendations Specific to Government

- Encourage and support the development of a system of nationally recognized, stackable, modular skill certifications that employers utilize in their hiring and promotion practices.
- Provide support for educational institutes to develop pilot programs in advanced manufacturing that provide on the job training through internships/ apprenticeships and field experience
- Support the development of labor market intermediaries that connect employers with educational institutions and provide resources to strengthen and support existing intermediaries.
- Encourage and provide support for the development of regional web portals for career pathways in advanced manufacturing education.

Other Recommendations

This work-creek would like to take the work on website portal design developed for the pilot (NY) region forward. The web portal model itself is anchored by a user friendly, simplified, standardized, scalable, web based platform that allows the user to find existing and trending careers, understand what skills are required to succeed in careers and match her or his current skills and knowledge base to those required. Going forward, we believe that regional entities across the country can develop such web portals focusing on advanced manufacturing career pathways for their individual regions. Such a portal will aid in individuals to find educational options on the path to preparing for careers in advanced manufacturing. This will require agencies in each region (educational institutions, labor market intermediaries, government agencies, public-private partnerships) in each region to take a lead role in the development of such a web portal. Simplified templates have been developed and can be provided to facilitate the process and ensure consistency/continuity. The process is anchored by the gathering of specific data sets by/provided to the lead regional administrative entities which will then have to be loaded using the templates provided.

A separate but, complementary piece of the system is a list of program attributes that are seen as best practices that can also be made available. Such a platform will lend itself to use nationally, allowing each region of the country to populate it based on regional business/industry needs and educational assets, providing visibility into regional job availability, trend and career pathways. Ultimately, the aim is to connect all the regional web-portals into a single national web-portal for career pathways in advanced manufacturing.

Work Creek 2: Portable and Stackable Credentialing System

Background

The goal of Work Creek Two was to find a way to increase nationally portable, stackable credentialing systems through certifications and work-based learning elements. Credentials allow for a more mobile workforce and provide individuals with greater labor market value (Ganzglass, 2014). We worked closely with the Manufacturing Institute to determine best practices and to establish guidelines for credentialing and certification programs.

Scope of Work

First, we identified programs and resources that could provide information and models of certification systems. We compiled a list of important elements of these models as well as names and role of intermediaries that helped make these programs successful. Then, we analyzed data for twelve states in which credentialing has been implemented as well as a national survey on the value of a credentialed workforce. Last, from this research we were able to determine three main issues associated with credentialing systems and developed deliverables that could be used to address these issues.

Key Findings

After creating a list of *Best Practice Models* (see the supplemental resources below), we were able to find the following common elements of credentialing systems that made them successful:

- Easy entry and exit points along lifespan.
- Modularized certificate training that can be scheduled to meet the needs of working adults.
- Aligned with for-credit programs leading to degrees and eligible for Pell, WIA, etc.
- Strong link to employment or internships

We also determined that intermediaries could organize, advocate for, and provide or broker services to employers. In addition, intermediaries could play a role in governing and advising workforce institutions and engage in research and development. Intermediaries identified as important included state or regional manufacturing and employer associations, workforce investment boards, community colleges, manufacturing extension partnerships, and regional economic development authorities.

The process we followed helped us identify the following issues with credentialing systems that if resolved could help achieve the objective of increasing nationally portable and stackable certifications.

1. The biggest issue associated with credentialing systems was a lack of awareness of certifications available and how to utilize them in both companies and educational institutions.

- One of the most consistent challenges identified by those that had implemented credentialing systems was helping all stakeholders understand the big picture and how they have a vested interest in achieving a skills certification system.
2. The second major issue was a lack of demonstrated evidence of success of credentialing systems.
 - Best practice case studies would illustrate that everyone gets something from credentialing systems: K-12 (higher graduation rates), community colleges (higher completion rates), workforce development (decreased unemployment and improved labor exchange), economic development (proof of a skilled workforce to attract new companies), policymakers (proof that things are working in their state), and employers (skilled, job-ready workers).
 3. Next, a national roadmap for action that identified guidelines and process steps in implementing credentialing systems was missing.
 - Programs that had implemented credentialing systems each had their own approach since a common set of guidelines did not exist. Although some programs were able to be successful by creating their own path in implementing credentialing systems, many had to scale back or forgo efforts due to a lack of understanding of the process.
 4. Last and most importantly, funding for implementing credentialing systems was inadequate and often created roadblocks for statewide systems that were trying to implement credentialing systems.
 - States that were awarded grants from the U.S. Department of Labor were able to expand their efforts more broadly without losing momentum. However, securing funding to expand the model and sustain the effort will require an integrated model that systematically combines the resources of states, private foundations, employers, and federal programs. These resources will need to be leveraged to achieve the desired result.

Examining these issues in greater detail allowed us to produce a number of recommendations and project deliverables that could help resolve potential problems with certification systems.

Recommendations

We have identified potential solutions to each of the issues described above. As we describe our recommendations below, we identify whether the suggestion is tailored to the manufacturing workforce, colleges/universities, communities, states, or public policy.

Recommendation I

Build awareness of credentialing systems with the following target stakeholder groups.

- **Manufacturing Workforce**: Utilize the *Employer Toolkit* we created to learn more information about credentialing systems and the benefits certifications have for companies. The *Train-the-Trainer* toolkit can also be used to support employer implementation of certification systems.
- **Colleges/Universities**: Utilize the *Educator Toolkit* we created to learn more about why you should offer credentialing systems and how you can get started in using certifications in educational institutions.
- **Communities**: Utilize the *Community Toolkit* and the *Dream It, Do It* campaign to engage employers in offering certification systems. *Dream It, Do It* is an Institute-led network and the grassroots authority on influencing the perception of manufacturing careers by leveraging strategic partnerships to attract and recruit a qualified manufacturing workforce. Currently in 29 states, the program supports manufacturers' engagement in youth-focused activities, ranging from mentoring and internships, to social media, to full-fledged advertising campaigns.

Recommendation II

Demonstrate evidence of success of credentialing systems.

- **Manufacturing Workforce**: Provide companies' access to *Employer Success Stories* from Bilstein, BisonGear, Permac, EJ Ajax, and Sun Hydraulics. These five employers have not only been successful in implementing credentialing systems, but also provide concrete evidence about how using certifications has benefited each of them as a company.
- **Colleges/Universities**: Provide educational institutions access to *Educator Success Stories* from Forsyth Tech, Ivy Tech, NC Colleges, Stark State, and Gateway Technical College. These five educational institutions provide information on how they utilized credentialing systems and the benefits provided by doing so.

Recommendation III

Indicate a national roadmap for action.

- **Communities**: Utilize the *National Roadmap for Action* guide that identifies routes to take in implementing credentialing systems, thruways and tips for making implementation more successful, and roadblocks or common challenges that occur when implementing credentialing systems.

- States: Utilize the *Certification Implementation Guidelines* that were created based on the experiences of early adopters to implement a certification system. The steps identified provide a guide to successful implementation and a checklist to ensure each stage of the process is completed.

Recommendation IV

Invest in building community capacity to expand certification.

- Public policy: Based on experience, colleges and communities invest between \$500,000 and \$1,000,000 in costs above normal operations to align and utilize certifications by launching a community effort to bring the partners together. To implement a national strategy to expand use and adoption of national industry certifications in education pathways across the country we recommend launching a competitive application of \$55,000,000. \$50,000,000 would be used to incentivize states to align education programs to national certifications. \$5,000,000 would be used to provide national technical assistance and coordinate sharing of best practices to accelerate implementation and success. Each state would be eligible to receive an investment in the range of \$500,000 - \$1,000,000 depending on the number of colleges engaged. At a minimum, each would receive \$500,000. Resources would support both academic alignment (75%) and employer engagement (25%).
- States: State-wide effort would drive alignment of workforce investments and have broad impact, including supporting small and medium manufacturers. Each state would be required to identify an anchor college with expectation to expand to state-wide support for manufacturing. All applicants for the above funding would be required to identify partners including: Education, Economic Development, Workforce Development, Manufacturing Extension Partnerships, Employers, and Employer Associations. The application would require that communities would be committed to delivering certified workers within 18 months.

The best practice models and success stories that we have examined indicated that credentials generally lead to higher wages, a better trained workforce, greater labor market mobility, reduced selection costs, and higher quality employees. These initial findings indicate that credentialing systems can be an important part of the workforce of the future. By building awareness, demonstrating evidence of success, providing a national roadmap for action, and investing in certifications, we can increase the use of nationally portable and stackable credentials and better meet the needs of employers and a growing non-traditional workforce.

Work Creek 3: Regional Apprenticeship/Internship Models

Background

The goal of Work Creek Three was to establish a regional work and project-based study apprenticeship model in partnership with labor market intermediaries and through a coalition of companies. The outcomes of these efforts need to be scalable, with a model that can be sustained for the long term by organizations of all sizes, big and small.

Scope of Work

To achieve this goal the team built a coalition of companies (Alcoa, The Dow Chemical Company and Siemens) that developed a playbook for building apprenticeship models for employers using proven techniques from almost 15 locations across Alcoa, Dow Chemical and Siemens. Following the deliverable of the playbook, the elements in the playbook were piloted across targeted locations in all three organizations.

Apprenticeship Playbook

To acquire the talent with right skills and competencies to support and implement our business strategies, an organization can either “buy” or “build” its workforce. When we “buy” we use the traditional recruiting methods to quickly find and hire people. When we “build” we use a multi-stakeholder, long-term approach to workforce development, underpinned by vocational training. This is a viable channel for entry-level and especially technically skilled talent, which ties in closely with business requirements. Building talent does takes time, effort and money, but this investment pays off long term as evidenced by examples in countries such as Germany and the UK, where apprenticeship programs have been practiced consistently for over 100 years. In countries like the US, where has apprenticeship programs have not been embraced as widely, the impact to businesses and the economy as a whole are beginning to become evident.

A Playbook was built in adherence with the Demand Driven Training principles, and the content is based on the best practices and lessons learned at 12 manufacturing site across the three coalition companies. It is designed to be a “How To” instructional manual that breaks down the complex process of building an Apprenticeship program into simple, easy-to-follow steps that Human Resources professionals, Plant Managers and Business Leaders in organizations of all sizes can adapt and implement.

The playbook is structured into 9 Chapters and can be found in Annex 3. The Manufacturing Institute has graciously agreed to house and update this resource, as needed.

As proof of concept Alcoa, Dow and Siemens are implementing the playbook content at their respective manufacturing sites. The Companies worked together to leverage the collective expertise of the coalition to partner with community colleges, tap into labor market intermediaries and other potential partners, and solicit funding.

Pilot Locations

Alcoa:

Global Rolled Products, Warrick, IN

- Launching Apprenticeship Program with 10 Electrician Apprentices
- Partnering with Ivy Tech Community College
- Progress: Program being finalized for launch later 2014.

Global Primary Products, Pt Comfort, TX

- **Launching Apprenticeship Program with 5 Maintenance Apprentices**
- Proposed Joint Partnership with Dow and Victoria College
- Progress: In development

The Dow Chemical Company:

Chicago HUB, Chicago, IL; Seadrift, TX (In Partnership with Alcoa); Deer Park, TX; Texas City, TX; Bayport, TX, Pittsburgh, CA

- Launching several Apprenticeship Programs totally approximately 35 Operator and Maintenance Apprentices
- Will be partnering with the local Community Colleges to develop appropriate curriculum
- Progress: Dow's US Apprenticeship program project will be launched in the third quarter of 2014 with the first wave of Apprentices to be hired in last quarter of 2014. The program will be registered with state and federal governments with an expectation to solicit funding by applying to State and National Grants (American Apprenticeship Grant)

Siemens:

Rail Division, Sacramento, CA

- Launching an Apprenticeship Program with 10 Welding Apprentices
- Partnering with the Los Rios District of Community Colleges to develop curriculum
- Working with Federal Department of Apprentices and the California Community College Chancellor's Office (Sector Navigator & Apprentice Program Specialists) to align with State and Federal guidelines
- Progress: Currently finalizing the academic and on-the-job training curriculum. Working with state and federal representatives to register the Apprenticeship program at both the State and Federal levels. Apprentices to be hired in the October 2014 timeframe. Expecting to solicit funding by applying for State and National Grants (American Apprenticeship Grant).

Work Creek 4: Bridging Modules for Veterans

Background

The goal of Work Creek Four was to create a playbook that aggregated resources for veterans, education providers, and employers. Our efforts connected directly with the other Work Creeks and leveraged their outputs. We worked closely with the Manufacturing Institute to document best practices and spotlight veterans that have successfully entered manufacturing careers.

Scope of Work

First, resources that could provide information to accelerate connecting veterans to manufacturing careers were identified. Then the resources compiled into a Playbook for veterans, educators, and employers. Telling the story of success is an important element to changing the perception of manufacturing careers and positioning manufacturing as a viable career. To support this need, the Playbook includes two spotlights of success.

Recommendations

Recommendations Specific to Veterans

- *Build Awareness of Manufacturing Careers:* Veterans have many of the skills sets necessary to successfully navigate a career in today's advanced manufacturing environment. Manufacturers across the United States are targeting colleges to let veterans know there is more to manufacturing than pulling levers on an assembly line. Today's manufacturing is high-tech. To support building the awareness of careers in manufacturing, the Playbook identifies resources to support career exploration.
- *Understand the Benefits:* Military experience provides veterans with resources for training that prepares them for civilian jobs. The Playbook organizes the resources in the context of manufacturing career opportunities to better connect education to careers.
 - *Translating Military Experience to Manufacturing Careers:* For many veterans translating military training to manufacturing careers can be difficult. To support this translation the Playbook links to key resources that provide this translation.
 - *Connecting to Education:* For veterans interested in securing manufacturing-specific training, the Playbook provides a list of resources.
 - *Summary Checklist:* To help map a course of action, the Playbook provides a helpful checklist for connecting with employers and colleges.

Recommendations Specific to Educators

- *Best Practices for Serving Veterans:* Developed with resources provided by the Administration, the Department of Education (ED), and the Department of Veterans Affairs

(VA) in conjunction with more than 100 education experts, the Playbook identifies the 8 Keys to Success that institutions of higher education can take to help veterans and service members' transition into the classroom and thrive once they are there.

- *Onboarding Veterans at Colleges/Universities:* Entering an education institution can be daunting for a veteran. The Playbook identifies best practices for colleges/universities to use when onboarding veterans.
- *Designing Programs of Study and Utilizing Industry Certifications:* The Playbook identifies best practices in designing a program of study aligned to industry needs, including the use of stackable nationally-recognized industry certifications. This activity connects back to Work Creek 2.
- *Translating Military Experience to Manufacturing Careers:* For many educators translating military training to manufacturing careers can be difficult. To support this translation the Playbook links to key resources that provide this translation.
- *Connecting with Manufacturers:* Building strong partnerships with employers is critical to connecting veterans to employment. The Playbook identifies effective ways of connecting with manufacturers. This includes the development of apprenticeship programs which connects back to Work Creek 3.
- *Working with Student Veterans:* Student veterans may need special support systems when entering colleges/universities. The Playbook identifies best practices for engaging and supporting student networks.

Recommendations Specific to Employers

- *Business Case for Veterans:* Hiring veterans is good for the country and smart business. The Playbook identifies the business case and business accommodations manufacturers need to consider when hiring veterans.
- *Connecting with Veterans:* One of the greatest challenges for employers is finding and connecting with veterans interested in manufacturing careers. The Playbook identifies strategies and resources to connect with veterans at the community level. This includes recommendations on how employers can align position descriptions with military experience.
- *Translating Military Skills and Experience to Jobs:* Just as veterans struggle with the translation of military training and experience to civilian jobs, employers struggle with translating job postings to military experience. To support this translation, the Playbook identifies key resources employers can access when developing job descriptions and postings.
- *Connecting with Education Providers:* Local educational institutions provide a great avenue to connect to veterans in transition. The Playbook offers best practice suggestions on how manufacturers can connect to local educators.
- *Offering Work Experience:* One of the critical elements to success is connection to direct employment. Work experiences are extremely effective in demystifying today's modern manufacturing environment for veterans. They also provide exposure to the great jobs and careers available in manufacturing. The Playbook identifies four avenues available for

offering these work experiences: using third party employment agencies, direct hiring, internships, or registered apprenticeships, which also connects back to Work Creek 3.

It is vital that the Playbook remain current and useful. As such, the Manufacturing Institute has graciously agreed to house and update this resource, as needed.

ANNEX 12

EDUCATION & WORKFORCE DEVELOPMENT WORKCREEK 1

Exemplary Advanced Manufacturing Education Programs

EXEMPLARY ADVANCE MANUFACTURING EDUCATION PROGRAMS

PROGRAMS AT COMMUNITY COLLEGES

AMTEC

<http://atecenters.org/amtec/>

AMTEC is a National Center for Excellence in Automotive Manufacturing, a collaboration between 30 community colleges and 34 automotive-related facilities in 12 states. Alamo Community College in San Antonio TX, one of the partners, brings together local manufacturers, and local high schools. The ECHS program allows students graduate with up to 27 hours of college credit and a national career readiness certificate and MSSC-CPT.

Focus: Advanced automotive manufacturing and mechatronics

Career Pathways: Strong industry input in curriculum enables students to transition more easily to the workplace, stackable credentials, off an on pathways between employment and community college based training, high school dual credit prepares students for the workplace and college, scalable model.

Bluegrass Community and Technical College's Advanced Maintenance Technician Program

http://bluegrass.kctcs.edu/About/Our_Campuses/Georgetown.aspx

The program was developed in partnership with their employer partner, Toyota, and replicated at several AMTEC partner institutions. Offers online classes, flexible schedules, dual credit courses for high school students, and a manufacturing model learning environment.

Focus: Advanced automotive manufacturing and mechatronics

Career Pathways: Strong industry input in curriculum enables students to transition more easily to the workplace, high school dual credit prepares students for the workplace and college, blended learning option.

Ivy Tech Career Map for Advanced Manufacturing (HS to BS)

<http://www.ivytech.edu/advanced-manufacturing-institute/adv-manufacturing-pathway.html>

The Advanced Manufacturing Institute is a virtual site coordinating and linking the Ivy Tech campuses across the state of Indiana with the Advanced Manufacturing sector. Includes a career pathway, which includes high school dual credit program, which offers MSSC-CPT. On the way to an associate's degree a Management Supervisory Institute certification is offered, requiring approximately 105 hours of training.

Focus: General advanced manufacturing

Career Pathways: Use of stackable credentials, scalable model, and industry outreach.

Lorain Community College Advanced Manufacturing Programs (Ohio)

<http://www.lorainccc.edu/Business+and+Industry/At+Work+for+Business/Manufacturing/Advanced+Manufacturing.htm>

Lorain County Community College is one of four lead community colleges piloting a national program that provides the National Association of Manufacturers (NAM) endorsed Skills Certification System to

students to prepare them for advanced manufacturing careers. It focuses on the core, basic skills required for entry-level workers in all sectors of manufacturing, from alternative energy and computers to aerospace and life-saving pharmaceuticals. Also, Lorain Community College provides innovative services and training in advanced manufacturing technologies.

Focus: General advanced manufacturing.

Career Pathways: Individual certification programs designed and validated by industry partners, stackable credentials leading to an associate's degree.

NEW Manufacturing Alliance (Northeast Wisconsin)

<http://www.newmfgalliance.org/>

Group of community colleges and universities, employers, and workforce development groups partnering to improve the health of the manufacturing workforce and its overall image in the northeastern part of WI.

Focus: CNC and industrial maintenance

Career Pathways: Industry outreach and collaboration.

Gateway Technical College's (WI) Manufacturing Boot camps

<https://www.gtc.edu/wedd/boot-camps>

This is an adult education workforce-training program designed by industry. It's a successful model worth familiarizing the committee with as a model for up-skilling entry level workers from other industries, the unemployed or underemployed, and lower-skilled adults who need a "re-entry" education path to enable them to secure high-skill/high-demand jobs. Offers a range of short boot camps, and certificates and associate's degrees are also offered at Gateway Technical College.

Focus: CNC, industrial machine repair, welding and fabrication

Career Pathways: On and off pathways especially target towards adults, skill based certification.

Chattanooga State Community College

<https://www.chattanoogastate.edu/engineering-technology/programs.html>

Very strong Engineering Technology programs, ABET accredited, aligned to four-year institutions as well as a CAD Technology certificate and 2 + 2 transfer program with U. of Tennessee at Chattanooga in general engineering.

<https://www.chattanoogastate.edu/engineering-technology/partnerships/vw-academy/>

The Volkswagen Academy offers an Automation Mechatronics Program and Car Mechatronics program, which combine 5 semesters of academics with 4 semesters of paid on the job training; only 12 students are admitted to both programs each fall.

Focus: Wide range of specialties from automated controls to welding, CAD certification, and mechatronics

Career Pathways: Apprenticeship opportunities, skill based certification, strong industry input, articulation agreement (pathways don't end at Associates degree).

Florida ATE

<http://fl-ate.org/projects/Stackable-Credentials-Aligned-Certificates.html>

The center includes partner colleges across the state of Florida, member of the National Association of Manufacturer's Manufacturing Institute's of M-List. Stackable credentials are used; with a MSSC-CPT credential students only need 45 instead of 60 credit hours to obtain an Engineering Technology A.S.

degree. The center also includes articulation agreements with Daytona State College, Florida A&M, Miami-Dade College and University of West Florida towards a Bachelor of Science in Engineering Technology.

Focus: A wide range of advanced manufacturing specialties

Career Pathways: Strong industry input in curriculum enables students to transition more easily to the workplace, stackable credentials, on and off pathways for adults, articulation agreements (pathways don't end at associates degree), scalability.

Florida TRADE

<http://www.fltrade.org>

Funded through TAACCCT the consortium consists of 12 state and community colleges, a large number of industry partners and accelerated 3-6 month programs targeting unemployed workers, workers looking to upgrade their skills and veterans. Designed to have stackable certifications that transfer towards AS degree.

Focus: 12 programs including AutoCad, Robotics, and Welding

Career Pathways: On and off pathways for adults, stackable credentials, industry input.

The 360 Center of Excellence in Minnesota

<http://www.360mn.org/>

Is also an NSF-ATE funded project aimed at providing manufacturing certificate and degree programs at partner institutions across the state. The center is a newer endeavor and the full programs will roll-out this coming Fall. Stackable credentials, with four online certificates available as well as articulation agreements for transfer Bemidji State University.

Focus: Range of certificates and specializations including rapid prototype and reverse engineering, welding and fabrications, and robotics integration

Career Pathways: Stackable credentials, blended learning, articulation agreement (pathways don't end at associates degree), scalability, industry input.

RAMR (Regional Advanced Manufacturing Retraining)

RAMR, a TAACCCT funded, 3 school consortium in Minnesota is linked and supported by 360 Center of Excellence and offers hybridized online manufacturing courses, targeted to TAA-eligible workers, longer term unemployed and veterans.

Career Pathways: On and off pathways for adults with links to 360 Center, blended learning.

NACK ATE Center

<http://nano4me.org>

NACK focuses on micro and nanotechnology programs and has a scalable model. Made up of industry, community college and research universities with faculty development workshops, with web portal to resources. Remote web access to control of nano equipment is offered.

Focus: micro and nanotechnology

Career Pathways: Industry input, scalability, online learning tools.

Harper College

<http://goforward.harpercollege.edu/academics/areas/manufacturing/mpc.php>

A number of manufacturing degrees are offered including an Associate in Applied Science in Advanced Manufacturing Technology. 16-hour Manufacturing Production certificate prepares students for MSSC credential and other stackable certificates follow. The program also includes a paid internship with local businesses.

Focus: CNC, and specializations in mechatronics, precision machining, metal fabrication and supply chain management

Career Pathways: Stackable credentials, on and off pathways for adults, strong industry partnerships.

South Central College

<http://ecatalog.southcentral.edu/careerFields2.php?careerField=4>

Offering degrees and certificates in fields such as Mechatronics Engineering Technology and Computer Integrated Machining. South Central also has articulation agreements with Bemidji State University and Minnesota State University, Mankato.

Focus: Computer integrated machining, mechatronics, and welding certification

Career Pathways: Skill based certification, articulation agreement (pathways don't end at associates degree).

Westmoreland Community College (Pennsylvania)

<https://wccc.edu/pages/locations/advanced-technology-center/>

Has developed multiple manufacturing certificate programs in partnership with area employers that articulate from feeder high schools, offer multiple exit points, and articulate to BS programs.

Focus: Wide range of specializations including mechatronics, additive manufacturing and nanofabrication

Career Pathways: Skill based certification, articulation agreement (pathways don't end at associates degree), industry input.

BACHELOR OF SCIENCE PROGRAMS

Rochester Institute of Technology

RIT has approximately 1,100 transfer students a year w/ 75% from two-year schools.

<http://www.rit.edu/cast/mmet/>

College of Applied Science & Technology- a variety of engineering technology programs are offered including manufacturing engineering technology, which is ABET accredited, as well as an accelerated dual degree (BS/MS) option which includes mechanical systems integration.

<http://www.ntid.rit.edu/academics/undergraduate/aplusb>

National Institute for the Deaf- associates degrees, joint associates and bachelor degrees; areas include applied computer technology and applied mechanical technology

Career Pathways: accelerated degree options, multiple pathways into the program.

University of Cincinnati

http://daap.uc.edu/academics/design/bs_industrial.html

The College of Design, Architecture, Art and Planning offers a BS in Industrial Design.

Career Pathways: Co-op programs, industry relations and practical training

The University of Akron

<http://www.uakron.edu/engineering/academics/undergraduate/>

The College of Engineering offers Bachelor of Science degrees in Aerospace Systems, Biomedical, Chemical and Biomolecular, Civil, Computer, Corrosion, Electrical and Mechanical Engineering that requires cooperative education assignments providing students a combination of classroom knowledge and work experience.

Career Pathways: Co-op programs, industry partnerships

Segal Design Institute and the McCormick School of Engineering - Northwestern University

<http://segal.northwestern.edu/programs/undergraduate/manufacturing-design-engineering/index.html>

A Bachelor of Science in Manufacturing & Design Engineering (manufacturing engineering ABET accreditation) is offered. All students are required to take the Engineering First program.

Focus: Designed around integrating design and manufacturing processes into an effective system

Career Pathways: Industry partnerships

UW Stout

<https://www.uwstout.edu/programs/bsmf/>

Offers a Bachelor of Science in Manufacturing Engineering, and have articulation agreements in place Hibbing Community College Pre-Engineering Programs as well as several schools in the Wisconsin technical college system.

Focus: CAD/CAM, robotics, microprocessor control of manufacturing

Career Pathways: multiple pathways into the program.

MASTERS PROGRAMS

University of Michigan

<http://isd.engin.umich.edu/degree-programs/manufacturing-engineering/index.htm>

Master of Engineering in Manufacturing offers a summer project through the Tauber Manufacturing Institute as well as a summer project through InterPro's practicum.

Career Pathways: Improving engineers' management skills and their abilities to improve management systems

Georgia Tech

<http://www.emil.gatech.edu>

Executive Masters in Logistics, where participants work in teams to complete a 19-month Global Supply Chain Project.

Career Pathways: Corporate sponsorship helps expand networks, 50% of participants have MBA's, and 65% at the Director level or higher within their organization

UC Berkeley

<http://funginstitute.berkeley.edu/berkeley-master-engineering>

Master of Engineering program, which includes at least 4 units of CE 299, Individual Study, on a professionally oriented problem in structural engineering and must culminate in a written report.

Focus: Bioengineering, electrical engineering and computer sciences, industrial engineering and operations research, and others

Career Pathways: Integration of engineering coursework with leadership and management concepts

Lehigh University

<http://www.lehigh.edu/engineering/academics/graduate/mansyseng.html>

Program covers business planning and management, product design, and manufacturing processes and technology. Classes are offered on campus as well as through Lehigh's Distance Education program.

Career Pathways: Online/blended learning options for working students and cross-disciplinary.

EARLY COLLEGE HIGH SCHOOL AND COMMUNITY COLLEGE PATHWAY PROGRAMS

Metro Early College High School – Ohio

<http://www.themetroschool.org/>

Metro facilitates a personalized, student-focused educational experience that focuses on mastery and authentic application of coursework.

Focus: The Metro vision is to provide a small and intellectually vibrant learning community designed to serve students who want a personalized learning experience that prepares them for a connected world where math, science and technology are vitally important. Metro has a holistic approach to educating the students—focusing on cognitive, social, emotional and physical development through experiential learning, service learning and family and community support.

Career Pathways: Higher education experiences that include careers in Biomedical Technologies and Engineering among others.

Clean Technologies & Sustainable Industries Early College High School

Hudson Valley Community College/Ballston Spa Central School District - Upstate NY

<http://www.bscsd.org/cleanTech.cfm?subpage=14380>

This program is a recognized Early College High School (ECHS) that brings together education, business and industry from across the region to support pathways to higher education that lead to careers in STEM fields through a collaborative approach to learning.

Focus: The program provides opportunities to take college coursework in a higher education setting while experiencing high school coursework that is problem based and transdisciplinary in nature. 21st Century Skills including collaboration, critical thinking, communication and innovation are embedded, along with the active engagement of business and industry leaders.

Career Pathways: Provides pathways to higher education that lead to careers in STEM fields in the areas of Clean Energy, Computer Information Systems, Entrepreneurship and Advanced Technology including Semi-Conductor Manufacturing.

Alamo Academies

<http://www.alamoacademies.com/>

The Alamo Academies is an award-winning partnership between industry and higher education. The partnership features a STEM-based instructional model operated by the Alamo Area Academies Inc., a non-profit organization, in partnership with the Alamo Colleges, San Antonio, Texas area high schools, industry and the cities of San Antonio, New Braunfels and Seguin providing youth with tuition-free career pathways into critical demand technical STEM occupations.

Focus: Aerospace, Advanced Manufacturing, IT, Health Professions

Career Pathways: The Academies use contextualized industry-driven dual credit curriculum and provide a college pathway for high school juniors and seniors to attain industry and academic certificates that lead to high-wage jobs or further higher education while addressing critical workforce industry needs. The Academies have a proven track record of graduates earning a tuition free one year Level I Certificate of Completion and industry credentials; receiving work experience through industry paid internships; and helping 95% of graduates transition into higher education or well-paid careers.

Early College High School Program in Advanced Manufacturing - Upstate NY

<http://www.wsweboces.org/news.cfm?story=206&school=5>

The program is a pilot program for the Tech Valley Connection for Education and Jobs Advanced Manufacturing Credential Program as a nationally recognized, scalable model that will provide a flexible education continuum that provides the fundamental skills required by today's manufacturers.

Focus: Preparing high school students for college and careers in advanced manufacturing by engaging industry partners to develop demand driven curriculum and actual workplace experiential learning opportunities.

Career Pathways: The program provides paths for student populations via a high school and community college through SUNY Adirondack, hosting college level courses for high school students on the college campus while allowing traditional students access to the same program. Successful student will have earned up to 24 college credits, four nationally recognized industry certifications, a Regents diploma, and valuable internship experience, all of which are portable and will better position the student for the job market or continuing his or her education.

PLATFORMS FOR SCALING BEST PRACTICES AND CONNECTIVITY

Tech Valley Connection for Education and Jobs

<http://www.techvalleyed.org/>

A regional pilot intended to be scaled as a user friendly, national platform that is adaptable to any region to better connect all stakeholders (businesses, education, parents, students, teachers, government, etc.), in order to leverage their collective strength. The focus is to ensure education is demand driven, better identify trending careers and various educational pathways, and generally help to improve the education system by identifying most innovative programs and eliminating roadblocks in the current system. The pilot under development includes both a web portal and organizational structure to administer the process that can easily be adapted to any region of the nation, with the ultimate goal of providing a national, user friendly tool for connectivity and career/education information.

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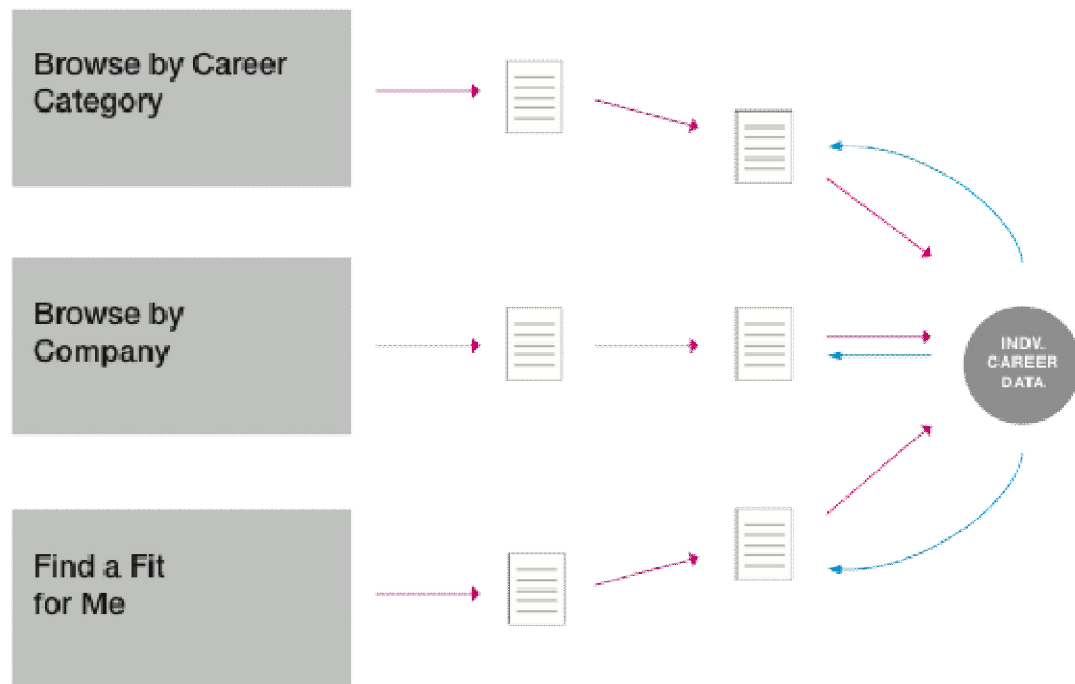
APPENDIX B – Career Pathways Portal

High-Level User Flow Diagram

There will be three main ways for users to navigate to individual trending career information: **Browse by Career Category**, **Browse by Company**, and **Find a Fit for Me**.

Information will be cross-referenced throughout the site to promote a fluid user flow through career data and invite exploration.

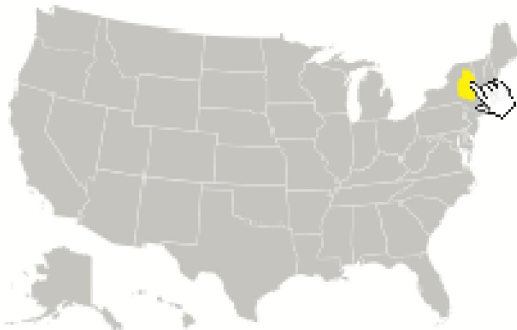
Please note that the data in this wireframe is for placement only and is not finalized content.



Home Page

Career Pathways for Trending Jobs

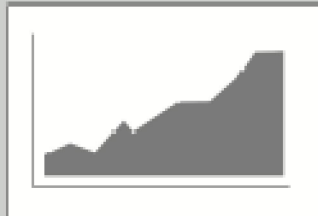
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About Trending Jobs

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SEE MORE »

The user first selects a participating region to begin.

The pilot program will consist of a single region, so this step will not be present at the initial launch.

General national trending jobs data will be available on other pages outside of the interactive portal.

Pathway 1: Browse by Career Category

Choose a Career Category

Aerospace Engineering and Operations Technicians
Biomedical Engineers
Civil Engineers
Civil Engineering Technicians
Computer-Controlled Machine Tool Operators, Metal and Plastic
Computer and Information Systems Managers
Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic
Electrical and Electronic Equipment Assemblers
Electrical Engineers
Electro-Mechanical Technicians
Environmental Engineers
Environmental Science and Protection Technicians, Including Health
Industrial Machinery Mechanics
Logisticians
Machinists
Maintenance and Repair Workers, General
Materials Engineer
Mechanical Drafters
Mechanical Engineers
Stationary Engineers and Boiler Operators

The user selects a career category from the presented list of trending career categories. The first of three ways to navigate to detailed career information is "Browse by Career Category". As more categories are added in the future, these categories will support three tiers of nested sub-categories based largely on the U.S. Department of Labor's Standard Occupational Classification.

Pathway 1: Choose a Career Category

Mechanical Engineer

Mechanical Engineers perform engineering duties in planning and designing tools, engines, machines, and other mechanically functioning equipment. Oversees installation, operation, maintenance, and repair of equipment such as centralized heat, gas, water, and steam systems.

Choose an education level for details:

High School

- N/A

1-year certificate

- N/A

Associates degree

- Junior Auto Research Engineer

Baccalaureate degree

- Auto Research Engineer
- Junior Combustion Engineer
- Junior Engine Designer
- Junior Heating and Cooling Systems Engineer
- Junior Mechanical Engineer
- Junior Tool and Die Engineer
- Junior Tool Engineer

Post grad

- Combustion Engineer
- Engine Designer
- Senior Heating and Cooling Systems Engineer
- Senior Mechanical Engineer
- Senior Tool and Die Engineer
- Senior Tool Engineer

Once the user chooses a career category, they are presented with a brief description and a list of specific careers broken out by level of education.

Pathway 1: Choose an Experience Level for Details

Individual Career Details Page

Junior Mechanical Engineer

Required Education

4-year engineering degree / many employer's require a Master's degree

Common Interests, Skills, and Experience

Problem solving skills, understand and interpret data, mechanical aptitude, expertise in Six Sigma, Lean and 5S

Wage Ranges

\$50,000-\$125,000/year nationally, \$80,000-90,000 regionally.

[See cost of living calculator](#)

Typical Duties

Develop new products (R&D), improve production processes, oversee production and troubleshoot

Opportunities for Advancement

Promotion to management positions with more experience and skills

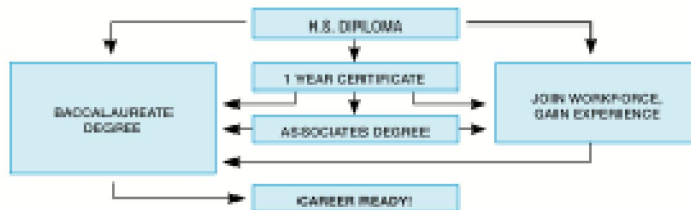
Businesses with relevant positions

Cambridge Valley Machining, Espey, GlobalFoundries, Kintz Plastics, Saint Gobain, Saturn Industries, Simmons Machine Tool Corporation, Super Power, XOS

How do I get here?

High School & Higher Education Pathway

Take courses in electronics, pre-engineering, drafting and CAD, take strong math/science program, acquire strong computer skills, participate in career and technical programs such as: Project Lead the Way, BOCES Advanced Manufacturing Systems program, BOCES Clean, Green & Advanced Technology program, BOCES New Visions: Engineering program



What are my next steps?

GO TO SCHOOL:

- [School A with relevant programs \(Off-site link\)](#)
- [School B with relevant programs \(Off-site link\)](#)
- [School C with relevant programs \(Off-site link\)](#)

FIND A JOB:

- [Related business A's HR department contact info and/or off-site link](#)
- [Related business A's HR department contact info and/or off-site link](#)
- [Related business A's HR department contact info and/or off-site link](#)

Related to this career:

- [Environmental Engineers](#)
- Environmental Science and Protection Technicians, Including Health
- Industrial Machinery Mechanics
- Logisticians
- Machinists
- Materials Engineer
- Mechanical Drafters

The Individual Career Details page will show pertinent information on the selected career including, but not limited to:

- Required education
- Common interests, skills, and experience
- Wage ranges (national and regional)

Education pathways will be clearly illustrated, demonstrating multiple ways for users to reach their career goals.

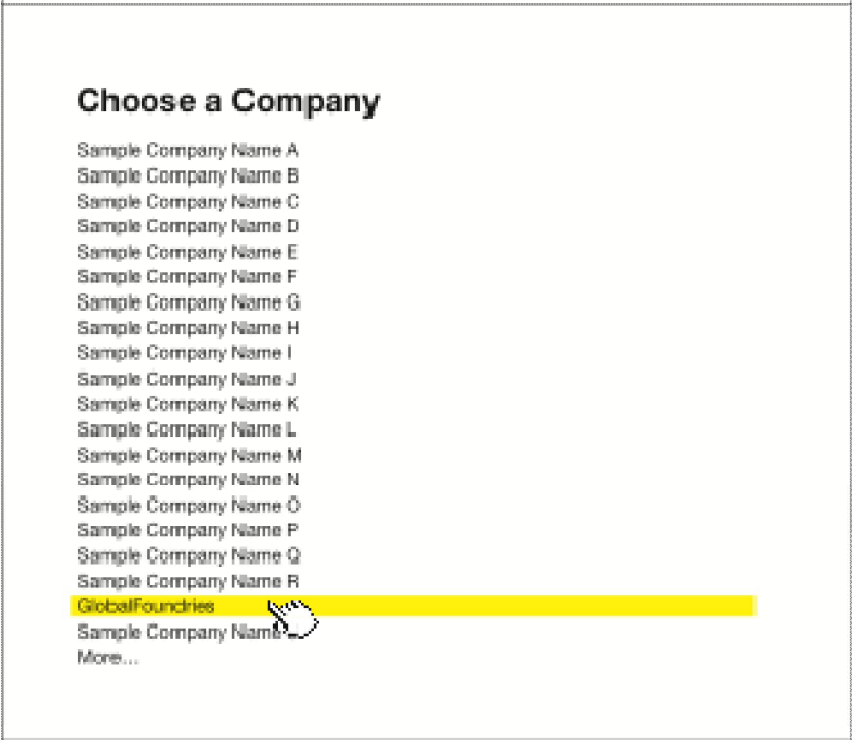
Information will also be cross-referenced throughout the site to promote a fluid user flow through career data. Examples of cross-linked content include:

- Related careers categories
- Businesses with relevant positions

Additionally, there will be off-site links to related school programs and HR departments.

Please note that the data in this wireframe is for placement only and is not finalized content.

Pathway 2: Browse by Company



The user will select from an alphabetized list of regional and international companies offering careers.

Pathway 2: Choose a Company

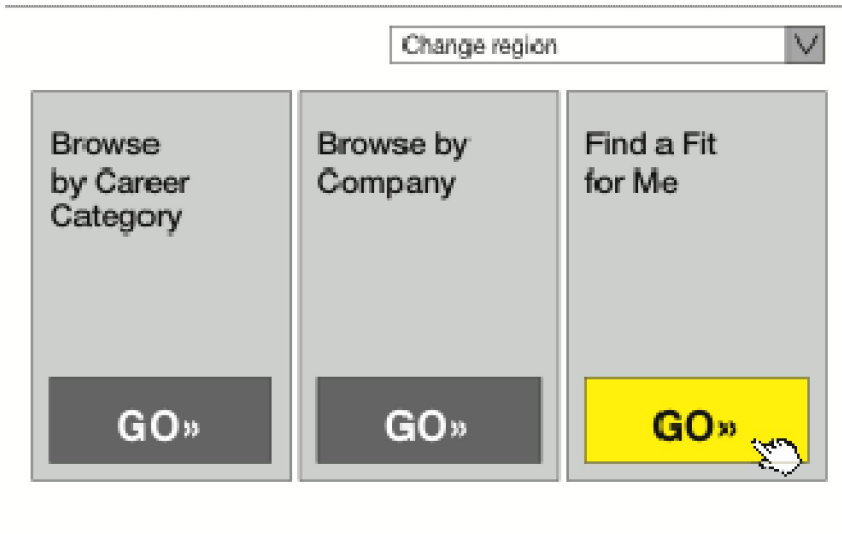
Choose a Career at GlobalFoundries

Chemical Technician
Civil Engineering Technology
Electrical Service Technician Electrical Maintenance Option
Electrical Engineering Technology
Engineering Science
Air Conditioning Technology
Mathematics and Science
Mechanical Engineering Technology 
Semiconductor Manufacturing Technology

Once the user chooses a regional company, they are presented with a list of trending careers within that company.

Each trending career presented will link to an Individual Career Details page.

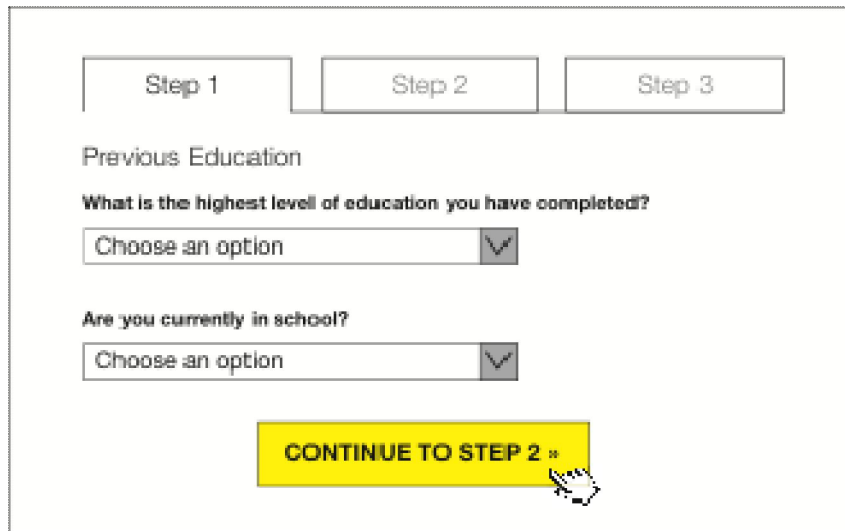
Pathway 2: Choose a Career at Chosen Company



The last of three ways to navigate to detailed career information is “**Find a Fit for Me**”.

Pathway 3: Find a Fit for Me

Pathway 3: “Find a Fit” Steps 1–3



Step 1 Step 2 Step 3

Previous Education

What is the highest level of education you have completed?

Choose an option ▼

Are you currently in school?

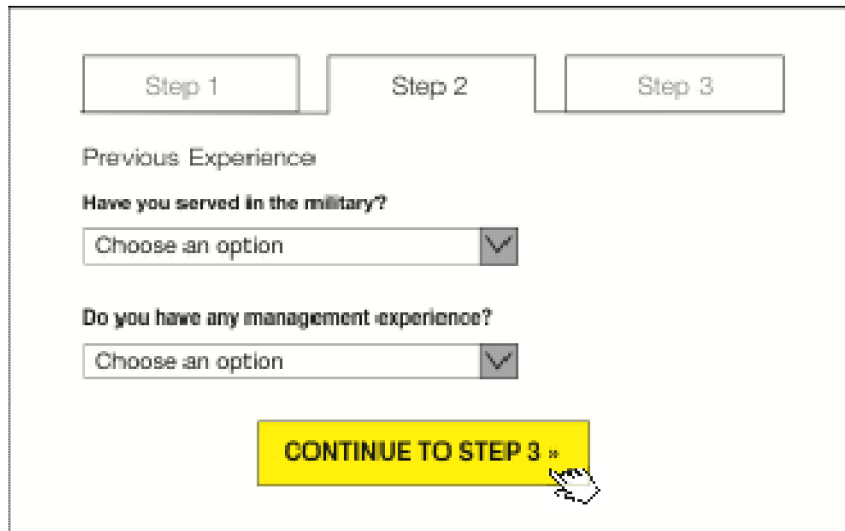
Choose an option ▼

CONTINUE TO STEP 2 »

This screenshot shows the first step of the 'Find a Fit' pathway. At the top, there are three buttons labeled 'Step 1', 'Step 2', and 'Step 3'. The 'Step 1' button is highlighted with a grey border. Below the buttons, the section is titled 'Previous Education'. There are two questions, each followed by a dropdown menu with the text 'Choose an option' and a downward arrow. The first question is 'What is the highest level of education you have completed?' and the second is 'Are you currently in school?'. At the bottom of the form is a yellow button with the text 'CONTINUE TO STEP 2 »' and a hand cursor icon pointing to it.

The “Find a Fit for Me” section will step the user through multiple-choice questions about their previous education, experience, and skills and interests to find a matching set of careers. Each trending career presented will link to an Individual Career Details page.

The questions will be dynamically served up to the user based on how they answer previous questions. For example, if a user is currently in high school, experience questions will be more about specialized courses and activities and less about real world working experience.



Step 1 Step 2 Step 3

Previous Experience

Have you served in the military?

Choose an option ▼

Do you have any management experience?

Choose an option ▼

CONTINUE TO STEP 3 »

This screenshot shows the second step of the 'Find a Fit' pathway. At the top, there are three buttons labeled 'Step 1', 'Step 2', and 'Step 3'. The 'Step 2' button is highlighted with a grey border. Below the buttons, the section is titled 'Previous Experience'. There are two questions, each followed by a dropdown menu with the text 'Choose an option' and a downward arrow. The first question is 'Have you served in the military?' and the second is 'Do you have any management experience?'. At the bottom of the form is a yellow button with the text 'CONTINUE TO STEP 3 »' and a hand cursor icon pointing to it.



Step 1 Step 2 Step 3

Skills and Interests

Do you enjoy problem solving?

Choose an option ▼

Would you consider yourself mechanically inclined?

Choose an option ▼

FIND A FIT FOR ME »

This screenshot shows the third and final step of the 'Find a Fit' pathway. At the top, there are three buttons labeled 'Step 1', 'Step 2', and 'Step 3'. The 'Step 3' button is highlighted with a grey border. Below the buttons, the section is titled 'Skills and Interests'. There are two questions, each followed by a dropdown menu with the text 'Choose an option' and a downward arrow. The first question is 'Do you enjoy problem solving?' and the second is 'Would you consider yourself mechanically inclined?'. At the bottom of the form is a yellow button with the text 'FIND A FIT FOR ME »' and a hand cursor icon pointing to it.

Pathway 3: “Find a Fit” Results

We've found 9 trending careers that might be a good fit for you:

Chemical Technician
Civil Engineering Technology
Electrical Service Technician Electrical Maintenance Option
Electrical Engineering Technology
Engineering Science
Air Conditioning Technology
Mathematics and Science
Mechanical Engineering Technology
Semiconductor Manufacturing Technology



Scaling of Best Practices and Improving Connectivity

This pathways portal will be housed within the overall education portal in the pilot region, which is part of a larger regional initiative intended to better “connect the dots” between most innovative practices in education, better link businesses, parents, teachers and businesses (all stakeholders) so as to better leverage the collective strengths and meet the needs of all involved. Like the pathways piece, the initiative, which is also being led by GLOBALFOUNDRIES, is intended to be scalable. The pilot region encompasses 111 school districts and 345

schools within 13 counties of NY and the model employs design principles that are similar to the pathways piece, including:

- Ease of use
- Scalability/sustainability
- Templates to facilitate the collection of appropriate data in a consistent format
- Driven by “matching” careers/skills/pathways
- Leveraging existing regional entities as administrators
- Active engagement of stakeholders in a continuous improvement model that best ensures that the tools meet their needs
 - Parents
 - Teachers
 - Students/adult learners/veterans
 - Businesses
 - Academic Administrators

Key Attributes

- A user friendly web portal which allows access to information via browsing by:
 - Business (info/interests)
 - Parents/Student (info/interests)
 - Teacher (info/interests)
 - By Region
 - By type of program
- Matches businesses to education to align needs with resources
 - Leverages businesses to develop innovative, demand driven programs
 - Leverages businesses to help eliminate roadblocks to system improvements
- Identifies most innovative practices in education and helps to leverage/grow them
- Curriculum sharing tool for teachers
- Matches skills to trending careers and individuals to educational pathways (as mentioned)
- Employs the use of teacher/student/parent/business “ambassadors” for connectivity
- Utilizes the same administrative structure as employed in the aforementioned pathways

Model*

* Note: The model being developed considers a role for the NNMI. As the national network grows, there may be a role for the institutes to play in the facilitation of the process as housing regional administrators.

It is recommended that the Administration leverage this regional initiative and evaluate it as a model to be used nationally. Minimally, the design principles and key attributes of this model should be considered in the development of other regional/a national system. It is also recommended that the administration of the said system(s) should be the role of the private sector. (See *Tech Valley Connection for Education and Jobs* under the Exemplary Programs list below for more details). The parties involved with this regional initiative have expressed a willingness to administer a national system based on this work and several partners involved with AMP 2.0 have expressed a willingness to participate. It is recommended that the Administration support scaling this work and facilitate the necessary collaboration.

ANNEX 13

EDUCATION & WORKFORCE DEVELOPMENT WORKCREEK 1

Career Pathways Portal

CAREER PATHWAYS PORTAL

High-Level User Flow Diagram

There will be three main ways for users to navigate to individual trending career information:

Browse by Career Category, Browse by Company, and Find a Fit for Me.

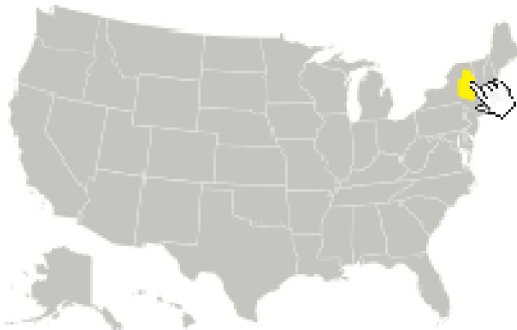
Information will be cross-referenced throughout the site to promote a fluid user flow through career data and invite exploration.

Please note that the data in this wireframe is for placement only and is not finalized content.

Home Page

Career Pathways for Trending Jobs

BEGIN:

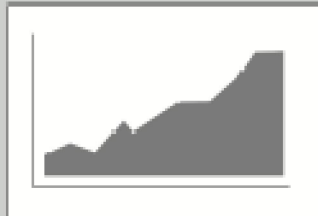


About Trending Jobs

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SEE MORE »

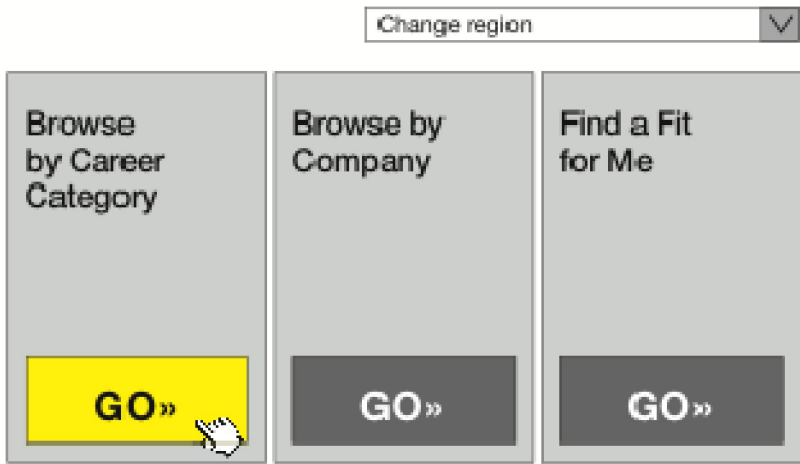


The user first selects a participating region to begin.

The pilot program will consist of a single region, so this step will not be present at the initial launch.

General national trending jobs data will be available on other pages outside of the interactive portal.

Pathway 1: Browse by Career Category



The first of three ways to navigate to detailed career information is **“Browse by Career Category”**.

Pathway 1: Choose a Career Category

Choose a Career Category

Aerospace Engineering and Operations Technicians
Biomedical Engineers
Civil Engineers
Civil Engineering Technicians
Computer-Controlled Machine Tool Operators, Metal and Plastic
Computer and Information Systems Managers
Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic
Electrical and Electronic Equipment Assemblers
Electrical Engineers
Electro-Mechanical Technicians
Environmental Engineers
Environmental Science and Protection Technicians, Including Health
Industrial Machinery Mechanics
Logisticians
Machinists
Maintenance and Repair Workers, General
Materials Engineer
Mechanical Drafters
Mechanical Engineers
Stationary Engineers and Boiler Operators

The user selects a career category from the presented list of trending career categories.

As more categories are added in the future, these categories will support three tiers of nested sub-categories based largely on the U.S. Department of Labor's Standard Occupational Classification.

Pathway 1: Choose an Experience Level for Details

Mechanical Engineer

Mechanical Engineers perform engineering duties in planning and designing tools, engines, machines, and other mechanically functioning equipment. Oversee installation, operation, maintenance, and repair of equipment such as centralized heat, gas, water, and steam systems.

Choose an education level for details:

High School

- N/A

1-year certificate

- N/A

Associates degree

- Junior Auto Research Engineer

Baccalaureate degree

- Auto Research Engineer
- Junior Combustion Engineer
- Junior Engine Designer
- Junior Heating and Cooling Systems Engineer
- Junior Mechanical Engineer
- Junior Tool and Die Engineer
- Junior Tool Engineer

Post grad

- Combustion Engineer
- Engine Designer
- Senior Heating and Cooling Systems Engineer
- Senior Mechanical Engineer
- Senior Tool and Die Engineer
- Senior Tool Engineer

Once the user chooses a career category, they are presented with a brief description and a list of specific careers broken out by level of education.

Individual Career Details Page

Junior Mechanical Engineer

Required Education

4-year engineering degree / many employer's require a Master's degree

Common Interests, Skills, and Experience

Problem solving skills, understand and interpret data, mechanical aptitude, expertise in Six Sigma, Lean and 5S

Wage Ranges

\$50,000-\$125,000/year nationally, \$80,000-90,000 regionally.

[See cost of living calculator](#)

Typical Duties

Develop new products (R&D), improve production processes, oversee production and troubleshoot

Opportunities for Advancement

Promotion to management positions with more experience and skills

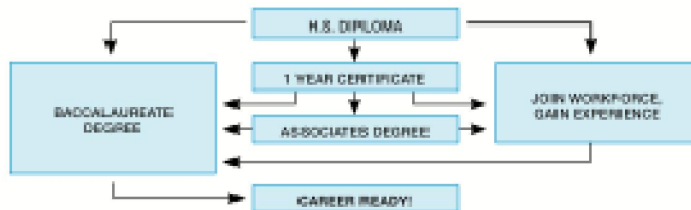
Businesses with relevant positions

Cambridge Valley Machining, Espey, GlobalFoundries, Kintz Plastics, Saint Gobain, Saturn Industries, Simmons Machine Tool Corporation, Super Power, XOS

How do I get here?

High School & Higher Education Pathway

Take courses in electronics, pre-engineering, drafting and CAD, take strong math/science program, acquire strong computer skills, participate in career and technical programs such as: Project Lead the Way, BOCES Advanced Manufacturing Systems program, BOCES Clean, Green & Advanced Technology program, BOCES New Visions: Engineering program



What are my next steps?

GO TO SCHOOL:

- [School A with relevant programs \(Off-site link\)](#)
- [School B with relevant programs \(Off-site link\)](#)
- [School C with relevant programs \(Off-site link\)](#)

FIND A JOB:

- [Related business A's HR department contact info and/or off-site link](#)
- [Related business A's HR department contact info and/or off-site link](#)
- [Related business A's HR department contact info and/or off-site link](#)

Related to this career:

- [Environmental Engineers](#)
- Environmental Science and Protection Technicians, Including Health
- Industrial Machinery Mechanics
- Logisticians
- Machinists
- Materials Engineer
- Mechanical Drafters

The Individual Career Details page will show pertinent information on the selected career including, but not limited to:

- Required education
- Common interests, skills, and experience
- Wage ranges (national and regional)

Education pathways will be clearly illustrated, demonstrating multiple ways for users to reach their career goals.

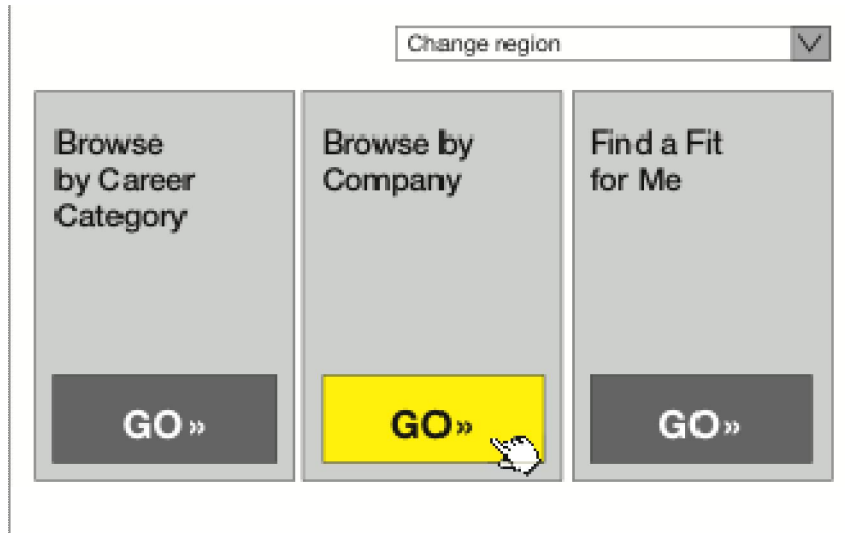
Information will also be cross-referenced throughout the site to promote a fluid user flow through career data. Examples of cross-linked content include:

- Related careers categories
- Businesses with relevant positions

Additionally, there will be off-site links to related school programs and HR departments.

Please note that the data in this wireframe is for placement only and is not finalized content.

Pathway 2: Browse by Company



The second of three ways to navigate to detailed career information is **“Browse by Company”**.

Pathway 2: Choose a Company



The user will select from an alphabetized list of regional and national companies with trending careers.

Pathway 2: Choose a Career at Chosen Company

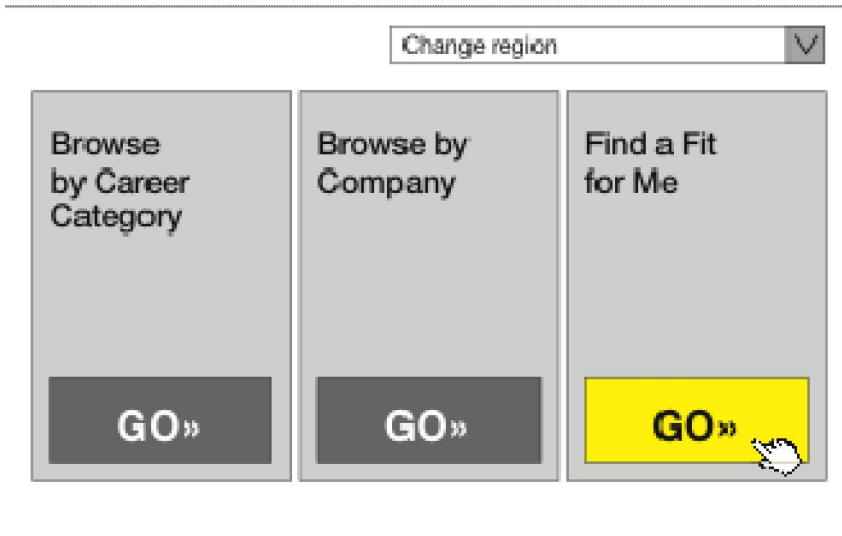
Choose a Career at GlobalFoundries

Chemical Technician
Civil Engineering Technology
Electrical Service Technician Electrical Maintenance Option
Electrical Engineering Technology
Engineering Science
Air Conditioning Technology
Mathematics and Science
Mechanical Engineering Technology 
Semiconductor Manufacturing Technology

Once the user chooses a regional company, they are presented with a list of trending careers within that company.

Each trending career presented will link to an Individual Career Details page.

Pathway 3: Find a Fit for Me



The last of three ways to navigate to detailed career information is “**Find a Fit for Me**”.

Pathway 3: “Find a Fit” Steps 1–3

Step 1 Step 2 Step 3

Previous Education

What is the highest level of education you have completed?

Choose an option

Are you currently in school?

Choose an option

CONTINUE TO STEP 2 »

The “Find a Fit for Me” section will step the user through multiple-choice questions about their previous education, experience, and skills and interests to find a matching set of careers.

The questions will be dynamically served up to the user based on how they answer previous questions. For example, if a user is currently in high school, experience questions will be more about specialized courses and activities and less about real world working experience.

Step 1 Step 2 Step 3

Previous Experience

Have you served in the military?

Choose an option

Do you have any management experience?

Choose an option

CONTINUE TO STEP 3 »

Step 1 Step 2 Step 3

Skills and Interests

Do you enjoy problem solving?

Choose an option

Would you consider yourself mechanically inclined?

Choose an option

FIND A FIT FOR ME »

Pathway 3: “Find a Fit” Results

We've found 9 trending careers that might be a good fit for you:

Chemical Technician
Civil Engineering Technology
Electrical Service Technician Electrical Maintenance Option
Electrical Engineering Technology
Engineering Science
Air Conditioning Technology
Mathematics and Science
Mechanical Engineering Technology
Semiconductor Manufacturing Technology



The user will choose from the resulting trending career matches.

Each trending career presented will link to an Individual Career Details page.

Scaling of Best Practices and Improving Connectivity

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The pilot region encompasses 111 school districts and 345 schools within 13 counties of NY and the model employs design principles that are similar to the pathways piece, including:

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- Leveraging existing regional entities as administrators
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 - Teachers
 - Students/adult learners/veterans
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 - Academic Administrators

Key Attributes

- A user friendly web portal which allows access to information via browsing by:
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 - Teacher (info/interests)
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 - By type of program
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 - Curriculum sharing tool for teachers
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 - Utilizes the same administrative structure as employed in the aforementioned pathways
- Model*

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ANNEX 14

EDUCATION & WORKFORCE DEVELOPMENT WORKCREEK 2

Best Practice Models

Summary of Best Practice Examples

Work Creek 2: Increase nationally portable, stackable credentialing systems through certifications and work-based learning elements.

1. **Military Credentialing and Licensing Task Force** at the Dept. of Defense to enable service members in the Army, Navy, Marines, and the Air Force to get industry-recognized credentials for their skills, starting with the 126,000 active service members who receive elements of manufacturing training.
2. **Harper College** [pathways](#) offering degrees and certificate programs
3. **South Central College** computer integrated [machining](#) department is one of the two original partners in the Right Skills Now [program](#)
4. **FLATE Center NSF-Funded ATE Center (MSSC):** The program assigns 15 credit hours for a nationally recognized industry credential from the Manufacturing Skills Standard Certification (MSSC). MSSC is a nationwide, industry-led assessment and certification system focused on the core skills and knowledge needed by advanced manufacturing production workers. If you are an advanced manufacturing employer, please consider adding the MSSC Certified Production Technician certification as a preferred condition of employment or promotion.
5. **Ivy Tech:** state-wide alignment across manufacturing and logistics – NCRC, MSSC, NIMS, AWS, CLA, CLT, ASQ, APICS. The Advanced Manufacturing [program](#) is designed to prepare students for the modern manufacturing environment.
6. **North Carolina Community Colleges:** A more general description of [workforce development](#). Ten community [colleges](#) have joined forces with each other and created partnerships with local companies. This also includes the Advanced Manufacturing Alliance [plan](#) for action.
7. **The Advanced Technology and Manufacturing Academy** is a two-year [program](#) that provides an internship and experience for high school students (earns 30 free college credit hours). This includes NAM certifications.
8. The Manufacturing Institute launched the **National Association of Manufacturing (NAM)-Endorsed Skills Certification System** to address the skills gap challenge and to promote a renaissance of manufacturing education across the country. The NAM-Endorsed Skills Certification System is a system of stackable credentials that can apply to all sectors in the manufacturing industry. These nationally portable, industry-recognized credentials validate the skills and competencies needed to be productive and successful in entry-level positions in any manufacturing environment. They also produce an updated “[M-List](#)” of high schools, community colleges, technical schools, and universities teaching manufacturing students industry standards as well as a list of [tools and resources](#).

ANNEX 15

EDUCATION & WORKFORCE DEVELOPMENT WORKCREEK 2

Employer Toolkit

DEVELOPING SKILLED WORKERS

A Toolkit for Manufacturers on Recruiting and Training a Quality Workforce





For many manufacturers, the skills gap in manufacturing is very real. It may mean passing up a major order because the skilled talent isn't there. Or paying out overtime, or stretching delivery times, because of running short. It may mean the difference between expanding where you are or considering other parts of the country that have more and better training for the technical workforce you need.

Where once strong backs and hard work sufficed, today's manufacturing depends more than ever before on smart minds and an agile workforce. And successful manufacturers are finding that they can't wait for the talent to come to them. There are positive steps every company can take to secure the right talent at the right time.

Whether you are growing your operation, or planning for impending retirements in your workforce, or upskilling in response to automation and productivity improvements, this toolkit is for you. It was designed with the input of small, medium, and large manufacturers and builds off of nearly 10 years of experience in projects that have proven to work.

The heart of this guide is a system of certifications—designed by and for industry, and endorsed by the National Association of Manufacturers. They represent the skills standards that you can stand behind in posting jobs and evaluating applicants. They also empower you to work with colleges and technical schools to make sure that training programs match up to your current and future jobs. In the following pages, you will find steps to take, templates to use, partners to build, and case studies to learn from as you grow your own workforce. A workforce with the work competencies and certifications that will prime you for success.

Just as every company engineers its product line, its supply chain, and its production processes, so can you engineer a talent pipeline. But you don't have to go it alone.

You can start right here.

Sincerely,

A handwritten signature in black ink that reads "Jennifer McNelly". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Jennifer McNelly
President
The Manufacturing Institute

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- ① Skills Certification System Overview
- ② Why Certifications?
- ③ Methods to Use Skills Certifications
 - ① Partner with Your Community
 - ② Partner with Community Colleges
 - ③ Build Your Own
- ④ Frequently Asked Questions
- ⑤ Certification Partners
- ⑥ Sample Job Descriptions
- ⑦ Sample Outreach Materials, Including Press Release, Invitation, Announcement Poster, Agenda and PowerPoint Presentation
- ⑧ Advanced Manufacturing Competency Model
- ⑨ Resources

The Skills Gap

- 74% of manufacturers report that the skills gap has negatively impacted their company's ability to expand operations.
- 69% of manufacturers expect the shortage in skilled production to worsen.

[*Deloitte Consulting LLP and the Manufacturing Institute, The Boiling Point? Skills Gap in U.S. Manufacturing, 2011](#)





Skills Certification System

A skilled workforce is the single most critical element of innovation and success, but the hardest asset for manufacturers to acquire. Over 82 percent of manufacturers have reported moderate to serious skills shortages of skilled talent.

These skill shortages pervade all stages of manufacturing—from engineering to skilled production. This challenge will only grow as the demographics of our workforce drive “boomer” retirements, technological advances require higher level of training, and our education system continues to lack a focus on STEM education. Manufacturers need be a part of the solution, offering clear guidance on expectations of performance and delivering a road map for success. The bottom line is that in order to compete in the global marketplace, manufacturers need a skilled talent pipeline.

The Manufacturing Institute launched the NAM-Endorsed Skills Certification System to redefine manufacturing education to an industry standard and address the skills gap challenge across the country. The Skills Certification System was developed by manufacturers, for manufacturers, to help them create a pipeline of workers with high-demand skills.

Manufacturers can no longer afford to wait to educate and train the next generation of manufacturing talent.

The Skills Certification System is a system of industry-based credentials that can apply to all sectors in the manufacturing industry. These credentials validate the skills and competencies needed to be productive and successful in any manufacturing environment. Manufacturers use these skills certifications to match the right candidates with the right jobs and grow the skill sets of their existing workforce.

The certifications are also “stackable”—they build on a foundation of basic academic and workplace skills, such as critical thinking, following instructions, and dependability. From there, workers gain core technical skills, including safety, quality, and maintenance. Finally, workers are certified in specialized, occupationally specific skills, such as welding, machining, and logistics. The sequence is capped with professional certifications offered at the baccalaureate and graduate levels. Embedding industry-based certifications in education pathways provides third-party validation of skills and minimizes hiring risk for employers; increases placement and wage gains for students; and increases the acceptance of credits for

Industry Certifications

Industry certifications are credentials that are based on a third-party assessment, using standards that are set by industry. A certification is different from an education certificate because it is not dependent on a particular education program or curriculum. Whereas a certificate will usually indicate completion of a class or program of study, a certification is an assurance of competency. Certifications can be measured by an industry exam or by a practical performance of a skill (such as welding or machining) that is judged by an independent inspector.

The Manufacturing Institute has endorsed industry certifications that are nationally portable, third-party validated, industry-supported, with data on results for manufacturers. The Skills Certification System consists of industry credentials from the following partners:

- ACT
- American Society for Quality
- American Society of Transportation and Logistics
- American Welding Society
- Association for Operations Management
- Fabricators & Manufacturers Association
- International Fluid Power Society
- International Society of Automation
- Manufacturing Skill Standards Council
- National Institute for Metalworking Skills
- North American Die Casting Association
- Packaging Machinery Manufacturers Institute
- Society for Manufacturing Engineers
- The Manufacturing Skills Institute

articulation across programs and institutions, enhancing efficiencies of the educational delivery system and promoting student completion. Industry certifications link education and work, ensuring graduates have the skills required for jobs in today’s manufacturing economy.

Why Certifications?

The Skills Certification System transforms traditional education pathways by aligning them with the requirements of industry-based certifications. Students earn not only education credentials, but also industry-validated, nationally portable certifications with real value in the marketplace.

When making an investment, all employers consider the return or value to the organization. In a recent study, over 90 percent of companies that use certifications have seen a positive ROI.

Industry certifications validate what workers know and are able to do. They take the guesswork out of hiring and promotion, and help reduce costs and minimize risk.



Benefits of Certifications

Companies have documented significant measurable results when recognizing industry certifications, including:

- **More job-ready candidates:**
Applicants with certifications have demonstrated an ability to be productive faster than those hired without the certifications.
- **Shorter training time:**
Certified workers come to the company ready to work and learn. They have a basic understanding of the manufacturing environment, terminology, and common processes and are ready to apply them in their new environment.
- **Improved safety and quality:**
Manufacturers report fewer accidents and improved safety ratings. Certified workers understand the importance of safety and quality and are sensitive to the critical role in production.
- **Reduced turnover:**
Employers have reported as much as a 50% reduction in turnover resulting from hiring certified workers.
- **Better promotion decisions:**
Certified workers are better candidates for promotion. Some employers use certifications as criteria for employees requesting a promotion or to identify those most qualified for future training.
- **Increased productivity:**
Reduced overtime and scrap rate, additional new business, and an overall increase in production capacity keep production lead times below the industry standard.



Partner with Your Community

If you want...

.....to make sure there are training programs that meet your skill needs but don't have enough openings to fill a class...

Do this...

...join with other manufacturers in your area that have similar skill needs. By jointly calling for specific industry certifications as an outcome of training, you will have a much louder voice in helping to set up or modify training programs.

Change can be difficult—especially with something as fundamental to your business as your recruiting and human resources practices.

You don't have to go it alone. There are many ways you can join with schools, organizations, and companies that may already be doing a lot of what you hope to accomplish.

PARTNERS IN YOUR COMMUNITY

No matter where you are in the process, it makes sense to reach out to community resources and partners. These will vary from state to state, and your own network will depend on your industry sector, the size of your company, your largest skill needs, and the degree of activity already underway in your area.

Consider the following strategies as you build your own successful network:

- 1 Check with the Manufacturers Association, Chamber of Commerce, and Other Business Groups

If you are having a challenge finding the right manufacturing skills, you can be sure other companies like yours have the same challenge. More and more business organizations are dedicating staff and resources to support their members in this critical issue.

- 2 Work with Your Community or Technical College

Most community colleges have a wide range of technical programs in areas as diverse as manufacturing processes and fabrication, welding, automation, and machining. So it makes sense to include one or more community colleges, along with a range of public and private technical providers, as part of a solution. You should start with the M-List, community colleges and technical schools that already have programs that lead to one or more certifications in the Skills Certification System. Find the M-List at: <http://www.themanufacturinginstitute.org/Skills-Certification/M-List.aspx>

Whether they are on the M-List or not, there are proven ways of working with community colleges in ways that work for you and your business. See *Community and Technical Colleges for additional ideas and support*.

There may be other programs, including private institutions, which may be degree-bearing or may offer short-term technical training. They may also be publicly funded and encompass high school students as well as adult learners. Each state has a different system for career and technical education

- 3 Schedule a Meeting with a Local Workforce Investment Board

Workforce Investment Boards, or WIBs, play an important role in funding training to meet regional industry needs, connecting candidates with job openings, and tying workforce initiatives to economic development. Many WIBs, for example, have testing centers for the National Career Readiness Certificate and support a variety of manufacturing training. By law, WIBs must have employers on their board, and they should be eager to treat you as a valued customer. As an employer, you should contact the WIB director or business services executive and discuss your workforce needs. It would be especially productive to identify competencies and the industry certifications that match up to your basic requirements. You should also keep attuned to the priorities of the WIB, give your feedback, and join in ways that support your own pipeline of talent.

4 Contact a Manufacturing Extension Partnership

Manufacturing Extension Partnerships (MEPs) are federally supported, business-oriented organizations dedicated to manufacturing success. MEPs traditionally have helped small businesses find funding, work through regulations, and build a customer network. Most MEPs have also provided training, such as Lean training. Although not all MEPs will be focused on training for workers in manufacturing skills, it is worth contacting your local MEP and finding out what is offered. Even if an MEP won't directly offer training, often the MEP is a hub for active manufacturers and can help you identify resources and likeminded companies.

TURNING A NETWORK INTO A SOLUTION

Once you have scoped out the likely prospects for partners in your region, it is time to take action! There are a number of actions you can take to get to a collective solution.

1 Help to Organize a Workforce Forum

No matter how different your operations are from other companies, chances are you share many key workforce needs. Holding a workforce forum can help to clarify the issues, find other companies interested in growing a talent pipeline, and learn about the range of solutions that can help.

Generally, a forum will work best when it is organized and led by employers like you, and focuses on the needs of industry.

One goal of banding together with your manufacturing peers will be to benchmark the core competencies required across the industry. It is highly appropriate, and often very welcome, to outline the Skills Certification System as an industry-endorsed approach that is working across the country. A sample letter and outreach materials are included in this toolkit.

2 Support a Joint Training Solution

Community colleges and technical schools typically welcome the input of industry in defining their programs of study and deciding on content and standards. In fact, the non-credit program of most colleges often creates customized programs for a single company.

The purpose of a joint solution, however, is to develop consensus across multiple companies behind a course that meets the general needs of the manufacturing industry. Your leadership can make a huge difference in getting like-minded companies together behind skills certification as the outcome of education. Especially for small and medium manufacturers, this is probably the best way to impact community college offerings and get meaningful change in ways that will build the overall pipeline of skilled workers.

3 Establish or Build on a Manufacturing Workforce Organization

There is no substitute for dedicated staffing and resources behind workforce development for manufacturers. That is why several manufacturing associations have built up education foundations or devoted a staff resource to solving the skills gap. Their impact is starting to be felt. Some areas have scholarships for individuals to enter into manufacturing education. Others have supported innovative policies promoting industry certification, or have crafted industry partnerships behind meaningful community college classes.

4 Map out a Pipeline Plan

The most critical step you can take is to develop a plan. Using the resources provided to you in this toolkit, as well as through the previous networking steps, develop a strategic, long-term plan to build relationships and expand your pipeline.

Using Community & Technical Colleges

If you want...

...to build a pipeline of potential candidates with the right skills...

...to help shape the technical offerings and curriculum at your local community college...

Do this...

...talk to community colleges and technical schools about upcoming classes and students' training paths. By volunteering your time to visit the classes, taking on interns, and agreeing to interview students earning certifications, you will have a great chance to build a base of candidates once they finish.

...participate in advisory committees and speak up about the training needed in your industry sector. Become an advocate for the Skills Certification System.

Most community and technical colleges have a wide range of technical programs in areas as diverse as manufacturing processes and fabrication, welding, automation, and machining. As publicly funded institutions, they have been described as a national treasure. But not all community colleges are created equal, so you may need to do your homework to find the best fit in your area.

Your voice can make a difference. As manufacturers, we should expect to influence the kinds of technical programs at the college, and have a say on what constitutes quality. So you should feel fully empowered to call up a community college and get involved.

HOW TO START WITH A COMMUNITY OR TECHNICAL COLLEGE

Of course, you will go to the website and take a look at the technical programs in manufacturing, engineering, and other STEM training. But how can you know if they have solid outcomes and meet your needs?

These are some questions to ask of the college administration or dean of manufacturing programs:

- ① Does the program lead to certifications in the Skills Certification System? If yes, which ones? If not, do you have plans to build certifications into your programs?
- ② How many students earn the certifications?
- ③ Who is on your industry advisory committee? How often does it meet? Can I speak with the chair and other industry representatives?

④ Are the programs for credit or not-for-credit? In non-credit programs, how can students earn credit for their learning?

Depending on the answers, you will get a sense of how to form a partnership or to step up your work with the college. Here are some important ways manufacturers can work with colleges, remembering that a true partnership means there are benefits on both sides:

- Join the industry advisory council or other body advising academic programs
- Share a job analysis of your key recruitment needs, including the competencies and industry certifications you value or require
- Set up a formal process for student internships
- Agree to interview students who earn your preferred industry certifications
- Arrange interactions with students, which may include tours at your plant, or speaking to a class about opportunities in manufacturing and at your company
- Volunteer for extracurricular activities, like SkillsUSA and FIRST Robotics teams

FIRST STEPS TO TAKE WITH YOUR COMMUNITY OR TECHNICAL COLLEGE

1 The M-List: Your “Crib Sheet” to Finding Quality Programs

There are so many academic programs out there that it can be hard to figure out where to start. That is one reason why The Manufacturing Institute publishes the M-List of schools that are teaching up to industry standards and provide access to manufacturing certifications.

How does your area stack up? Find the M-List at: <http://www.themanufacturinginstitute.org/Skills-Certification/M-List/M-List.aspx>

There, you will discover not only which schools offer quality manufacturing programs, but you will also find which certifications they offer, a description of their degree programs, and a list of contacts you can call.

2 Understand the College

Community colleges generally have two separate functions—for credit and non-credit programs—and it is important to recognize which entity you are dealing with and where you can best find success.

Academic programs offer credit and formal credentials, such as associate’s degrees and one-year certificates. Some advantages of working with the academic college are:

- The chance for students to attain an associate’s degree or other college credential
- Greater ability for students to use financial aid, GI Bill, and other financial supports

Non-credit offerings, often in what is known as the “corporate college,” are typically shorter, industry-specific training programs. Some advantages of working with the corporate college are:

- Usually more nimble to create new courses and curriculum
- Can often be customized for a single industry sector or employer
- May be a good choice for your incumbent workers

The Manufacturing Institute believes that it is in the best interest of companies and students for manufacturing programs to lead to college credit and industry certifications. This is also the best



way to make sure as many students as possible can enter into technical programs and build a career based on lifelong learning.

3 Set an Objective and Push for Results

Just like other institutions, community and technical colleges should be responsive to their community. Moreover, as an employer you should have a privileged place in ensuring that students at the college get jobs. It will help if you are very clear in your objectives and stick to it in achieving results. So in working with the college, make clear you are interested in technical training that leads to industry certifications—those that make up the Skills Certification System.

This cannot be a one-way street, however. You should be able to offer one or more of the following:

- Agree to interview students completing training
- Recognize the certifications in your interview and hiring processes
- Join an industry advisory group or otherwise give feedback on needed skills
- Donate equipment that may help modernize a program

4 Connect with the President and Dean

The president and/or dean of the college can be a great ally in getting new training programs set up in a timely manner. They can also assist you in developing other programs, including internships and apprenticeships.

Build Your Own

If you want...

...to measure baseline academic skills in Applied Math, Reading for Information (like a technical manual), and Locating Information (like on a spreadsheet)...

...to signal the competencies you are looking for in your technical workforce to job applicants, incumbent workers, and educators...

Do this...

...consider using the WorkKeys Assessments associated with the National Career Readiness Certificate (NCRC) to assess applied math and reading levels.

...identify which of the certifications in the Skills Certification System is a “match” for job openings or promotions. Add language to the job posting that the certification is “preferred” or “required.”

Your business has many ways to apply the Skills Certification System in ways that grow your pipeline of skilled workers and develops your own workforce. Here are some proven approaches that can make a difference for your business—in the short-term and for the long haul.

MODERNIZE YOUR RECRUITING AND HIRING PRACTICES

Your human resources policies can be your biggest help—or your biggest hindrance—in finding new sources of talent. If you are having trouble filling important positions, you should look closely at your policies and procedures.

Some areas to consider:

? Are required years of experience truly on target?

Some companies have found that policies based on competencies are a better judge of an applicant’s potential. Policies that recognize, prefer, or require industry certifications give you better control over measures proving what candidates can do, not just time spent on the job or in the classroom. Sample job descriptions are included in this toolkit.

? Are you giving opportunity to veterans?

If you require years of experience, or a certain degree, consider whether military training and experience could be a substitute. The Manufacturing Institute has matched 11 key manufacturing occupations with military specialties. Get Skills to Work can help you fill open positions with qualified workers, while supporting veterans. Visit www.GetSkillstoWork.org for more information.

? Can your workflow and job categories be adjusted to allow for different skill levels?

Some companies have found that there were not enough experienced, skilled workers around to fill needed positions. So they analyzed their processes and found that the work could be rebalanced; for a year, new employees could work on just lower-skilled work as they got up to speed and learned higher-level processes.



BUILD PATHWAYS FOR YOUR INCUMBENT WORKERS

All companies train. In fact, according to studies, most technical training takes place on the job, rather than in technical schools or community colleges. How well you use that training—and how employees perceive that training and see chances to grow and advance—may determine how well you retain your workers and stay nimble in a constantly changing competitive environment.

Here are some ways to grow your own talent and recognize your high performers:

1 Conduct a Job Task Analysis of Key Positions

No matter how you choose to build your talent pipeline, you will want to start with hard data that breaks down your skill needs and looks at your most important talent gaps. You can do this on your own, work with a consultant, or engage an assessment organization (such as ACT) to conduct a thorough analysis.

2 Match Needed Competencies to Industry Certifications

The Skills Certification System is a manufacturers-approved series of credentials that take the guesswork out of measuring skill levels of your employees. Once you have completed the job task analysis, you are in position to select the certifications that match up. Then you can include those certifications in your formal on-the-job training, or you can incentivize workers who choose to earn certifications online or at a community college or technical school. There is a range of curriculum available for each of the certifications.

3 Start (or Expand) Mentorship Programs

Mentorships have proven to work for a variety of situations in improving retention and maximizing productivity. Many manufacturers have formal mentorships for management and professional tracks, but they can be just as effective for front-line workers who also play a critical role in the success of your day-to-day operations. Affinity groups or mentorships are also growing for veterans, women, and other underrepresented populations.

4 Address the “Demographic Cliff” through Knowledge Transfer

Many companies see tremendous stores of knowledge and experience walk out the door through retirements—a trend that is expected to accelerate as the Baby Boom generation



retires in greater numbers. One successful response is to support pairing experienced workers with younger workers and proactively working on transferring knowledge. Companies are also experimenting with means to keep workers longer, including supporting more flexible part-time work without impacting pensions and benefits.

5 Put in Place a Structured On-The-Job Training Program

Every company, of course, conducts training. A structured training program typically mixes coursework and training on the floor, with a tightly controlled sequence, content, and trainers. One form of structured on-the-job training is apprenticeship. An apprenticeship lays out a formal path for advancement (based on time and competencies), tracks milestones and learning, and uses the progress in awarding promotions and bonuses.

6 Expand Training In-House or with an External Resource such as a Community and Technical College

The skills gap is real and affects virtually every advanced manufacturing company. That fact can control you—impacting everything from your productivity to your overtime to your ability to take on new orders. Or you can control your own destiny and grow your own talent. Be among the industry pioneers that are building the credentialed workforce of the 21st century!



Frequently Asked Questions

? Why would I want to use the Skills Certification System (SCS)?

For Hiring: Employers have found that the certifications improve the hiring process by validating skill levels, cutting costs, and minimizing risk.

For Current Employees: Employers are using the SCS with current workers to validate common skill levels, build new skills, and implement improvement strategies such as lean and value stream mapping.

? How can the SCS help me fill skilled positions in my company? Job ads result in 50 to 150 applications yet I still can't find the right candidates.

Certifications help to take the guesswork out of the selection process. Once the skills required for a specific position are matched to a skill certification, an employer can request that as part of the application process. A certification validates the skill level.

Rather than relying strictly on a resume and an interview, candidates that present a certification give the employer some assurance that the person can do the job. Employers can then focus on the other traits that are important to the company and the culture.

Once you match an SCS certification to the skills required in a particular job, you can list that certification as a preferred qualification for applicants. The certification validates that the individual has the skills needed for the position. Then in the interview process you can focus on other issues related to the position, the company and the culture. Benchmarking against high performing incumbent workers offers another piece of data that will help in the selection process.

? I need to hire entry-level workers who can quickly become productive and also be candidates for promotion. Many new hires can perform entry-level positions but can't learn new tasks and advance.

The use of the National Career Readiness Certificate (NCRC) and the Manufacturing Skill Standards Council (MSSC) Certified Production Technician (CPT) can be an efficient way to select workers who can more quickly contribute to the bottom line. These workers are typically also good candidates for promotion.

Using these certifications as preferred qualifications for job seekers results in a better pool of candidates.

? How do I match the certification with the job opening?

Identify the skill requirements for the position and match to the standards measured in the various certifications. Review the Certification Partners handout for guidance. Ask your supervisors and/or lead staff in the specific area for input. Consider assessing some of the highest performing incumbent workers. Many education providers offer assistance in matching the skills required with a certification that will determine an individual's level. They can also administer the assessments and provide training leading to the certification.

? How do I find candidates with these certifications?

Partnerships with local community colleges can be a source of certificated workers. Certification sponsors can provide detailed information on local testing centers and may share information on certified workers in your area. Some employers establish learning and assessment centers on-site for selection or promotion purposes.

See Sample Job Descriptions for guidance on how to list the certification as a preferred qualification in a job posting.

? Are the SCS certifications better than our company-developed test that we have been using already?

Using a nationally recognized and validated system gives you a sense of confidence not only in the individual candidate but also in the skill level of your entire workforce. The SCS certifications help to ensure that applicants' skills match your needs.

? I need to improve the skills of my current employees to prepare for production changes. How can the SCS help?

Once you have identified the knowledge and skill required and matched to the standards measured in the certification, you can assess your current workers to get an objective baseline measure of their skills.

Online training may be offered at the plant or through courses, workshops, and labs through a local community college. Courses can be offered either at the college or at the plant. After they complete training, individuals can be re-assessed to validate they have the skills necessary and to attain the certification.

? How does the National Career Readiness Certificate (NCRC) relate to the skills required in advanced manufacturing positions? It seems so general and not related specifically to jobs in my company.

Employers have found that the NCRC not only validates the candidate's basic academic knowledge, but also the ability to apply that knowledge in workplace situations. Once the NCRC level is identified, employers can look for candidates with that level. It becomes one objective criterion that will lead to a stronger candidate pool for interviews and background checks.

? Are there legal issues with using the SCS for selection or promotion?

Information regarding the validity and reliability of various certifications is available from the vendor. Any selection tool must be used appropriately and as designed. Many companies find they may "recognize" or "prefer" certification as opposed to setting a requirement.

Specific questions should be discussed with the vendor and your company's legal counsel.

? What will this cost my company?

Each certification partner has fees associated with its certifications. Find out more by emailing the contacts listed for each certifying partner.



Certification Partners

The Skills Certification System currently includes 15 certification sponsors that provide industry standards and assessments, spanning the entire occupational pathway from entry-level workers to engineers. Outlined below is a snapshot of each partner. Each industry sponsor's website contains extensive information about standards, certifications, assessments, and costs.

ACADEMIC AND CORE TECHNICAL SKILLS



At the foundation of the skills system is the ACT National Career Readiness Certificate (NCRC). The NCRC is an industry-recognized, portable credential that demonstrates achievement and a certain level of applied academic and employability skills for workplace success. Individuals may earn the NCRC by taking three WorkKeys® assessments: Applied Mathematics, Reading for Information, and Locating Information.

For more information, please contact Terry Ausman at terry.ausman@act.org



Manufacturing Skill Standards Council (MSSC) assessment and certification system is focused on the core technical knowledge and skills needed by front-line production workers. MSSC offers the Certified Production Technician (CPT), which consists of four modules: Safety; Quality Practices and Measurement; Manufacturing Processes and Production; and Maintenance Awareness. MSSC is accredited by the American National Standards Institute (ANSI) under ISO Standard 17024.

Manufacturing Skill Standards Council (MSSC) Certified Logistics Technician Certification (CLT) is the industry-recognized national certification for the core technical skills of front-line workers (entry level through first line of supervision) involved in the handling and distribution of materials throughout the supply chain and logistics industry.

For more information, please contact Neil Reddy at reddyn@msscusa.org



The Manufacturing Skills Institute offers the Manufacturing Technician 1 (MT1) certification, developed to meet the growing employment demands of the manufacturing industry. The MT1 certification addresses the core industry-wide skills standards required for skilled production occupations in all sectors of manufacturing. The core competency areas certified are: (1) Math and Measurement, (2) Spatial Reasoning and Manufacturing Technology, and (3) Business Acumen and Quality.

For more information, please contact Katherine DeRosear at kderosear@manufacturingskillsinstitute.org.

OCCUPATION-SPECIFIC SKILLS



American Society for Quality (ASQ) is the worldwide leader in providing credentials to the global quality community. The Society currently offers 16 different certifications including Quality Technician, Quality Inspector, and Quality Engineer. More than 170,000 certifications have been issued to dedicated professionals worldwide.

For more information, please contact Sally Harthun at sharthun@asq.org



American Society of Transportation and Logistics (AST&L) facilitates education and certification in the fields of transportation, logistics, and supply chain management. It provides globally-recognized credentials such as the Professional Designation in Logistics and Supply Chain Management (PLS) and the Certified in Transportation and Logistics (CTL) designation.

For more information, please contact Laurie Denham at ldenham@astl.org



Association for Operations Management (APICS) is the global leader and premier source of the body of knowledge in supply chain and operations management. The APICS Certified in Production and Inventory Management (CPIM) and APICS Certified Supply Chain Professional (CSCP) designations are recognized globally for setting the standard of professional excellence in the industry.

For more information, please contact Lisa Sallstrom at lsallstrom@apics.org



American Welding Society (AWS) is the nation's premier entity for welding certification and has a robust collection of certification documents on its website. A few suggested links include the standards for the Certified Welders and the Body of Knowledge for the Certified Welding Inspector, 2 critical positions for many manufacturers.

For more information, please contact Monica Pfarr at mpfarr@aws.org



Fabricators & Manufacturers Association, International (FMA) Precision Sheet Metal Operator Certification (PSMO) is the metal fabricating industry's only comprehensive exam designed to assess a candidate's knowledge of fundamental precision sheet metal operations. Fabrication processes covered in the exam include shearing, sawing, press brake, and more.

For more information, please contact Cindy Day at cindyd@fmanet.org



International Fluid Power Society (IFPS) is the only organization that provides comprehensive technical certification in the fluid power and motion control industry. Numerous certifications are currently offered, such as Fluid Power Certified Technician and Fluid Power Electronic Controls.

For more information, please contact Donna Pollander at dpollander@ifps.org



International Society of Automation (ISA) is a global nonprofit organization setting the standard for automation by helping over 30,000 worldwide members solve difficult technical problems. ISA's Certified Control Systems Technician (CCST) and Certified Automation Professional (CAP) certifications are key elements of the Skills Certification System.

For more information, please contact Dalton Wilson at dwilson@isa.org



National Center for Construction Education and Research (NCCER) is recognized as one of the premier workforce development organizations for the construction and maintenance industry. The NCCER training and certification system offers more than 80 different assessments in over 60 different craft areas.

For more information, please call (386) 518-6500.



National Institute for Metalworking Skills (NIMS) is the only ANSI-accredited developer of precision manufacturing skill standards and competency assessments in the nation. NIMS has developed skill standards in 24 operational areas covering the breadth of metalworking operations, with 52 distinct skills certifications. NIMS certifications cover a range of machining specialties, including CNC programming and operation.

For more information, please contact Jim Wall at JimWall@nims-skills.org



North American Die Casting Association (NADCA) requires candidates to pass the specified examinations and fulfill the minimum apprenticeship period to become certified. The Certification Program has several levels ranging from Die Casting Technician to Master of Die Casting Technology.

For more information, please contact Melisa Ryzner at mryzner@diecasting.org



PMMI members manufacture packaging and packaging- related converting machinery. The PMMI Mechatronics Certificate Program and the PMMI Certified Trainer Program are among the most popular.

For more information, please contact Stephan Girard at sgirard@pmmi.org



Society for Manufacturing Engineers (SME) partners with three organizations to offer Lean Certification: the Association for Manufacturing Excellence (AME), The Shingo Prize for Operational Excellence, and the American Society for Quality (ASQ). The certification aligns these leading organizations to a single standard for the industry.

Society of Manufacturing Engineers (SME) offers the Certified Manufacturing Technologist, which focuses on the fundamentals of manufacturing and is acquired through a baccalaureate program or a combination of four years academic and work experience. The Certified Manufacturing Engineer is focused on applied and advanced manufacturing knowledge and may be acquired through a combination of eight years of work experience and a manufacturing or engineering degree.

For more information, please contact Pam Hurt at phurt@sme.org

Sample Press Release

PRESS RELEASE

For Immediate Release

Title

Sub-title

CITY, STATE, DATE: Continuing its commitment to increase and promote the skills of its employees, COMPANY today announced the use of certifications, specifically, the TYPE OF certification. COMPANY will begin using these certifications in collaboration with the NAM-Endorsed Skills Certification System.

With more than 80% of manufacturers reporting a shortage in skilled workers, the Skills Certification System is the right step to finding qualified workers. This system of industry-recognized credentials validates both the “book smarts” and the “street smarts” needed to be productive and successful on the job.

The certification, awarded by XXX, allows COMPANY to engage with workers who possess the theoretical knowledge and practical experience that is necessary have a successful career in INDUSTRY.

“We are delighted to join with The Manufacturing Institute in this new initiative, which will allow us to respond to the demands for more training from our RECRUITMENT SPECIALISTS/EMPLOYEES,” said NAME, TITLE, COMPANY. “The training we provide is aimed at increasing the capacity of EMPLOYEES to...”

To become certified, an applicant must ...

###

About Company

Brief description of company. For more information, please visit www.companywebsite.com.



Download the Sample
Press Release Here

Sample Job Descriptions

ENTRY-LEVEL JOB POSTING

Job Title:	Job Title
Company Name:	The Manufacturing Company
Contact Person:	HR Manager
Business Phone:	(xxx) xxx-xxxx
City:	City
State:	State
Website URL:	www.companywebsite.com
Qualifications:	3 years minimum experience of XXX. Motivated, handles fast pace, and proud of their work.
Job Description:	Company is expanding to a larger location and this move will allow continued growth while exceeding our customers' needs. We seek entry-level technicians who are looking for new challenges, opportunities, and career advancement to join our expanding business. Company is a precision machine shop with a clean, climate controlled environment. First and second shift positions are available.
Email Address:	hrmanager@company.com
Credentials:	Applicants will be required to complete the National Career Readiness Certificate (NCRC). A silver level is preferred.

WELDER

Job Description:	Ability to perform the following: <ul style="list-style-type: none">● Weld plate and tube steel.● Deep penetration on welding on pile driving rig.● Work with pile driving crew.● Comply with proper safety procedures.
Requirements:	<ul style="list-style-type: none">● Ability to exert physical effort, handling avg weight objects up to 80 pounds.● Ability to correctly rig and hoist material.● Ability to signal, rig & work safely with cranes.● Understand different types of welds.● Certified welder with AWS D1.5 and minimum of three years experience.

CNC MACHINIST

Responsibilities include: plan machining by studying work orders, blueprints, engineering plans, materials, specifications, orthographic drawings, reference planes, locations of surfaces, and machining parameters; interpreting geometric dimensions and tolerances (GD&T); checking stock to determine amount available; program mills and lathes by entering instructions, including zero and reference points; setting tool registers, offsets, compensation, and conditional switches; calculating requirements, including basic math, geometry, and trigonometry; proving part programs; verify settings by measuring positions, first-run part, and sample workpieces; adhering to international standards.

Skills/Qualifications: Conceptual Skills, Process Improvement, Functional and Technical Skills, Controls and Instrumentation, Supply Management, Tooling. Special consideration will be given to applicants with NIMS Level 1 certification.

Sample Invitation

DATE

NAME

TITLE

COMPANY

ADDRESS

ADDRESS

Dear SUPPLIER/COLLEGE,

At a time when productivity and meeting the bottom line are critical to business success, employing a highly skilled and educated workforce can mean the difference between a good investment and a high risk. As part of our initiative to develop a skilled workforce, COMPANY will be undertaking a program of change affecting the way it recruits and hires new workers, and is gathering local representatives from manufacturing and technical college to explore the development of industry-based certifications.

Working with The Manufacturing Institute, we have begun using the NAM-Endorsed Skills Certification System. COMPANY is using skills certifications to validate the skills and competencies of incoming workers, and also to upgrade the skills of our current employees. We've found that adding the preferred certifications to our job descriptions has resulted in an increase in qualified interviewees.

COMPANY would like to invite you to participate in a FORUM/ROUNDTABLE to explore the use of the Skills Certification System in COMMUNITY. We are bringing together local manufacturers and educators to explore the use and development of industry-based certifications

COMPANY encourages you to consider attending our FORUM. If you are interested, please contact NAME, TITLE. HIS/HER telephone number is NUMBER and his email is EMAIL.

I hope you will be able to attend.

Sincerely,
Name



Download the
Sample Invitation Here

Sample Agenda

CITY MANUFACTURING ROUNDTABLE

MONTH, DATE, YEAR

Location
Address
Phone

WELCOME AND INTRODUCTIONS

Host
Title
Company

SETTING THE STAGE: MFG IN CITY
DEFINE SHORTAGES
DEFINE COMMON SKILL NEEDS

Executive
Title
Company

SKILLS CERTIFICATION SYSTEM
CHOOSING CERTIFICATIONS TO FILL THE NEEDS

Executive
Title
Company

BEST PRACTICES DISCUSSION

Executive
Title
Company

DEVELOPING AN ACTION PLAN

Executive
Title
Company

NEXT STEPS IN CITY



Download the
Sample Agenda Here

Sample Outreach Poster

LOOKING FOR A PROMOTION?



Build your OWN future...

GET CERTIFIED NOW AND ADVANCE YOUR CAREER!

[Your Company Name Here]

[Logo Here]

[Description and Text Here]

[Description and Text Here]

[Description and Text Here]

PLEASE SEE [NAME Here] FOR MORE INFO.



To use NAM-Endorsed Certifications at your company, visit www.themanufacturinginstitute.org, or contact institute@nam.org.



Download the Sample Outreach Poster Here

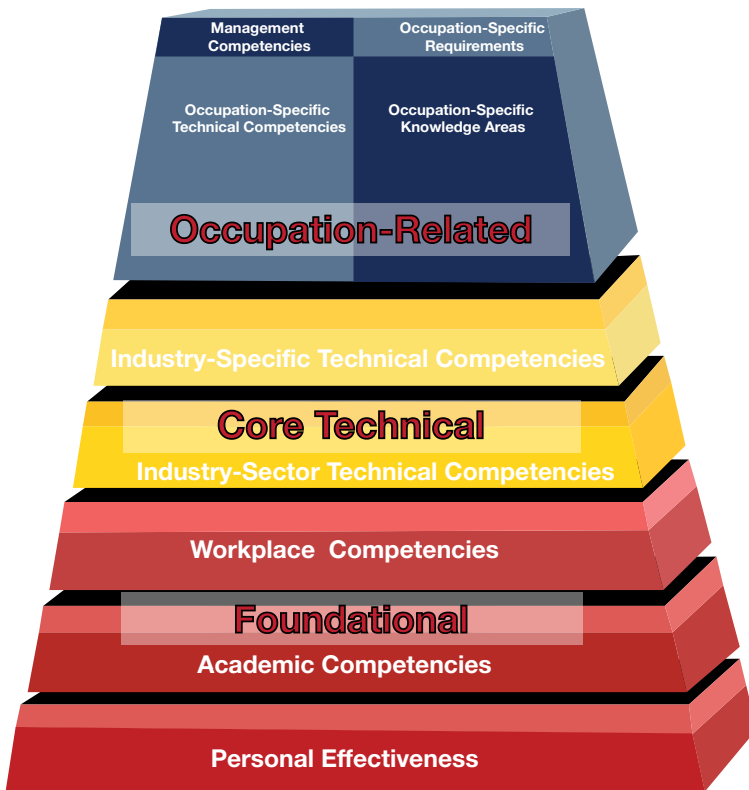
POWERPOINT PRESENTATION



The Manufacturing Institute's PowerPoint presentation, as well as employer spotlights, and the samples found in this toolkit, including press release, invitation and agenda are available for customization. For access to these and more, please visit:
<http://www.themanufacturinginstitute.org/Skills-Certification/Employers/Employers.aspx>.

Advanced Manufacturing Competency Model

The Skills Certification System is grounded in the Advanced Manufacturing Competency Model. The model, built by manufacturers, for manufacturers, and in partnership with the Department of Labor, serves as a roadmap of the skills needed by workers entering and then advancing in careers across the manufacturing economy.



Occupation-Related: High-demand occupations are matched with critical industry certifications in such areas as machining, welding, fabrication, automation, fluid power, mechatronics, transportation/distribution, and logistics. At the top of the model are managerial and specialty occupations, including engineering.

Core Technical: Core technical skills that impact the bottom line include: safety, quality and measurement, maintenance installation and repair, production, and sustainable manufacturing.

Foundational: Basic skills that cut across all sectors in manufacturing include:

- >> **Workplace competencies:** Do workers use critical thinking skills, work in teams, and have problem solving skills?
- >> **Basic applied skills in reading, writing, math, and locating information:** Can workers communicate effectively, follow key instructions, and read manuals?
- >> **Personal effectiveness:** Will prospective employees show up on time, be dependable, and demonstrate initiative?

The Advanced Manufacturing Competency Model was developed because manufacturers recognized the need to agree on a common understanding of the entry- and technician-level skills required to be competitive in the global marketplace.

The framework does not replace or duplicate existing skill standards, but rather represents the core skills needed across the board for high-performance workers in today's advanced manufacturing environment.

To view manufacturing competencies, visit: www.careeronestop.org/competencymodel

There are numerous organizations in your own backyard that may provide you with additional resources as you pursue the use of certifications. So what's next? While each of these organizations varies by state and region, they will provide you with excellent guidance and leadership to ensure the development of a qualified talent pipeline.

Apprenticeship Office

Apprenticeships are an alternative model to provide technical instruction with on-the-job training, resulting in an individual gaining the academic skills and garnering the hands-on professional experience to be better prepared.

Visit: <http://www.doleta.gov/OA/apprenticeship.cfm>

Certification Partners

The Manufacturing Institute is working with manufacturing certification organizations that are the world market leaders in skills certification programs. This collaborative effort resulted in an organization of the certification programs, and the credentials they offer, into a system of "stackable credentials" that can be awarded in post-secondary education.

Visit: <http://www.themanufacturinginstitute.org/Skills-Certification/Certifications/NAM-Endorsed-Certifications.aspx>

Community Colleges

Partnering with your community college is a key step in building a successful future for your company by supporting programs that teach to industry standards. The American Association of Community Colleges (AACC) can help you locate community colleges in your area.

Visit: <http://www.aacc.nche.edu/pages/ccfinder.aspx>

Manufacturing Extension Partnership

Manufacturing Extension Partnership (MEP) works with small and mid-sized U.S. manufacturers. The nationwide network has a location in every state, and provides a variety of services to businesses. MEP also works with partners at the state and federal levels on programs that benefit and promote manufacturers.

Visit: <http://www.nist.gov/mep/find-your-local-center.cfm>

The M-List

The Manufacturing Institute's M-List recognizes high schools, community colleges, technical schools, and universities that are teaching manufacturing students to industry standards. Specifically, these schools offer students the opportunity to earn NAM-Endorsed Manufacturing Skills Certifications as a standard part of their manufacturing education programs.

Visit: <http://www.themanufacturinginstitute.org/Skills-Certification/M-List/M-List.aspx>

The Manufacturing Institute

The Manufacturing Institute is the authority on the attraction, qualification and development of world-class manufacturing talent. The Manufacturing Institute offers a variety of resources including research, promotional materials, webinar series, and expertise to support manufacturers in their quest to develop a qualified talent pipeline.

Visit: www.themanufacturinginstitute.org

O*NET

The O*NET program is the nation's primary source of occupational information. Central to the project is the O*NET database, containing information on hundreds of standardized and occupation-specific descriptors. The database, which is available to the public at no cost, is continually updated by surveying a broad range of workers from each occupation. Information from this database forms the heart of O*NET OnLine, an interactive application for exploring and searching occupations. Companies use O*NET in countless ways, such as matching competencies to job profiles, learning about related jobs and expected growth of occupations, and benchmarking pay scales.

Visit: www.onetonline.org

Workforce Investment Boards

Workforce Investment Boards (WIBs) are present in every community in the nation. The WIBs' main role is to direct federal, state and local funding to workforce development programs. WIBs conduct and publish research on these programs and the needs of their regional economy and oversee One-Stop Career Centers.

Visit: <http://www.servicelocator.org/wibcontacts/>

Made possible by the Joyce Foundation



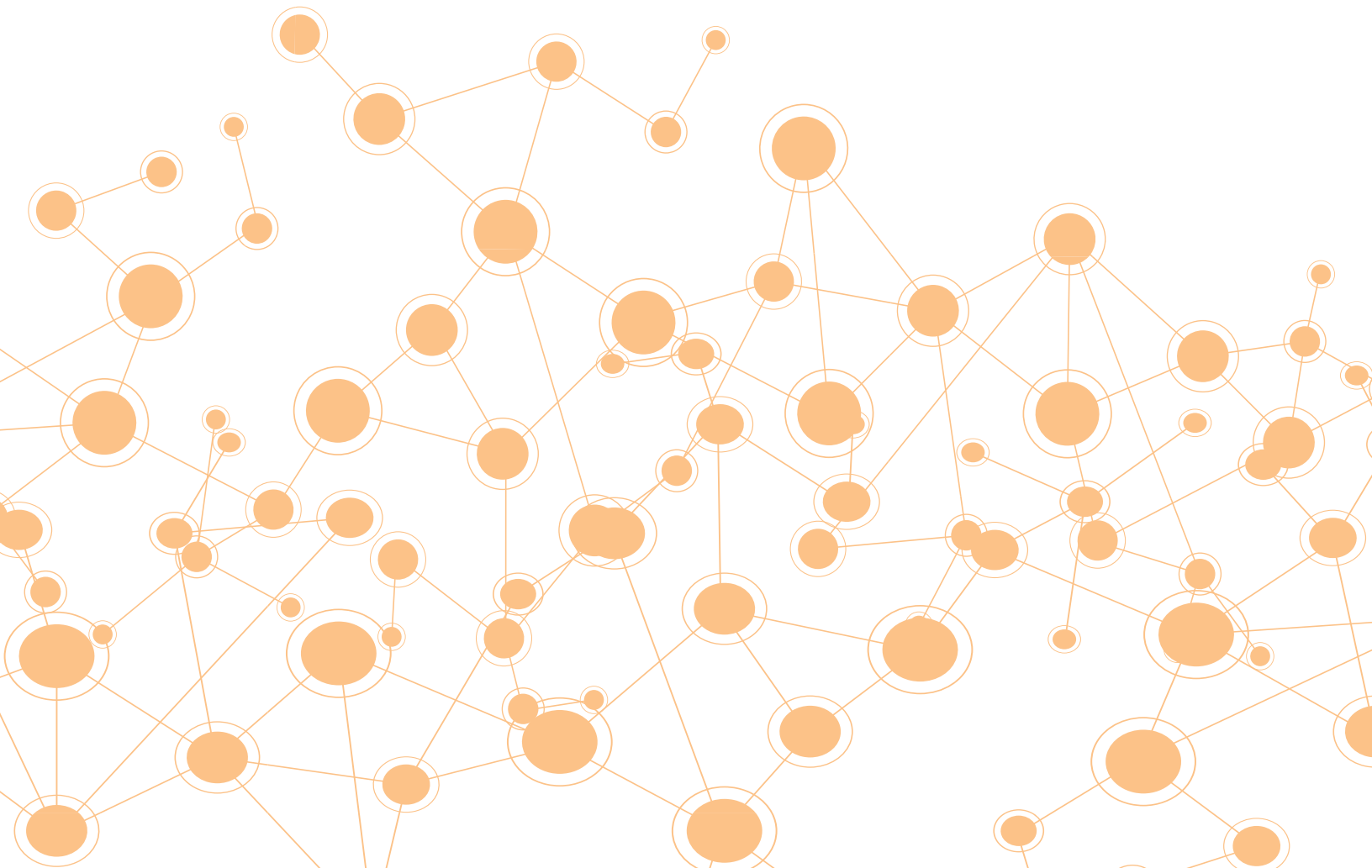
ANNEX 16

EDUCATION & WORKFORCE DEVELOPMENT WORKCREEK 2

Train-The-Trainer Toolkit

DEVELOPING SKILLED WORKERS

*A Toolkit for Educators and Workforce Professionals on
Working with Manufacturers to Use Certifications*



This toolkit is a working document and will be updated periodically.
To suggest changes or updates, please email AJ Jorgenson at ajjorgenson@nam.org.

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TOOLKIT FOR MANUFACTURING TO USE CERTIFICATIONS

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Manufacturing Certification Tool Kit Overview

WHY A TOOL KIT?

The process and tools explained in the following pages provide a road map for manufacturing companies traveling the path to workforce certification. Up until now, this work has been done by a small number of individuals who have each evolved their own techniques and tools. This manual brings together their BEST practices so that others who do this work can benefit.

WHO'S IT FOR?

This tool kit was designed especially for those who work directly with manufacturers to help them implement workforce certification, such as:

- Community Colleges
 - » Instructional Deans and VP's
 - » Division Directors
 - » Manufacturing/Technology Faculty
- Partners
 - » Public Workforce System (WIB's)
 - » Manufacturing Extension Partnership (MEP) consultants
 - » Economic Development Partners
 - » Community-based Organizations

Community colleges play a lead role in working with employers to ensure workers have the knowledge and skills manufacturers need. Deans and faculty are responsible for employer engagement and working with employers on issues related to curriculum, certificates/degrees and industry-credentials. Other partners may also benefit from the material in this Toolkit as they support manufacturing education efforts in their communities and regions.



WHY THIS WORK IS IMPORTANT

Before you dive into this work, it is important that you BUY-in to this work. It first needs to make sense! Having good tools, while essential to good outcomes, isn't enough if the person holding the tools is not ready to build. So, before we introduce the process ask yourself, "Why should I get behind this?"

In answer to this question, it is important for employers, educators, and community partners to answer some fundamental questions:

- Are livable wage jobs important to **our** community?
- Have manufacturing companies **provided** such employment?
- Will they **continue** to do so in the future if we continue on the current trajectory?
- Would a **pipeline** of readily available talent help ensure the success of these businesses and ongoing employment for thousands of workers and families?
- Is there some kind of unified, comprehensive educational pathway that might address the historical challenges companies, workers, and educators have had in meeting this need?

Surveys and reports on manufacturing consistently identify the challenge of **finding talent** – qualified skilled workers – as one of the most significant issues facing the industry. Companies cannot find individuals with the knowledge and skills they need and they are constantly faced with turnover and lost productivity. Here are a few of the challenges:

- Although education and training programs offer students knowledge and skills, employers are uncertain whether students have **mastered** the content and can **actually implement** what was taught.
- Experienced workers indicate they have the skills for the position but an employer is not sure if they can do what their company requires.
- Veterans may have developed skills that could transfer to these open positions but the terminology and descriptions do not match.

Industry certifications can solve these challenges. The Health Care industry provides a good example of the value of certifications. Regardless of which nursing school you attend, in order to become a registered nurse you have to pass the *National Council Licensure Examination for Registered Nurses*. Everyone understands what that means and views it as a validation of the individual's knowledge and skills. In the same way, manufacturing certifications lead to a highly skilled workforce and improved competitiveness for the industry.

Industry certifications are unique in that they are not tied to a single educational institution; they are not awarded by a school but rather by a third party that maintains the assessments and oversees their administration and use. An industry-endorsed certification validates the individual's knowledge and skills as *compared to industry standards*. It takes the "guess work" out of the hiring process and provides an objective assessment of the skills needed to do a specific job. The Manufacturing Institute has worked with partners across the country to identify industry certifications related to manufacturing career paths that can help employers select the right candidates for their positions.

For more on the importance workforce certification, take a moment to listen-in as our President talks about developing the skills for manufacturing in America.



HOW CERTIFICATION WORKS

While workforce certification *can seem complex*, the graphic shown here helps identify what workers need to be successful on the job. There are many levels of certification that might qualify a person for a position:

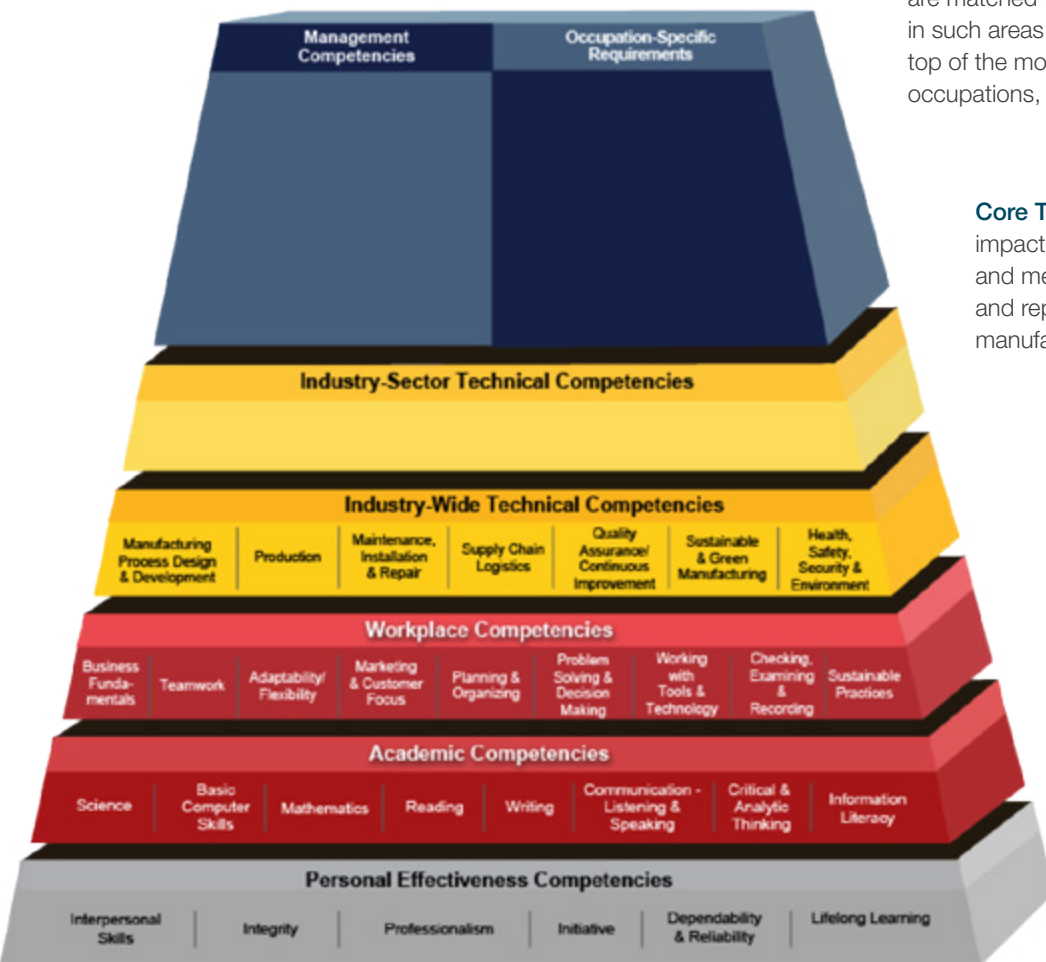
Occupation-Related: High-demand occupations are matched with critical industry certifications in such areas as machining and welding. At the top of the model are managerial and specialty occupations, including engineering.

Core Technical: Core technical skills that impact the bottom line include: safety, quality and measurement, maintenance installation and repair, production, and sustainable manufacturing.

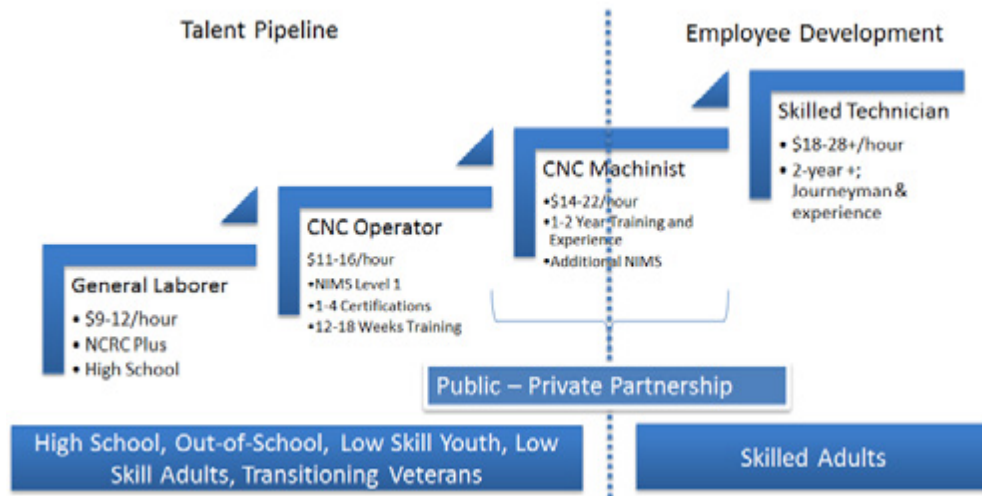
Foundational: Basic skills that cut across all sectors in manufacturing include:

- *Workplace competencies:* Do workers use critical thinking skills, work in teams, and have problem solving skills?
- *Academic competencies:* Basic applied skills in reading, writing, math, and locating information: Can workers communicate effectively, follow key instructions, and read manuals?
- *Personal effectiveness:* Will prospective employees show up on time, be dependable, and demonstrate initiative?

Often these foundational skills are measured by the National Career Readiness Certificate (You will learn more later about the certifications!)



[Click to view larger](#)



The Manufacturing Institute is helping to identify common **industry-specific technical competencies** to support skill building for high-demand manufacturing careers. Those include the broad functional areas of work, such as safety and quality, and targeted occupations such as welding and machining. The Institute is also working with employers to **map career paths**, such as the one illustrated above.

When jobs are linked together to form career paths, and analyzed in light of the many credentials that prepare individuals for entry-level and increasingly more advanced jobs, we find that the credentials are “stackable,” and they become the building blocks of a *Skills Certification System*.

BENEFITS OF A SKILLS CERTIFICATION SYSTEM

Certifications provide an *objective way* for:

- Employees to validate the talent they can bring to the job;
- Educational providers to establish the value of their product; and
- Employers to have a level of certainty about the skill level of an individual before hiring them.

While third-party certification can be awarded after testing, *totally apart from the education process itself*, embedding certifications *within education pathways* benefits both the **student** and the **employer**.

Students acquire documented skills that are recognized by companies where they will be seeking employment. In the process they have opportunities to apply those skills through work experiences while pursuing their degrees.

Employers access a skilled workforce that they can further develop through on-the-job training. They can focus on the interview, recommendations, fit with their company culture, and other aspects of the hiring process, confident that the individual can perform the tasks required for the job. As a result, they reduce hiring costs, reduce/eliminate the costs of re-training an unprepared new hire, improve productivity, and reduce turnover.

In short, using industry certifications as a tool to address talent challenges can positively impact a company’s bottom line and an individual’s career options. If you are firmly convinced of the value workforce certifications can provide to your manufacturing partners, you will be more effective as you support them throughout this journey.

What HR Representatives Say

“Industry certifications help take the guesswork out of hiring and promoting because they provide a valid, independent evaluation of a worker’s competencies.”
Sylvia Wertzel, CLO, Bison Gear & Engineering

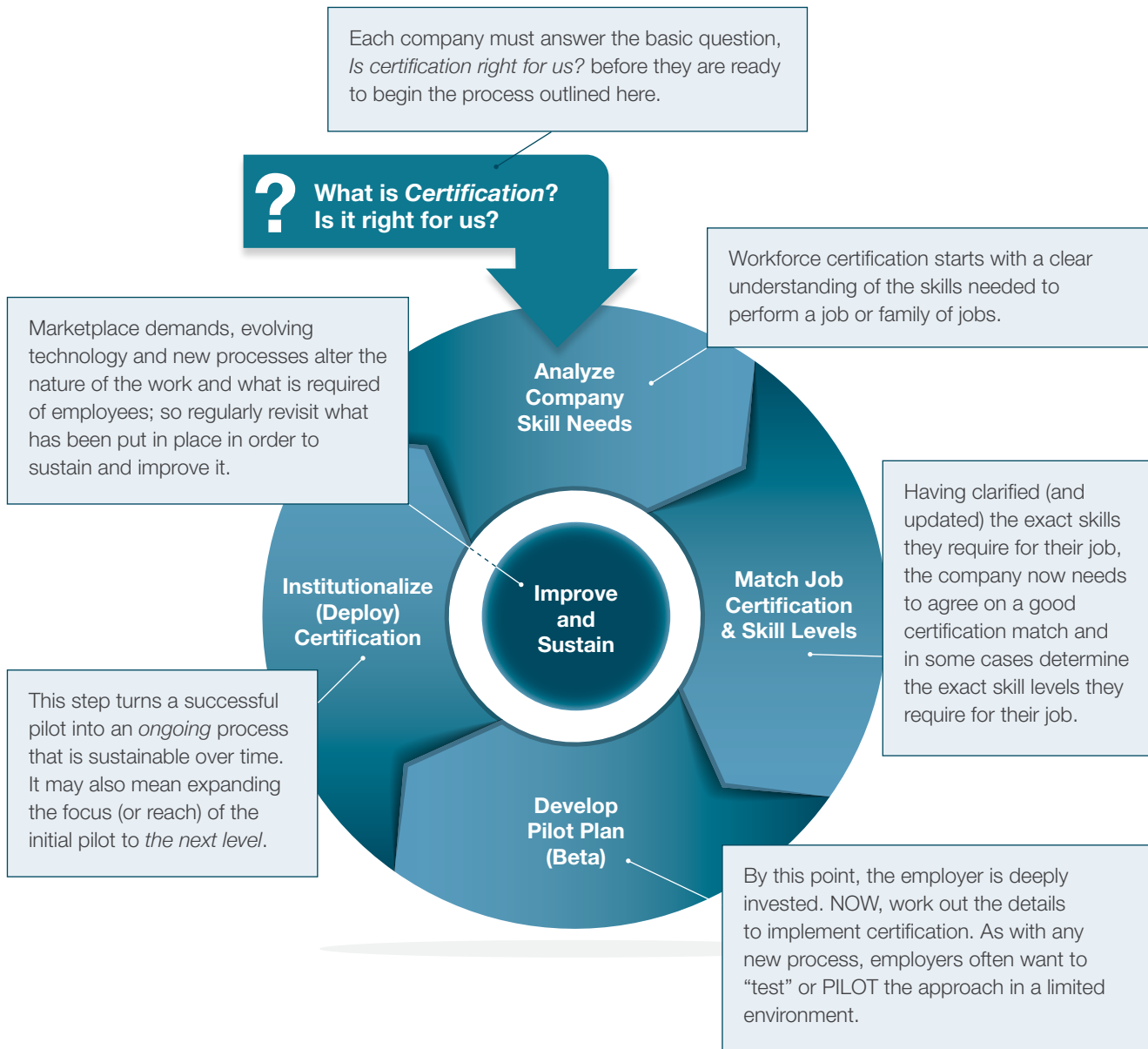
“At Sun Hydraulics we believe developing and certifying the skills of our workforce is a direct investment in the productivity and overall performance of the company.”
Tim Twitty, Operations, Sun Hydraulics

“The more we invest in our employees’ safety and in their professional development, the more they accomplish for themselves and their families, and for the company and its customers. It’s truly been an upward spiral for us.”
Erick Ajax, Co-owner, E.J. Ajax

HOW THIS TOOLKIT IS STRUCTURED






This Toolkit is designed so that it steps through the typical process a *company might undertake to implement Workforce Certification*. While most companies generally progress through the following steps, they may not necessarily be discrete activities. They may occur in tandem or may take place over time. As you become more familiar with the certifications and a company's unique challenges, you will develop your own techniques for introducing and implementing certifications.

This Toolkit is organized around these process steps. Each chapter (or tab) tackles a step, describing the work to be done and the recommended tools for doing this work.



LAYOUT OF EACH STEP

Each of the steps in this Toolkit cover the following topics:

Symbol	Topic	What it Contains
	Overview	Each step in this Toolkit begins with a high-level overview of the step and how it fits within the overall workforce certification process
	Preparation	This section provides a checklist of things to be done as you begin this step or prior to meeting with the client as outlined in the step.
	Facilitation	This section provides a suggested approach to facilitate the planning and decision-making work with a manufacturing client.
	Success	A brief checklist describes the achievements that should have been realized when this step has been successfully completed.
	Tools	Finally, tools are provided to support the work done. (Each tool is then attached – or in some cases described with a link provided – on the pages at the end of each step.)

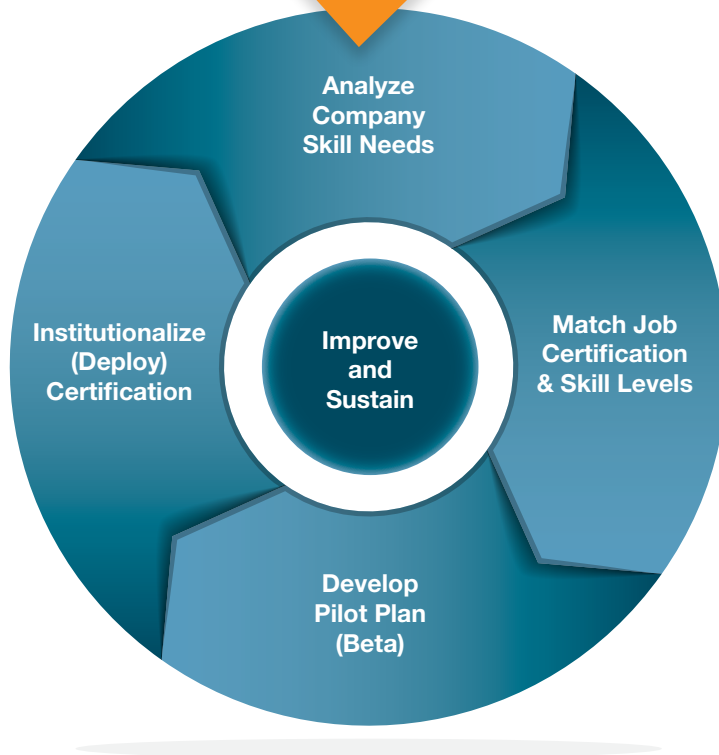
HOW TO GET STARTED

Please review the entire *Toolkit* to ensure you have a high-level understanding of the typical process companies go through when implementing workforce certification.

Then, *as you work with a manufacturer*, use the tips and tools presented with each step as a road map to guide you and the company along the path to implement their certification program.

Step 1 – Decision: Is Certification Right for Us?

? **What is *Certification*?**
Is it right for us?



Overview

As a community college or workforce professional, you frequently connect with companies that have identified a workforce need. Recently the most common challenge is finding candidates to fill vacancies.

You may learn about employment needs through the partnerships your college has formed with employers in your region; or you may become aware of such needs at an economic development meeting or some other community meeting or in a conversation with an individual employer. You

might also get a call from a company or elected official asking if you can help. This could open the door to the conversation on the use of certifications as a strategy to address the skill gap. Most companies must answer two basic questions:

What is certification?

Many companies may have heard about certification, but they may be confused as to what it really is. During this early stage you'll play an important role in educating them about workforce certification, how it works, and its benefits.

“Is certification right for us?”

Frequently you will play a role in prompting and facilitating discussion around the value certifications can provide and whether it is something a manufacturer wishes to pursue. The tips and tools in this section are designed to equip you to have these discussions.



Preparation

- Obviously, it is critical that you have a clear grasp of skills certification and its value to manufacturing companies. You should thoroughly study the background information provided in this section to ensure that you have the necessary understanding and comfort discussing these issues.
- It is not enough to just know about *certification*; before you talk with a manufacturer, you will also want to know something about THEM. You need enough background and familiarity to make the conversation relevant. Here are some things you can do to learn about a manufacturer:
 - Talk with any others who may have worked with this company recently.
 - Review the company's web site.
 - If possible, participate in a plant tour.
 - Learn about their current workforce challenges. What are the positions they are trying to fill, what has been their experience.
 - Consider if you or a colleague have recently worked with a company with similar issues that you can share or reference in your conversation with this company.
- You will need to start the conversation somewhere with somebody. Depending on the situation, this could be any number of individuals:
 - A company owner or senior manager
 - A supervisor, or even an employee at a manufacturer
 - The HR manager, or a trainer
- You might have informally connected with any of these at some meeting or event. Or, you may be reaching out to them (cold calling) looking for an initial connection. If you do not have a relationship (or an “IN”) with a particular person, the most likely initial contact would be with the Human Resource department. Depending on the size of the company there may be someone specifically focused on recruiting or hiring; in smaller manufacturing companies there may be only one HR generalist; or sometimes there is no one focused solely on HR.



Facilitation

Keep these tips and techniques in mind as you meet with company personnel during this exploration phase.

- If this is your first visit, it is not unusual for managers to perceive that you are *trying to SELL them something* – Make sure your role is clear and establish that you are there to listen, learn, and connect them with resources/solutions. (For example: *I understand you're having some real challenges finding sheet metal workers... Tell me more about that. What have you tried already?*)
- There are **several questions a company should consider** before starting down the certification path. You can facilitate their thinking by asking:
 - » Do you have positions that are difficult to fill?
 - » Do these positions require specific skills that are not necessarily tied to a college degree?
 - » Is there a disconnect between candidates that you hire and their ability to do the work?
 - » Are you seeing significant turnover?
 - » Can you clearly **identify the skills** needed to fill the positions?

NOTE: Sometimes one of the issues is that the job description has not been updated so that what they are looking for is not what they need. As part of this process, you or someone else at the college can help them update the job description.

- Ask if they are familiar with skill certifications. If not, use the [Building the Manufacturing Talent Pipeline](#) slide deck. (See **Tools that follow for several helpful resources you can share.**) Be sure to adapt your presentation to your audience; cover what is important to them. See the chart in the Tools section for guidance regarding the various sections of the PowerPoint. Your goal should be to provide an overview of the certification system, some of the components, and how companies have used the system.
- Be prepared to circle back to **reinforce the VALUE certification provides** to manufacturers. You may wish to share success case studies that allow them to see how other similar companies have benefited certification. (See **TOOLS: Success Case Studies**)

Step 1 – Decision: Is Certification Right for Us?



Success

It is important that a company has settled in their own minds that certification *might* be right for them BEFORE you invest the time and energy to pursue the additional steps outlined in this Toolkit. You'll know the company is READY to move on to the next step when most of the following are true:

- They express a desire to *be more certain of* the applicant's skills in order to make better hiring decisions
- Someone has made a preliminary determination that there may be a certification that matches with their skills needs.
- They agree to do an **initial analysis** of one or more jobs to determine if there might be a match with one of the endorsed certifications.
- OR, they **invite you back** to talk with a larger group to see if there is consensus that certifications might be a good fit for them.

NOTE: You may wish to print this and use it to track your progress with an individual company as you facilitate them through the journey to implementing certification.



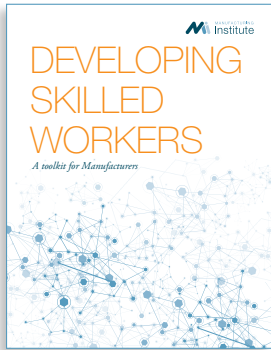
Tools

There are a number of educational tools available that you can share with manufacturers that help them understand what certification is, how it works, and why it might be beneficial for them.

- Booklet: *Developing Skilled Workers*
- PowerPoint: *Building the Manufacturing Talent Pipeline*
- Manufacturing Institute flyers on a variety of Skills Certification System (SCS) topics
- *Success Case Studies (Employer Spotlights)* from a variety of companies
- Deloitte Survey Report: *2012 Public View on Manufacturing*
- Deloitte Study: *Boiling Point? The Skills Gap in U.S. Manufacturing*
- PowerPoint: *Overcoming Pushback*

Each tool listed above is previewed on the following pages; when possible a link is provided that will take you directly to the tool.

 **Booklet: Developing Skilled Workers**



The **Manufacturing Institute** has developed a one-stop, how-to guide on developing and recruiting a skilled workforce. Written by and for manufacturers, the toolkit on Developing Skilled Workers speaks to chief executives, human resources professionals, and operations managers, with steps to take, partners to build, and templates to use to grow their own talent pipeline.

You can access this booklet through the [Tools and Resources for Manufacturers](#) page.

Click on the photo to access the on-line page-view format of this booklet.

This 24-page Manufacturing Institute booklet is a toolkit for manufacturers on recruiting and training a quality workforce. After overviewing credentials and credentialing organizations, it provides tools for employers such as sample press release, job description, invitation, and poster. It contains the following sections:

- Skills Certification System Overview
- Why Certifications?
- Methods to Use Skills Certifications
 - » Partner with Your Community
 - » Partner with Community Colleges
 - » Build Your Own
- Frequently Asked Questions
- Certification Partners
- Sample Job Descriptions
- Sample Outreach Materials, Including Press Release and Invitation
- Sample Announcement Poster to Employees
- Advanced Manufacturing Competency Model
- Resources

 **PowerPoint: Building the Manufacturing Talent Pipeline**



This extensive collection of PowerPoint slide pulls together some of the best slides available for use with manufacturers. They are formatted as one complete set to allow you to mix and match them at will in order to customize a presentation for a particular manufacturer.

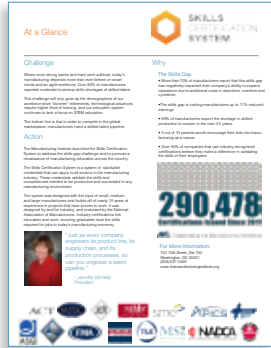
Click on the photo to access a copy of this PowerPoint.

The slides in this master set are grouped in sections by major topics as outlined in the chart below. The right column suggests situations where use of certain slides may be especially appropriate.

Slides	Topic	Application Situations
2-19	The Challenge in Manufacturing	Use to establish rapport, show manufacturers that you understand the situation they face; use to crystalize the economic situation and need for more skilled workers.
20-40	What is a Certification System?	This section explains the workforce certification system and how it works.
41-64	WHY Certification Makes Sense	Once the basics of certification are understood, use this section to lay out the business case for why it is important and helpful to implement workforce certification.
65-78	Industry Data/ Results –	These results slides help prove the above case; use them to get through to tough-minded manufacturers who want you to “Show me the money!”
79-84	How to Implement Certification	This section lays out the basic steps of certification; Use this with companies that are ready to understand the process they’ll need to go through in order to implement certification at their facility.

Step 1 – Decision: Is Certification Right for Us?

Manufacturing Institute Flyers on a Variety of SCS Topics



The Manufacturing Institute has developed a toolkit to help explain the Skills Certification System. You may wish to print specific sections and hand these to employers; or email them as attachments.

Click on the photo to access a copy of this document.

See the table below for a list of topics and potential uses.

Success Case Studies (Employer Spotlights)



Manufacturing companies want to know if skills certification will actually WORK for them; and whether implementing this approach is a smart business decision for them.

Several short case studies have been collected which help illustrate various kinds of successes that have been realized as a result of implementing a Skills Certification System.

Click on the photo to access a copy of this document.

The table below describes briefly the successful outcomes illustrated by some of the case studies. Select those that are most similar to the manufacturer with whom you are working (or that illustrate the desired outcomes your client company is seeking).

Toolkit Section	Demonstrated Success Factors - Outcomes
At a Glance (Flyer)	This flyer paints the workforce challenges confronting today's manufacturers and how the skills gap can be close with a NAM-Endorsed Skills Certification System.
Why Certifications?	Spell out the benefits and measureable results manufacturers can experience by implementing SCS, including things like reduced training, increased productivity, and reduced turnover.
Certification Partners	A comprehensive listing of the most widely recognized industry certifications that manufacturers might consider.
Competency Model	This model, built by manufacturers, for manufacturers, and in partnership with the Department of Labor, serves as a roadmap of the skills needed by workers entering and then advancing in careers across the manufacturing economy.
SCS Overview	As the title suggests, this page highlights key steps a manufacturer can take to implement SCS for two groups: New hires and current workers.
Partner with Your Community	Nice follow-on to above! Outlines four steps companies can take when partnering with community.
Partner with Community Colleges	Nice follow-on to above! Outlines four steps companies can take when partnering with community and technical colleges.

Employer Spotlight	Demonstrated Success Factors - Outcomes
EJ Ajax	E.J. Ajax and Sons has worked hard to develop a manufacturing "A-team" honed to create value for its customers. The net result is consistent, above-industry-average bottom-line profitability, ensuring that company management continues to invest in technology as well as in workforce development.
Permac Industries	Working closely with other precision machine shops that shared similar problems, Permac in partnership with two regional community colleges created "Right Skills Now," a fast track, accelerated learning package that combines a semester of applied instruction plus a paid internship, with a goal of turning out entry-level CNC operators. Permac now has a ready source of skilled workers available more quickly than through traditional college programs.
Bison Gear & Engineering	In 2008, Bison launched an aggressive strategy to incorporate industry certifications into its hiring processes and incumbent worker training. In 2011, Bison started using the National Career Readiness Certificate assessments as a part of its hiring process. Productivity has improved by 31% since 2008. The 2011 quality level set a new standard.
Sun Hydraulics	170 workers – over 30% of the production workforce – have earned Certified Production Technician status. They also realized higher levels of engagement: Workers who have earned certifications are more involved in area audits and continuous improvement efforts..



Deloitte Study: 2012 Public View on Manufacturing



Since 2009, The Manufacturing Institute and Deloitte have partnered to produce the annual Public Perception Index that measures public opinion on a range of issues affecting manufacturing. See all reports [HERE](#).

Deloitte's survey shows that the American public's opinion of manufacturing throughout one of the most turbulent periods in U.S economic history is remarkably consistent. Year after year, they express a high regard for manufacturing, both in terms of its role in the U.S. economy and our

global standing, as well as its importance in job creation.

This report is excellent background reading for anyone working with manufacturers, and will be read with interest by many executives in these businesses. Access the full 16-page report [HERE](#).

Still there are significant challenges to be addressed, as indicated throughout the report. Of particular note is this excerpt from page 3 of the report:

The right skills for the job

While public opinion indicates strong confidence in the abilities of American workers, many manufacturers report that they cannot find workers with the skills required in today's advanced manufacturing workplace.

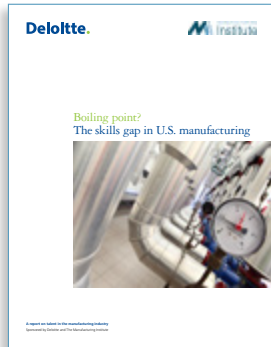
To counter this trend, The Manufacturing Institute has created the Skills Certification System targeting deficits in education and training. This system of portable, industry-recognized credentials validates the skills and competencies needed in entry-level manufacturing jobs. It confirms both technical and non-technical skills, helping ensure the right combination of "book smarts" and "street smarts" to succeed in a manufacturing environment. Plus, participants receive college credit while earning their certification, moving them closer to college degrees.

The President highlighted the Skills Certification System at an event in June 2011 as a solution to the skills shortage that manufacturers face. In response, The Manufacturing Institute and the National Association of Manufacturers announced the goal of awarding 500,000 credentials aligned to manufacturers' hiring needs. Today, implementation of the Skills Certification System is underway in over 30 states.



Step 1 – Decision: Is Certification Right for Us?

Deloitte Study: Boiling point? The Skills Gap in U.S. Manufacturing



This study by Deloitte seeks to answer the question: Does manufacturing have the talent it needs to perform in the global marketplace?

The past year has shown a renewed attention to the future of the manufacturing industry in the United States. In the media, in online conversations, and in person, people are wondering whether the U.S. has what it takes to compete, and whether we can and should rededicate ourselves to strengthening the manufacturing sector in the face of increased global competition and persistent economic challenges.

Click on the photo to access a copy of this document.

This report is excellent background reading for anyone working with manufacturers, and will be read with interest by many executives in these businesses.

Overall Survey Findings

Overall, the survey findings are remarkably consistent with previous Skills Gap studies, with 67% of respondents reporting a moderate to severe shortage of available, qualified workers and 56% anticipating the shortage to grow worse in the next three to five years. In addition, our survey indicates that 5% of current jobs at respondent manufacturers are unfilled due to a lack of qualified candidates. These results indicate a worsening talent shortage that threatens the future effectiveness of U.S. manufacturing.

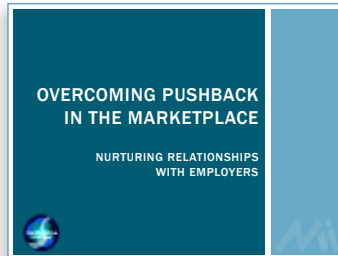
The survey results turns up a few surprising insights into the talent gap and how manufacturers are responding:

- The hardest jobs to fill are those that have the biggest impact on performance.
- Many manufacturers depend on outdated approaches for finding the right people, developing their employees' skills, and improving their performance.
- High unemployment is not making it easier to fill positions, particularly in the areas of skilled production and production support.
- The changing nature of manufacturing work is making it harder for talent to keep up.
- The skills gap is expected to take the biggest toll on skilled production jobs, and will likely widen as time passes.
- For manufacturers, the skills gap issue isn't just influencing how they run their businesses today. Just as important, it's affecting their ability to grow and perform well into the future.
- Respondents are also looking to develop their current talent in order to close the skills gap and outperform the competition.
- Manufacturers need to more effectively understand what skills they really need, and then use targeted training approaches to make sure their workforce is prepared to deliver.





PowerPoint: Overcoming Pushback



Click on the photo to access a copy of this PowerPoint.

Key sections from this webinar originally presented on December 2013, address the pushback that you might encounter in the marketplace both from employers and from education partners. Consider using this – or portions of this – if you need to address resistance to workforce certification. It contains two basic sections:

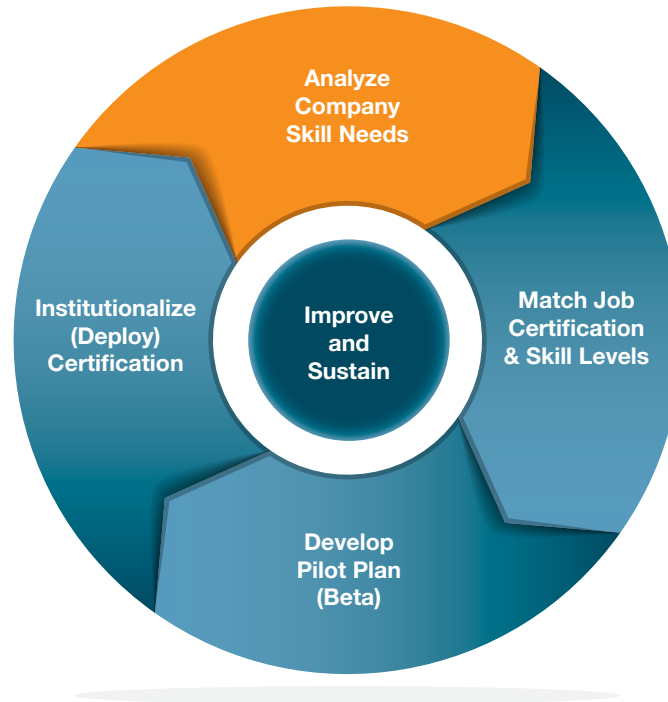
Through the Eyes of Manufacturing

- What employers want
- Immediacy of need
- Resistance: “If I train them they might leave”
- Investing in the employee is good for the bottom line
- Resistance: “We prefer customized training”
- Certification is priming the pump
- Overcoming risk with Skills Certification

Through the Eyes of a College

- Is there a market for certification?
- Employers’ lack of awareness
- What’s their return on investment?
- Pushback at the college
- Who paid for this?
- Change is Coming
- Words of Advice

Step 2: Analyze Company Skill Needs



Overview

Workforce certification starts with a clear understanding of the *skills* needed to perform a job or family of jobs. There are two alternative approaches to accomplish this work:

- Perform an **Informal job analysis** based on job descriptions – This can be accomplished during one or two meetings with company employees in key positions related to the job to be analyzed. *This is something you will be able to facilitate.*

The results of the *Informal Job Analysis* will help the employer in the selection process. However, because it is not formally conducted by a certified profiler, the results cannot be used as a required criteria for hiring. It is not EEO compliant nor can it be determined to be unbiased and non-discriminatory. Therefore, employers should list the certification as a “preferred” qualification; and an applicant cannot be removed from the pool of potential candidates solely because they do not have the preferred certification.

- Complete a **Formal Job Analysis or Job Profile** – Companies that require a legally defensible certification system may opt to complete a formal job analysis or job profile. This work requires an assessor trained and certified in the process. It

typically costs between two and four thousand dollars. *Most often you will bring in another resource if required to do this.*

You will explore each approach in the pages that follow, with emphasis given to the informal process. Conducting a full job analysis goes beyond the scope of this Toolkit.

Informal Job Analysis

Since a comprehensive skill analysis usually costs two to four thousand dollars per job, companies often prefer to do an informal job analysis. In this Toolkit, we focus on the informal job analysis. A good starting point is the job description. The revision date provides *some idea* of how current it is; but even if it is recent, it may not be *accurate*. It is futile to put energy into matching a certification to a job description that does not accurately reflect the job.

The work described below would preferably be done with a group of knowledgeable supervisors and at least 1-2 experienced incumbent workers who represent diversity, and who can speak to the day-to-day job challenges and provide insight about turnover and problems on the job. However, the informal job analysis may be done with a company executive, HR Manager, or even a company trainer. Depending on the audience, your approach may need to be modified slightly.



Preparation

Before you begin an informal job task analysis you might want to:

- Secure and **review the job description** for the position. Look to see if it appears, on the surface, to be well-written and to fit with what you've been told about the job.
- Observe the job beforehand if possible, noting the general responsibilities, working conditions, kinds of interactions with other employees, foundational skills needed (e.g., reading, math, observation, mechanical ability) and physical/mental demands.
- Ask to see training materials for the position. Note the specific skills they train and how the company views the job.
- You may wish to **make an initial comparison** between the job skills currently identified and one or more possible certifications. Don't put a lot of energy into this prior to updating the job description; however, it can be helpful – if not encouraging to the company – if you mention now some *possible certifications* that *MAY* be close to what they are seeking.
- Find out if there are other employers in the region using certifications for that kind of occupation.
- Plan/Set up a meeting** at the company?
 - » It is usually best to plan for 90 minutes.
 - » Ensure meeting is calendared, space reserved, and correct participants have been invited. Best participants include:
 - Knowledgeable supervisors who manage employees doing the work.
 - Experienced incumbent workers.
 - HR or Training professionals involved in hiring and training employees for the job, and
 - The management leader for the functional area.
 - » Send (or at a minimum prepare and bring along) a **meeting agenda**. (See [Sample Meeting Agenda](#) in [TOOLS](#) section.)
- Ask your company contact to share any slides and handouts** that may have been presented during earlier session/s with those in their organization who might be NEW to workforce skill certification so that they are up-to-speed when this meeting begins. (You want to avoid a complete re-hash of your earlier meeting topics because of the additional new participants in the room.)



Facilitation

Keep these tips and techniques in mind as you meet with company personnel during this exploration phase.

- Depending on the culture and what is available, it may be useful to have some slides on-screen to guide the session, or you could use a handout or flipchart. (See [TOOLS: Step 2 Meeting Slides](#).)
- Adjust your approach to the participants present. If the meeting is with a small group or even one person, you might get them started; then allow some time for them to share this information with other key individuals such as supervisors and to get their input

A typical agenda for this meeting includes the following: (See [TOOLS: Sample Meeting Agenda](#).)

- Getting Started
 - » **Introductions** – There may be new players in the room; take a few minutes to get to know them so that you can better tailor your discussion to their needs and interests. Also, be sure they understand your role.
 - » Review the **purpose and the agenda** – You may have sent this in advance, but it is good to bring along hard copies; or post it on a flip chart or a slide if you'll be using slides to guide the session.
 - » **Set the stage** – Review company's challenge/s (from previous conversations that took place prior to this meeting) to set a context for the meeting and the work to be completed.

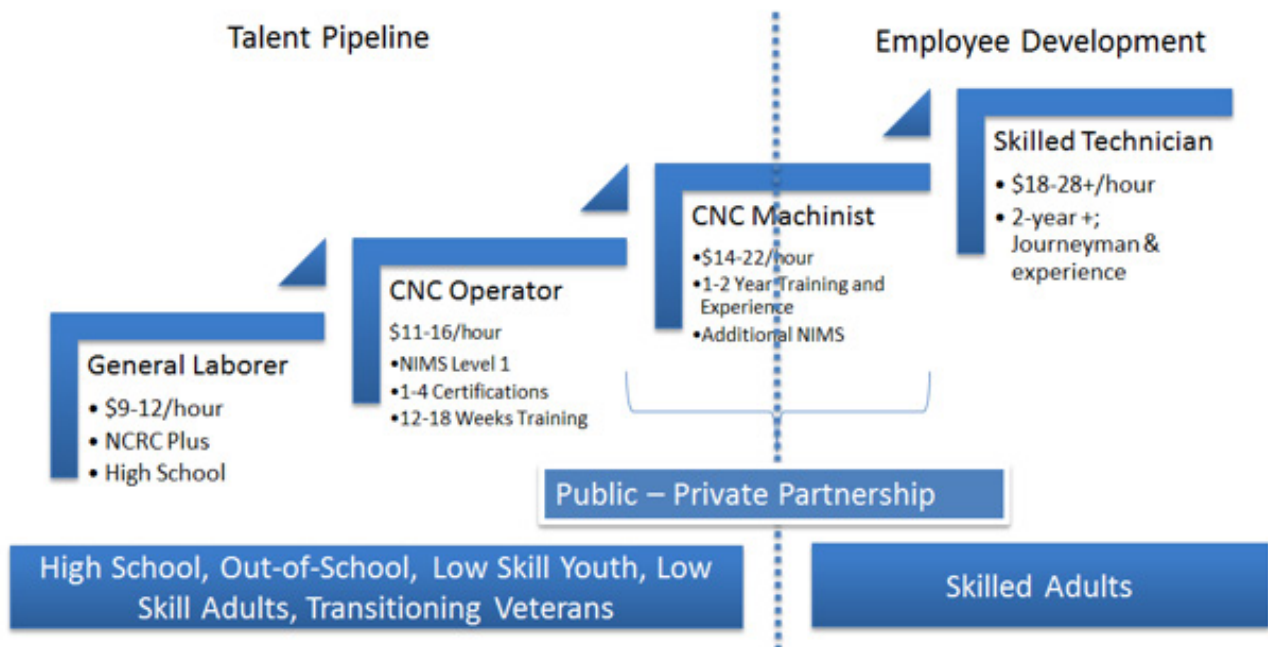
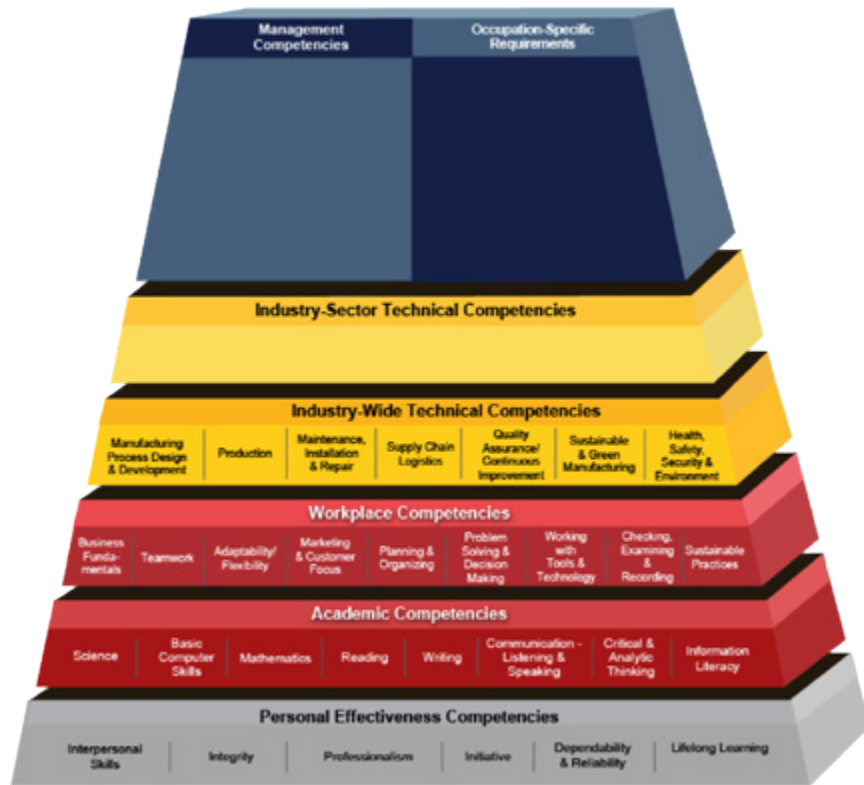


Step 2: Analyze Company Skill Needs

- Review of **Advanced Competency Model**
 - » It is helpful to begin by painting the broader picture (rationale) behind skills certification.
 - » Highlight the levels or types of skills and corresponding certifications
 - » Make the point that before any meaningful match can be made, it is critical to first ensure that the job description accurately documents the skills needed for the job.

Several slides from the PowerPoint: *Building the Manufacturing Talent Pipeline* and other handouts provided as part of the **Step 1 Tools** can be useful at this point. (If you've previously covered these, make it a quick review.)

- Introduce **Career Pathways**
 - » Point out the relationship between the certification system and career pathways. (See slides from the above PowerPoint on pathways.) Certifications are often an enhancement to the learning or training that takes place in a career pathway.
 - » Mention that as you progress you will want to look at how the certification we are building fits within a career pathway.
 - » For now, you need to focus on the job at hand, and what certifications are most appropriate.



- **Analyze and Update the Job Description and identify skills needed.** Point out that an accurate job description is the necessary foundation for selecting the right candidates (and identifying the certification that best matches the needs of the position. Then go through the job description with the experts in the room.
 - » Share any questions or concerns you identified during **your job description review.**
 - » *Does the job title accurately describe the position? Sometimes the title does not describe the job. Is there a better job title?*
 - » *Is there anything critical to the job not mentioned on the job description?* Facilitate dialogue to get them thinking and talking about the day-to-day work. Every discrete task does not need to be on the job description; yet these things may be important in relation to the certifications. (Be sure to capture notes on these to use in your matching work later.)
 - » *Do the specific skills required still accurately reflect the needs of the position?* Employers might have implemented changes, such as automation in production processes.

- **Discuss Possible Certifications** – Based on your initial review mention possible certifications that you believe might fit – There may be more than one.
 - » **National Career Readiness Certificate (NCRC)** – A good place to start is with the National Career Readiness Certificate (NCRC). *This provides a great foundation for most jobs; you can then add the other certification/s you are recommending.*
 - » **Manufacturing Skill Standards Council (MSSC)** – The Safety and Quality Assurance Modules of the **Certified Production Technician (CPT)** provide important background for today's manufacturing jobs.
 - » **Technical Skill Certifications** – Then continue with other viable certifications.
 - Occasionally there are individuals within a company that have knowledge about some of the technical certifications. They may even hold one of them; but since no one ever asked for it, they never brought it up. If you meet with a larger group within a company it is good to ask if they know anyone with any of these certifications or if they have worked somewhere where they were used. That can be a great opening for further conversations.
 - Use the Chart of Possible Certifications (see **TOOLS**) to highlight various industry certifications that are already developed, refined, and ready to use. (Isn't

it great that you don't have to reinvent the wheel?!) What certifications do they think might be relevant to this job. Take notes during this discussion to guide your research and preparation for the next meeting with the group.

- » **Case Studies: Matching Jobs to Certifications** – Use the **Sample Job Descriptions w/ Matches to Certifications (see TOOLS)** as illustrations of the work the group next needs to do. (*Let me show you a couple examples of how we have done this before....Next time we meet, this is what we'll be doing together.*) Then, lead a discussion about the alignment.

You will research the possible matches following this meeting and return to the next (Step 3) meeting with one or more recommended certifications. Consider this discussion as preliminary and mostly a way to gather their initial reactions.

- **Review and Wrap-up (Next Steps)**
 - » **Next steps** – As you wrap-up the meeting, take a couple minutes to explain the overall process and the next steps along the path to implementing their certification system. *At our next meeting we will be matching this job to one or more appropriate certifications and setting the levels needed.*
 - » **Collect Contact Information** – You might want to get contact information for a few of the participants in case you have questions while doing further analysis and certification matching.
 - » **TO DO's** – It is a good idea to capture any assignments as the meeting progresses. This can be done on a flip chart or by a note-taker. Review these now. Add any additional assignments that the group thinks will be important to move the process forward.
 - » **Next Meeting** – If possible set a next meeting when the action items will be reviewed and the next steps will be taken.

Step 2: Analyze Company Skill Needs

Success

You will know you've completed the necessary work and the company is READY to move on to the next step when most of the following are true:

- You have confirmation that the job description accurately describes the job and skills required.
- The group has begun to think about certifications that may match the skills required.
- They continue to express interest in moving forward with implementing a workforce certification for at least one job.

Tools

The following tools have been provided to assist you with this step:

- Sample Step 2 Meeting Agenda
- Chart of Possible Certifications
- Sample Job Descriptions w/ Matches to Certifications
- PowerPoint: *Step 2 Meeting Slides*

Full Job Analysis

If necessary, a **full Job Analysis or Job Profile** can be completed in order to more accurately identify the job skill requirements and possible certifications that might apply.

WHY do a full job analysis?

There are many reasons for doing a formal job analysis:

- The company may see an opportunity to redesign multiple jobs, to blend several jobs or eliminate some and develop others as part of a restructuring or lean process.
- In order to adequately address a job with high turnover or high hiring numbers, employers may want to get a more accurate picture of the skills and tasks than a simple job description review provides.
- The manufacturer might be in the process of creating a new production line or seeking to attract a new customer base, which may require new skills and/or new equipment.
- There may be a desire to foster a collaborative culture within the organization, including more participants in the process so they get buy-in and input from a larger group.
- Union considerations or requirements – either as a part of an

existing contract or to begin to lay the groundwork for the next one – may necessitate a more formal process.

- If the goal is to create alignment with a local college *curriculum development effort*, a more complete analysis may be necessary; and the college may want to be part of the process so they can design their training from it.

HOW a full job analysis is conducted

A full job analysis involves a number of key individuals in an organization and a specially trained facilitator who guides the subject matter experts through a formal process that helps them identify the knowledge, skills, and abilities required for the position. The results are used to determine the scores required on the ACT WorkKeys *National Career Readiness Certificate* (NCRC) in order to successfully perform a specific job. Details and related information about the Job Task Analysis can be found at

- <https://www.act.org/workkeys/analysis/>
- https://www.act.org/workkeys/pdf/jp_report.pdf

Other job analysis systems are available for analyzing and understanding job requirements. For most middle *skill* manufacturing jobs, this level of analysis is not necessary unless the employer intends to use the assessment as a criterion for selection. In that case, a certified assessor should be brought in to ensure that the process is legally defensible. If you make the certification 'preferred' rather than required, you can avoid some of the legal issues. It generally costs \$2-4,000 to do this. So, unless grant funding is available many companies, especially the smaller ones, will not go this route.

How to locate a job profiler

Some large companies have decided to train one of their HR people to be a certified "job profiler" so that any time a position comes up they can profile it. (Or they may have an ongoing relationship with someone at their local community college or a consultant who does this work for them). Most community college workforce departments have staff familiar with and often certified to do formal job analysis; or they have a partner organization that is available to assist with doing this analysis.

One of the most common job analysis systems is provided by ACT WorkKeys *National Career Readiness Certificate* (NCRC). Details about the process and how to access these services is available at: <http://www.act.org/products/workforce-act-workkeys/>

Local HR organizations such as the Society for Human Resource Management (SHRM) can provide additional information on other job profiling systems. Some of the more common ones used in conjunction with education partners include Saville-Holsworth LTD and DDI.



Sample Step 2 Meeting Agenda

This is a sample agenda for a Step 2 client meeting. You may wish to adjust this agenda based on the outcomes of your prior meetings and the needs of the particular company.

PURPOSE:

Our goal is to discuss and document the job qualifications for the <INSERT JOB TITLE> position and to ensure that the job description accurately defines the work and the kind of candidate we are seeking.

AGENDA:

Welcome, Introductions, Review Agenda

Review of Skills Certification System

Rationale

Type of Assessments

Analyze and Update Job Description

Discuss Possible Certifications

National Career Readiness Certificate (NCRC)

Other Skill Certification(s)

Case Studies: Matching Jobs to Certifications

Review and Wrap-up (Next Steps)



Chart of Possible Certifications

Foundation Skills – National Career Readiness Certificate (NCRC)



ACT

The Skills Certification System is grounded on the National Career Readiness Certificate (NCRC). The NCRC, issued by ACT, is a portable, evidence-based credential that measures essential workplace skills and is a reliable predictor of workplace success. This credential is used across all sectors of the economy and measures basic skills needed for all work ready candidates.

[About the National Career Readiness Certificate](#)

[Location of Testing Centers](#)

[View an In-depth Presentation on ACT's NCRC](#)

Cross-Cutting Technical Skills



Manufacturing Skill Standards Council (MSSC)

Certified Production Technician (CPT) certifications verify the student or worker has mastered essential Production modules in Safety, Quality Practices & Measurement, Manufacturing Processes & Production, and Maintenance Awareness.

[About the Certified Production Technician](#)

[Find an MSSC Assessment Center](#)

[View an In-Depth Presentation on MSSC Certifications](#)



Manufacturing Skills Institute (MSI)

The Manufacturing Technician 1 (MT1) certification program was developed to meet the growing employment demands of the manufacturing industry. The MT1 program addresses the core industry-wide skills standards required for skilled production occupations in all sectors of manufacturing. The core competency areas certified are: (1) Math and Measurement, (2) Spatial Reasoning and Manufacturing Technology, and (3) Business Acumen and Quality, measuring an individual's skills attainment in 12 critical technical skills.

[About the Manufacturing Technician Certification](#)

Step 2: Analyze Company Skill Needs



Chart of Possible Certifications *continued*

Machining & Metalworking



National Institute for Metalworking Skills (NIMS)

Skills in the metalworking industry are validated through the National Institute for Metalworking Skills (NIMS) machining and metalforming certifications. The certifications are earned through secondary, postsecondary, and work-based curricula that include both “hands-on” performance and theory tests. 52 NIMS credentials allow employers to hone their credentialing requirements and choose only those certifications that are applicable to the needs of the company.

[About NIMS Credentials](#)

[List of NIMS Credentials](#)

[Guide to NIMS Credentialing](#)

[Where to Earn NIMS Credentials](#)

Welding



American Welding Society (AWS)

The American Welding Society’s (AWS) Certified Welder Certifications are acquired in postsecondary education. The Certified Welder program uses performance-based testing to validate procedures used in the structural steel, petroleum pipelines, sheet metal and chemical refining industries.

[About AWS Certifications](#)

[Where to Earn AWS Certifications](#)

Automation



International Society of Automation (ISA)

ISA is a leading, global, nonprofit organization that is setting the standard for automation by helping over 30,000 worldwide members and other professionals solve difficult technical problems, while enhancing their leadership and personal career capabilities. ISA adds their Certified Control Systems Technician (CCST) and Certified Automation Professional (CAP) certification programs to the SCS.

[About ISA Certifications](#)

[How to Earn ISA Certifications](#)

Construction



National Center for Construction Education and Research (NCCER)

NCCER is recognized as one of the premier workforce development organizations for the construction and maintenance industry with nearly 700 accredited training organizations and over 350 accredited assessment centers. The NCCER system measures the technical competencies in over 55 craft areas from the entry to management level within the construction and maintenance industry.

[About NCCER Certifications](#)

[Where to Earn NCCER Certifications](#)

[NCCER Curriculum](#)



Chart of Possible Certifications *continued*

Die Casting



North American Die Casting Association

The NADCA Die Casting Certification Program develops skills and competencies in a specific manufacturing sector – die casting – and is analogous to other specific certifications such as AWS. Hence this certification adds another discipline to the current NAM certification.

[About NADCA Certifications](#)

[Where to Earn NADCA Certifications](#)

Fabrication



Fabricators & Manufacturers Association, International (FMA)

FMA's Precision Sheet Metal Operator Certification (PSMO) is the metal fabricating industry's only comprehensive exam designed to assess a candidate's knowledge of fundamental precision sheet metal operations. Fabrication processes covered in the exam include shearing, sawing, press brake, turret punch press, laser cutting, and mechanical finishing.

[About the Precision Sheet Metal Operator Certification](#)

[PSMO Body of Knowledge](#)

[Where to Earn PSMO Certification](#)

Fluid Power



International Fluid Power Society (IFPS)

The IFPS is the only organization that provides comprehensive technical certification offerings for all professionals in the fluid power and motion control industry. Sixteen different certifications are currently offered with three certifications in development, the Fluid Power Electronic Controls Mobile/Industrial and the IFPS Mechatronics Certification. These certifications cover diverse job descriptions within the industry including mechanic, technician, specialist and engineer.

[About IFPS Certifications](#)

[Where to Find IFPS Education](#)

[Prepare for IFPS Certification](#)

[Where to Earn IFPS Certifications](#)

Lean



Society for Manufacturing Engineers (SME)

Lean Certification is overseen by four industry organizations: SME, the Association for Manufacturing Excellence (AME), The Shingo Prize for Operational Excellence, and the American Society for Quality (ASQ), with SME as the managing partner – aligning industry to a single standard for Lean Certification. This three level program begins with tactical lean (Bronze), progresses through value stream lean (Silver) to transformational lean (Gold). The program provides both a standard body of knowledge and competency model for practitioners for self-reflection.

[About the Lean Certifications](#)

Mechatronics



Packaging Machinery Manufacturing Institute (PMMI)

PMMI is a trade association with more than 500 member companies that manufacture packaging and packaging-related converting machinery, commercially-available packaging machinery components, containers and materials in the United States and Canada. The PMMI Mechatronics Certificate Programs are grouped in the four key areas identified as relevant to Mechatronics: mechanical, electrical, logic controls, and computer science.

[About PMMI Certificates](#)

Quality



American Society for Quality (ASQ)

ASQ is the worldwide leader in providing credentials to the global quality community. ASQ certification is a formal recognition by ASQ that an individual has demonstrated a proficiency within, and comprehension of, a specific body of knowledge. More than 170,000 certifications have been issued to dedicated professionals worldwide. Professionals complete a rigorous studying and preparation process to achieve an ASQ certification.

[About ASQ Certifications](#)

[Where to Find ASQ Exams](#)

Step 2: Analyze Company Skill Needs



Chart of Possible Certifications *continued*

Transportation, Distribution and Logistics



Manufacturing Skill Standards Council (MSSC)

MSSC Certified Logistics Technician Certification (CLT) is the first-ever industry-recognized national certification for the core technical skills of front-line workers (entry level through first line of supervision) involved in the handling and distribution of materials throughout the supply chain and logistics industry. MSSC is also part of the NAM-Endorsed system under Cross-Cutting Technical Skills.

[About the Certified Logistics Technician](#)

[Find an MSSC Assessment Center](#)

[View an In-Depth Presentation on MSSC Certifications](#)



American Society of Transportation and Logistics (ASTL)

The mission of the American Society of Transportation and Logistics is to advance the knowledge and career progression through life-long learning in the fields of transportation, logistics, and supply chain management. Our certification programs test the core competencies of working professionals in the transportation and logistics field. Our programs have been designed to help advance a person through their career path.

[About ASTL Certifications](#)



Association for Operations Management (APICS)

APICS certifications are the standard of professional excellence in supply chain and operations management. The APICS Certified in Production and Inventory Management (CPIM) designation demonstrates knowledge and skills in global operations production and inventory activities. The APICS Certified Supply Chain Professional (CSCP) designation demonstrates professional mastery and understanding of the end-to-end supply chain.

[About APICS Certifications](#)

[Where to Find APICS Education](#)

Technology & Engineering



Society of Manufacturing Engineers (SME)

For advanced industry-wide technical skills, the Society of Manufacturing Engineers (SME) offers two certifications. The Certified Manufacturing Technologist is focused on the fundamentals of manufacturing and may be acquired through a baccalaureate program or a combination of four years academic and work experience. The Certified Manufacturing Engineer is focused on applied and advanced manufacturing knowledge and may be acquired through a combination of eight years of work experience and manufacturing or engineering education.

[About SME Certifications](#)

[View SME Body of Knowledge](#)

[View an In-depth Presentation on SME Certifications](#)



Sample Job Descriptions w/ Matches to Certifications

JOB DESCRIPTION

Job Title: Aircraft Structure and Systems Assembler

Reports To: Department Leader

Summary: The Aircraft Structure and Systems Assembler is required to assemble, fit, fasten, and install parts.

General Duties

- Align and fit structural assemblies manually, or signal crane operators to position assemblies for joining.
- Assemble prefabricated parts to form subassemblies.
- Join structural assemblies, such as wings, tails, or fuselage.
- Assemble, install, and connect parts, fittings, and assemblies on aircraft, using layout tools, hand tools, power tools, and fasteners such as bolts, screws, rivets, and clamps.
- Position and align subassemblies in jigs or fixtures, using measuring instruments and following blueprint lines and index points.
- Cut, trim, file, bend, and smooth parts, and verify sizes and fitting tolerances in order to ensure proper fit and clearance of parts.
- Read and interpret blueprints, illustrations, and specifications to determine layouts, sequences of operations, or identities and relationships of parts.
- Layout and mark reference points and locations for installation of parts or components, using jigs, templates, or measuring and marking instruments.
- Adjust, repair, rework, or replace parts and assemblies to eliminate malfunctions and to ensure proper operation.

Qualifications

- Mechanical aptitude and basic mechanical knowledge of machines and tools,
- Understanding of quality control
- Basic blueprint reading
- Work independently and as a member of a team,
- Aware of safety practices,
- Strong math and communication skills
- Ability to read and speak English and understand component maintenance manuals and all other applicable technical documents.
- Able to write descriptive statements concerning the condition of the assemblies being worked on.
- Able to articulate and understand verbal and written instructions.

Education:

High school diploma or GED required.

Experience\Training:

Postsecondary training or certification in mechanical assembly or
One year experience in manufacturing or related position

Requirements Preferred:

NCRC Bronze, (recommended score from the ACT Occupational Profiles for similar positions)
Since this position requires some knowledge or experience in manufacturing processes, the MSSC, CPT or at least the Safety and Quality Modules are a plus for applicants.

Step 2: Analyze Company Skill Needs



Sample Job Descriptions w/ Matches to Certifications *continued*

JOB DESCRIPTION

Job Title: Level 2 Machinist

Department: Machining

Reports to: Machining Leader

The **Level 2 Machinist** is a base machining position. In order to be hired into a Level 2 Machinist position, 3 years of machining experience is required. In general, they will be required to do the duties and meet the other requirements listed below. The duties as listed are not to be construed as a complete listing of the requirements of the job or as any limitation of the scope or quantity of work that may be required in the future. It should also be noted that they may be asked to machine graphite and metal,

General Duties

1. Operating all manual and CNC equipment to finish stock to the print.
2. Perform setup and adjustments on CNC equipment
3. Simple editing of CNC programs for standard programs or as needed for setup (cutter compensation, tool offsets)
4. Use of CNC probing system
5. Thread cutting and tapering on a manual lathe

Other Requirements:

- Understanding Geometric Dimensioning and Tolerancing
- Train others as needed.

It is, of course, understood that in every instance this person is expected to produce a full eight hours work per shift. In the event supervision is unable to schedule eight hours of work in this classification each day due to work load and production schedules, this person will be required to perform miscellaneous work as requested by supervision.

Education:

High school diploma or GED required.

Experience\Training:

Three years of machining and setup experience required.

Requirements Preferred: NCRC, Silver, (recommended score from the ACT Occupational Profiles)

Since this position requires some knowledge or experience in machining the NIMS Level 1, CNC Mill Operations assessment should provide a close match to the required skills.



JOB DESCRIPTION

Job Title: Lead Quality Floor Technician

Reports To: Quality Manager

Summary: Plans, coordinates, and assists in ensuring that the quality production of products consistent with established standards by performing the following duties through a subordinate supervisor/manager.

Essential Duties and Responsibilities include the following. Other duties may be assigned.

- Formulates and maintains quality assurance objectives complementary to corporate policies and goals.
- Interprets quality assurance philosophy to key personnel in organization.
- Performs quality assurance reviews of production processes for compliance with stated requirements, including vendor quality manuals and company quality records.
- Applies statistical process control (SPC) methods for analyzing data to evaluate the current process and process changes.
- Reviews all data obtained during all quality assurance activities to ensure consistency with company policies and procedures.
- Develops new approaches to solve problems identified during quality assurance activities.
- Keeps management team abreast of significant issues or developments identified during quality assurance activities and actions being taken to improve the situation.
- Prepares and presents technical and program information to the management team.
- Directs technical workers engaged in quality assurance activities.
- Maintains a working knowledge of government and industry quality assurance codes and standards.
- Plays an active role on quality management teams within the organization.
- Designs and implements quality assurance training programs to key personnel in conjunction with managers.
- Investigates and adjusts customer complaints regarding quality, including inventory containment.
- Develops control plans, first/last shot inspection forms
- Reviews and periodically audits PPAP documents to verify accuracy
- Develops X-Ray standards in coordination w/ the QA Manager and Casting Superintendent
- Maintains the QA hold area for organization and to ensure all product is being processed in accordance to work instructions

Education and/or Experience

- Associate's degree (A. A.) or equivalent from two-year college or technical school;
- or six months to one year related experience and/or training; or equivalent combination of education and experience.
- Understanding of ISO and TS compliance issues.

Preferred: WorkKeys NCRS Silver; (Recommended score from the ACT Occupational profiles for technician. ASQ Quality Technician Certificate (CQT) skills required for this position match with those measured by this certificate.

Step 2: Analyze Company Skill Needs



PowerPoint: Step 2 Meeting Slides



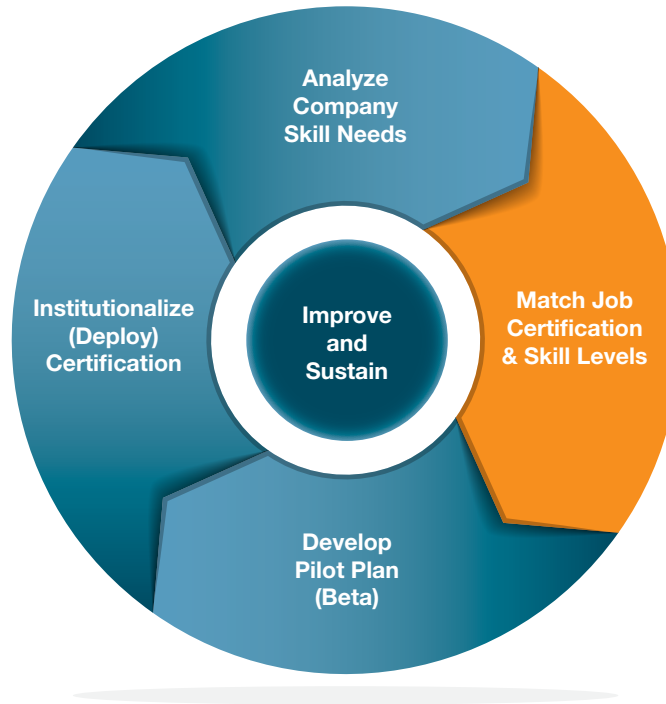
Click on the photo to access a copy of this PowerPoint.

This PowerPoint show consisting of 9 slides is designed for use in a facilitating an *Informal Job Analysis* meeting. After a few slides to set the stage for the session, it then presents step-by-step the work to be completed within the meeting.

Slides can be customized for your particular group or situation.

Detailed facilitation notes in the Notes Section of each slide provide talking points and tips for facilitating the meeting.

Step 3: Match Job Certification & Skill Levels



Overview

Having clarified (and updated) the exact skills they require for the position, the company now needs to agree on a good certification match. There are two primary tasks to accomplish in this step:

1. Thoroughly review the selected certification/s to confirm they truly match the company needs. This confirmation needs to include ALL the key stakeholders, especially if they were not involved in the previous meeting.
2. Establish (set) the appropriate levels for the various skills. *National Career Readiness Certificate* (NCRC) has individual scores for each competency and bronze, silver, gold, and platinum levels based on common scores across all three; other certifications, like NIMS, have levels 1, 2, and 3, and some are pass/fail.

Preparation

Your careful preparation between meetings will ensure that each session is as productive as possible, and position you as a true professional. Prior to beginning Step 3 you should do the following:

- Send a **follow-up email** to the group summarizing the outcomes from the previous Step 2 meeting and outlining the work to be done. (See Sample Follow-up Memo in TOOLS section).
- Identify the National Career Readiness Certificate (NCRC) scores** that *seem appropriate to you* based on the job description and the information in the ACT database. You will share your preliminary thoughts during the upcoming Step3 meeting. Over the years, ACT has acquired an extensive database of NCRC scores based on job titles and classifications. The ACT website provides a great resource for this work.

Step 3: Match Job Certification & Skill Levels

To determine the NCRC scores for a job, go to http://profiles.keytrain.com/profile_search/

Type in the job title and job cluster of the position, i.e. machinist, manufacturing. The related job titles with O Net codes will be displayed. Click on the job title to see more detailed information about the job tasks and the recommended Workkeys Scores. Inserting other job titles and also exploring other O Net codes related to the job will provide additional information that will be helpful in this task.

Sample reports and more detailed explanations can be found at https://www.act.org/workkeys/pdf/jp_report.pdf

Research possible industry certification matches.

Compare the job skill requirements with the metrics in the industry certifications and select the assessments and levels that *seem to you* to be a close match to the position. [See **TOOLS: Chart of Possible Certifications in Step 2.**]

- » Most of this research is completed on-line by visiting the web sites of the various certification vendors.
- » Look for certification *skill lists* that seem similar to the job requirement for the position you are reviewing – Do the descriptions listed there appear to parallel those you see on the job description?
- » If unsure, you might send a copy (or link to these page) along with a copy of the job description to an instructor who teaches these skills and enlist their help to see if there is a match.

Collect data to share with company personnel.

Cut and paste from certification web sites the skills validated by each assessment – OR – copy and save these [links](#) so you can send them to the company; if you will have internet access during your upcoming meeting, open each of the links on your list and review the web pages on screen during your meeting.

- Send the **Step 3 Meeting Agenda (See TOOLS)**. Consider including links to best-matched certification web-pages so that participants can review the information in advance. (Here it is helpful to know your audience. You don't want to overwhelm them or confuse them. Based on your audience, it may be better to just walk them through this information in person.)
 - » *We've reviewed your job description/s – we think the _____ might be a good match. Here is a link, If you have time, you might take a look.*
 - » *OR, We'll take a look at this together during our meeting to see what you think.*

Depending on the number of jobs under consideration, the size of the company, and the complexity of the certifications, you might wish to form *Pre-Work Teams* with the following assignments:

- » **Team 1** – Establish foundational skills and levels for tools (NCRC, MSSC)
- » **Team 2** – Gather employee representatives from common occupations to consider levels and tools for technical certifications.
- » **Union and management discussion** if needed prior to common meeting
- » **Team 3** – Work with college staff to determine what has already been done for training, which certifications are used in their programs now, what capacity they have, and how open they are to this effort. You may want to do the same with Workforce and Economic Development, if they are important partners in the region.

The Step 3 meeting then becomes a large group meeting where each sub-team presents their findings and recommendations.



Facilitation

Keep these tips and techniques in mind as you meet with company personnel during this Certification matching step.

- Make sure that **the right stakeholders** are present to confirm the certification match **so that** you can leave this meeting with final confirmation. Possible players include:
 - » Supervisors and Hiring Managers,
 - » Human Resources
 - » Trainers
 - » Key Employees (Subject Matter Experts)
 - » Union Reps, if appropriate.

Ask your internal contact to pull together the right people to participate in this review.

- Depending on the culture and the available meeting room/equipment, it may be useful to have some slides on-screen to guide the session, or you could use a handout or flipchart. (See **TOOLS: Step 3 Meeting Slides.**)

A typical agenda for this meeting includes the following: (See **TOOLS: Step 3 Meeting Agenda.**)

- **Getting Started**
 - » **Welcome and Introductions** – There may be new players in the room; take a few minutes to get to know them so that you can better tailor your discussion to their needs and interests. Also, be sure they understand your role.
 - » Review the **meeting purpose and the agenda** – You may have sent this in advance, but it is good to bring along hard copies; or post it on a flip chart or a slide if you'll be using slides to guide the session.
 - » **Recap Progress** – Review the history of the group and what has been accomplished in the weeks leading up to this meeting.
 - » Pass out copies of the **updated job description** and highlight the changes that have been made, especially those relevant to the certifications that you'll be recommending next as good matches for the position.
 - » **Answer any questions** those present may have.



- **Discuss/Agree on National Career Readiness Certification (NCRC) and Set Levels** – We recommend the *National Career Readiness Certificate* (NCRC) as an initial certification for most jobs. This assessment measures

three key foundational skills for success in middle-skill jobs. Candidates who have the foundational skills to **read, apply math, and locate information** (including reading charts and graphs) should be able to complete any of the other assessments and should be prepared to enter the work environment and quickly learn the required tasks.

- » Use the **Intro to Intro to NCRC PowerPoint** presentation (see **TOOLS**) to present the National Career Readiness Certificate. You may want to use some or all of these slides as part of your presentation to the group.
- » Get confirmation from the group that this certification is appropriate and useful for their position.
- » Discuss and agree on the **required level** (bronze, silver, gold, or platinum) or individual score required for each competency based on your job analysis.
 - Since The NCRC system already has a national database of jobs previously profiled, often the group can locate a similar job – then set their levels based on this research.
- » Alternatively, the group may wish to discuss the NCRC descriptions for each level in light of the job under consideration, and make a determination of the correct level needed for each competency.

NOTE: Based on your background and skill (and the level of validation the company requires) you may be comfortable doing this; or you might choose to engage one of your partners to do this work.



American Welding Society



- **Discuss/Agree on Other Skill Certification(s)** – Continue presenting and discussing the other viable certifications, based on your research. (You may have sent these out with the meeting agenda.)
 - » **Review Closest Matches**
 - Review detailed descriptions of the certifications (previously identified in your preparation) that seem to closely parallel the skills needed for their position. (Print these from the web sites, or bring them up on screen.)
 - As a group, discuss the skill descriptions. Confirm those that truly match the job.

Step 3: Match Job Certification & Skill Levels

- » **Agree on the certification that best fits the job**
 - Usually one clear ‘best match’ emerges. Help the group settle on one match. The goal is to have everyone confident that we made a good choice regarding the certification systems to be used as a guide for future hiring (and promotions).
 - If the job does not require skills in one specific area, the National Career Readiness Certificate (NCRC) alone may be the best assessment.
- » **Set Levels for Technical Skills Certification** – If there are multiple levels for the technical certifications, for example NIMS certifications typically have levels 1, 2, and 3, then the group must reach consensus regarding the certification level that best matches the job requirements for an *entry-level* employee.

NOTE: Some companies want people who can ‘walk on water’ but want to pay them \$9/hour! Companies need to be realistic about what they need/want, and what they can get (at the pay they can offer).

- **Discuss Use of Certifications** – Ask the group to consider HOW they intend to use the certification(s) they have selected and to whom they will apply.
 - » Most commonly, the certification will be used as a *preferred criterion* for **new hires** into the position.
 - » IF these same certification tests (and levels) will be used to test for promotion, companies usually do some testing of incumbents to establish that those currently doing the job actually meet the new standard. If this is done, it involves the following:
 - Identify and schedule incumbent workers to take the certification test/s. (This may involve written and performance tests. You may need to locate certified testers and testing centers where these tests are administered.)
 - Employees complete testing and scores are collected.
 - The team reviews the test results; they discuss/confirm the levels set or adjust if necessary. (If a third of the current workforce scores below the level believed to be needed, it’s time to evaluate whether we REALLY need this level, and if so, determine how we’ll get the existing employees up to the required level.) Maybe you don’t need this high of level!!
 - » Companies do not usually need to benchmark their current workers, unless they are looking to use the test results for promotion as well as selection.

Reminder: unless you have profiled the jobs using a *certified job profiler*, the certifications cannot be required for hiring or promotion. They can be a *preferred qualification* used as one of many activities in the process but not as a way to disqualify a candidate.

- **Consider Implementation Details** – While most of the following will actually be determined and planned in the next step, it is helpful to set the stage by raising several issues now.
 - » **Education Provider(s)** – Following this meeting, you will need to do some legwork to explore educational options. In order to make more informed decisions, it may help to gather a few key pieces of information from the company:
 - What has been your experience working with the community college?
 - Are you aware of anyone providing the kind of technical training your employees need (or the certification that we’ve identified)?
 - How many people do you think you’ll hire? Over what timeframe?
 - Are you willing to commit to hiring (or to offering paid internships) for some number of individuals?
 - Are you aware of any other employers with similar needs who might partner with us in order to form a class and sustain a viable program?
 - Are you working with any staffing agencies to fill vacancies?
 - » **Testing** – You may need to help the company scope the **testing costs**. These can include:
 - Cost of the test, including any required administration or center fees (if not on-line)
 - Company costs associated with pulling people off the line to take the test

Typically these costs will be built into the education process. However, if the company chooses to test incumbents, then they will cover these costs. If possible, create a price sheet that can be shared with the employer.

Sometimes, once the levels have been set companies will test incumbents to see if they meet the minimum levels established for the job. If not, they may have been set too high; or some employee development may be required.

- » **Candidates** – It is not too early to begin thinking about how they will they find a pool of candidates. Do they have any suggestions regarding where they have successfully recruited in the past?
- » **Timeline/Need** – If not already established, find out the number of candidates they will hire and over what time period. This number may be too small for an educational partner to do the necessary work to create the certification training program. In this case, you might ask the company to suggest other local companies who may have a similar need.

NOTE: These issues do not need to be resolved today but **will** be the focus of the planning work, which begins in the next step.

- **Review and Wrap-up (Next Steps)**

- » **Next steps** – As you wrap-up the meeting, take a couple minutes to reconnect them with the overall process and the next steps along the path to implementing their certification system. *At our next meeting, we will begin answering many of these questions so that we can put together a pilot project.*
- » **TO DO's** – It is a good idea to capture any assignments as the meeting progresses. This can be done on a flip chart or by a note-taker. Review these now. Add any additional assignments that the group thinks will be important to move the process forward.
- » **Next Meeting** – If possible set a next meeting when the action items will be reviewed and the next steps will be taken.



Success

It is important that a company has confirmed the certification(s) are a *match* for them and that they are ready to pilot this. You'll know the company is **READY** to move forward when the following are true:

- There is a consensus among the company leaders (and SME's) that the certifications and levels are appropriate for the position.
- If necessary or preferred by the company, there is initial agreement to test selected incumbent workers. (This planning will be part of the next step.)
- You have identified a potential training partner and potential sources of qualified candidates.
- There are/will soon be job vacancies and the company is willing to use these certifications as a preferred qualification.
- They understand the ballpark costs, and are prepared to discuss moving forward with a pilot.



Tools

The following tools are helpful to groups doing this validation work:

- Sample *Step 3 Meeting Agenda*
- PowerPoint: *Step 3 Meeting Slides*
- PowerPoint: *Intro to NCRC*
- PowerPoint: *Intro to MSSC*
- Sample *Follow-up Memo*

Step 3: Match Job Certification & Skill Levels



Sample Step 3 Meeting Agenda

This planning work may take place over a couple of meetings. If your situation requires more or less meetings, you'll need to adjust this agenda, making sure that all pertinent topics are addressed.

PURPOSE: Our goal is to reach consensus on the certification(s) that best match our job and to set any levels necessary.

AGENDA:

Getting Started

- Welcome & Introductions
- Meeting Purpose and Agenda
- Recap Progress To Date
- Updated Job Description

Discuss/Agree on Career Readiness Certification and Set Levels

- Discuss National Career Readiness Certificate (NCRC)
- Set Appropriate Levels

Discuss/Agree on Other Skill Certification(s)

- Review Closest Matches
- Agree on Best Match
- Set Levels

Discuss Use of Certifications

Consider Implementation Details

- Possible Education Partner
- Testing Costs
- Candidates
- Timeline/Need

Wrap-up

- Next Steps
- Review Assignments
- Schedule next meeting



PowerPoint: Step 3 Meeting Slides



Click on the photo to access a copy of this PowerPoint.

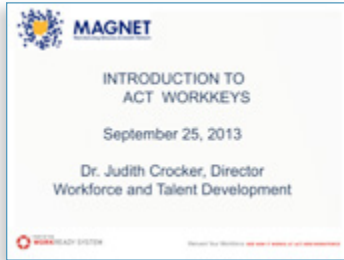
This PowerPoint show consisting of 8 slides is designed for use in a facilitating a Step 3 *Certification Matching* meeting. After a few slides to set the stage for the session, it then presents step-by-step the work to be completed within the meeting.

Slides can be customized for your particular group or situation.

Detailed facilitation notes in the Notes Section of each slide provide talking points and tips for facilitating the meeting.



PowerPoint: Intro to NCRC



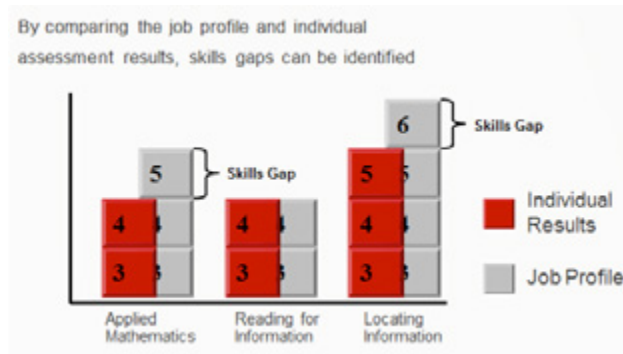
This set of 22 slides provides an overview of the WorkKeys system. The National Career Readiness Certificate (NCRC), issued by ACT, is a portable, evidence-based credential that certifies essential skills needed for workplace success.

Click on the photo to access a copy of this PowerPoint.

The *WorkKeys National Career Readiness Certificate* (NCRC) provides a great foundation for most jobs.

The NCRC is a credential used across all sectors of the economy to certify the following cognitive skills:

- Problem solving
- Critical thinking
- Reading and using work-related text
- Applying information from workplace documents to solve problems
- Applying mathematical reasoning to work-related problems
- Setting up and performing work-related mathematical calculations
- Locating, synthesizing, and applying information that is presented graphically
- Comparing, summarizing, and analyzing information presented in multiple, related graphics



PowerPoint: Intro to MSSC



This set of 20 slides provides an overview of the Manufacturing Skill Standards Council, and specifically the Certified Production Technician.

Click on the photo to access a copy of this PowerPoint.

The nationwide MSSC system, based upon industry-defined and federally-endorsed national standards, offers both new and incumbent manufacturing workers (entry-level through first-line supervision) the opportunity to credential the skills increasingly needed in the technology-intensive jobs of 21st century advanced manufacturing: the “Industrial Athlete of the Future.”

The slide deck answers the following questions:

- What is MSSC
- What is the Certified Production Technician (CPT)
- How certification works
- Benefits of being a CPT
- How industry standards were documented
- CPT Key Activities
- Curriculum Options
- Instructor Training
- Costs
- Benefits to Industry
- Benefits to Workers

Step 3: Match Job Certification & Skill Levels



Sample Follow-up Memo

Following the Step 3 meeting, you may wish to send a memo similar to the following:

<Meeting Name, Location, Date>

<List of Those Present>

Meeting Notes

Thanks again so much for taking the time to meet today. I appreciated the opportunity to talk with you about certifications and how they can support your efforts to secure qualified <INSERT NAME of POSITION> workers. Following is a summary of our conversation and next steps, based on my notes.

Job Description – Our review uncovered a couple of new skill requirements, which your HR contact will be considering in filling the vacancies.

We agreed that bronze NCRC is appropriate for this position, and that a NIMS 1 in machining is the best match for your technical skill needs.

Here are a few of the implementation details that we touched on briefly at the end of our meeting:

1. We'll be supporting this effort as your education partner – I'll be making a contact with several of my colleagues in the next week or two to explore their interest in working together on this.
2. You have indicated that you would be hiring 10-12 people in the next 3-4 months; and that this need is likely to continue or grow in the next year.
3. You have identified a couple of additional companies [insert names here] that may have a similar need; and I will follow-up with them to explore this possibility.
4. We discussed the possibility that you might provide up to 10 paid internships for a minimum of 200 hours at an hourly rate TBD. This pool will be given first consideration when filling your vacancies.

TO DO's

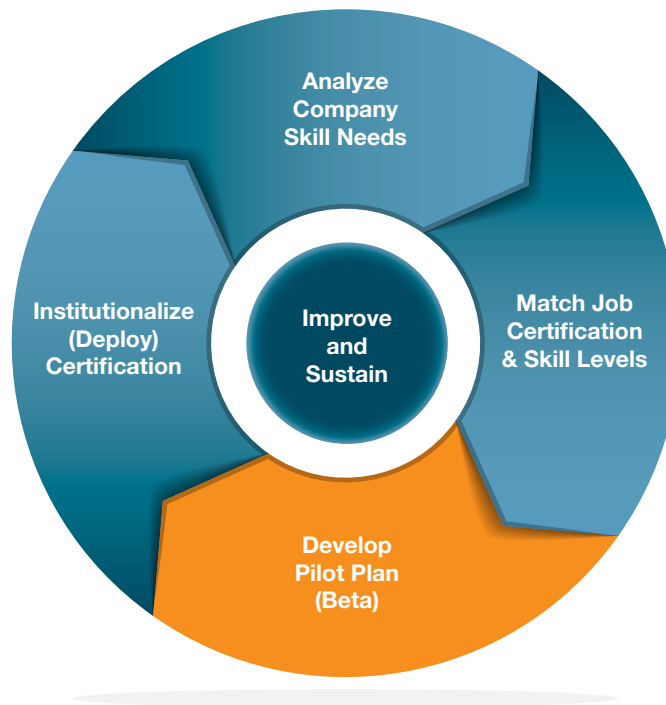
TASK	OWNER	DUE	COMMENTS
Revise Job Description per input from meeting – Then forward to Tracy	Bill	3/18	
Reach out to education colleagues, invite them to next meeting with this group	Tracy	4/5	
Follow-up with other manufacturers to explore interest in joining this certification pilot	Tracy	4/5	
Discuss internship commitment, possible pay rate with management team	Virginia	4/5	

Please don't hesitate to call or email if I omitted anything from our conversation today or if you have questions or would like additional information. We look forward to continuing the conversation and moving forward to developing and piloting a couple strategies to address current and future workforce challenges.

Our next meeting is set for April 5, 10:00 – 11:30 at your location (TBD).

Regards,

Step 4: Develop Pilot Plan (Beta)



Overview

By now, the employer is deeply invested. You have explored options, and have reached agreement on the desired certification and levels. They are willing to prefer specific certifications as part of their hiring process. You have started them thinking about educational partnerships, testing, and where candidates might be found. NOW, you need to work out the details and get something going. As with any new process, employers often want to “test” or PILOT the approach in a limited environment.

NOTE: Throughout this section, we refer to the initial implementation of a new certification system or employment process as a ‘pilot’ project. This is typical language for most companies who seek to test, and improve, a process, frequently on a limited basis before deciding to commit to it on a full-scale, or long-term basis.

This may mean that the company agrees to hire a few candidates with the certification(s) to see how they perform in the workplace. Do they exceed the typical candidate that the company would otherwise hire? Such a “pilot” would allow you to get your foot in the door, and then help the company collect the necessary data

they need to document that workers with industry-certifications surpass other hires in terms of performance.

This step is all about facilitating commitments and establishing action plans:

1. You will need commitments from the community college and any other educational partners about what they will do to provide the training and a pool of certified candidates.
2. The community college and any other educational partner(s) will also want commitments from the manufacturer so that they can operate a viable training program that leads to jobs for their students.
3. And, together you must iron-out all the details about how this pilot* of the program will work.

Finally, the PILOT program must be implemented according to the plans and commitments made.

NOTE: Usually starting with new hires is more successful – This is lower cost for the company, because you may be able to get public dollars to help pay for the training and testing.

Step 4: Develop Pilot Plan (Beta)



Preparation

Your role at this point is to choreograph and facilitate a couple of meetings that bring together participants from the company, the community college, and the any other educational providers (if appropriate) and community partners (if needed) to finalize commitments and action plans. Here are some preparation steps you should take:

Convene a meeting with the key education and community partners, if needed, to relay to them the company needs, desires, and commitment to partnering. (See **TOOLS: College and Community Partner Discussion Checklist for a list of things to discuss.**) Invite representative to next meeting with the company.

As part of your homework, you should learn where various certification assessments are already offered in your area. Employers who accept a certification as “preferred” criteria for their positions need to know where to refer applicants for training and testing. You should have a list of those locations when you next meet with the company. (The web sites for each certification provide a list of approved testing centers.) If there are no certification testing centers already operational in your community, you will need to begin researching what it will take to establish them at your college.

Schedule a meeting (or two meetings, 2-3 weeks apart) where participants will plan the rollout of the pilot. Be sure to include the following:

- Key company personnel (Management, HR, Training are typical functions involved in the pilot)
- Similar personnel from other companies that are possible partners (if the pilot requires greater participation/numbers in order to be viable)
- Appropriate individuals authorized to represent the college and make commitments regarding the pilot program.

Prepare and send the agenda/s prior to each of the meetings. (See **TOOLS: Sample Meeting Agendas**)

Ensure meeting results are documented and distributed following each meeting. (See **TOOLS: Sample Follow-up Memo**)

NOTE: The success of the second meeting depends on everyone having faithfully carried out their between meeting assignments. Send detailed minutes that include TO DO's to help ensure follow-through. You may also want to send one or more reminders prior to the follow-up meeting.



Facilitation

Keep these tips and techniques in mind as you facilitate these meetings. We will assume two meetings are held; keep in mind that some groups may be able to do this work in ONE meeting, or may require more than two meetings.

Meeting 1 (at Company Location)

- **Welcome everyone** – Introduce any new players in the room; Review the meeting purpose and agenda (See **TOOLS: Sample Meeting Agenda – Pilot Planning Meeting**)
- **Set the Context** – It's generally helpful to paint the BIG PICTURE (the vision) each time you begin a meeting, not only to keep everyone focused but also to bring new players up-to-speed with the group. Be sure to:
 - » Provide an overview of the previous conversations – Likely you will have documented much of this in notes from previous meetings.
 - » Answer any questions - provide clarifications as needed.
- **Clarify Expectations and Commitments** – Since success depends on clear expectations and creating something that works for everyone, you need to be sure that all the cards are laid on the table during this meeting. Throughout this section, look for points of potential collaboration, ways all parties can leverage resources.
 - » **Manufacturing Partner(s):** Discuss the company requirements and commitments to the program. Obviously, this discussion may toggle back-and-forth as these possible partners become aware of each other's needs and seek to reach workable agreements. Companies often commit to:
 - Provide input to the curriculum – The curriculum is much stronger when the company provides guidance, or in some cases offers to teach classes (or provide guest presentations).



- Participate in student interviews – When the employer gets involved up-front in screening those applying to the training program, it sets a tone for the students that they are preparing for a possible job, and helps ensure that the training investment will lead to graduates who are more likely to be hired.
 - Offer plant tours for students in the program so that their learning experience is enhanced by seeing how their new knowledge and skills will be applicable on-the-job. This can be highly motivating to students, as it allows them to visualize the goal they are working toward.
 - Provide paid internships – It is great to give students some real-world experience during their education process. If the company can provide paid internships these can be a great perk for students; and allows the company to see potential employees in action.
 - Commit to interview completers – Knowing that all graduates will, at a minimum, get a job interview is an incentive for students to apply themselves and complete their studies.
- » **Community College:** Explain the college's requirements and parameters in order for the partnership to work. This may include things like:
- Explaining existing training curriculum – Explain how industry certifications may already be part of the academic framework of the program, and if there is certification already taking place with students
 - Options (and possible timeline) to adjust the curriculum
 - Introduce possible career pathway – Show how the specific certification under discussion fits within a larger career pathway with additional education opportunities that an employee can pursue to keep growing their career.
 - Minimum numbers of students
 - Frequency and timing for offering the program
 - Testing
 - Test Preparation – Might consider developing some certification preparation classes or workshops; the company may have employees who want to sit for the exam but need assistance in preparing for test taking.
 - Costs and possible funding sources
 - Expectations for the manufacturing partner/s, such as referrals, helping to convene employers, support for job placement and retention, etc.



- **Discuss the Implementation Process and Timeline** – Introduce the core areas that need to be ironed-out and begin the process of exploring each:
 - » **Curriculum:**
 - Review the possible curriculum outline if not done above – Discuss match with company needs and certification requirements.
 - Discuss possible steps, timeline, and costs associated with preparing the educational program for students. (Share possible options to help pay for the training.)
 - Agree on next steps and assignments to finalize the curriculum
 - » **Testing:**
 - Most certifications require a controlled testing environment where students complete on-line exams and/or performance tests where the outcome/product is evaluated by a third party. You will need to identify how testing for the desired certification/s will be accomplished.
 - Some certifications can be attained at the workplace. Mid-size and larger companies may choose to establish a testing and training center on site and will assess potential new hires as well as incumbent workers seeking a promotion.
 - Many employers chose to purchase services and assessments through an academic partner; they may arrange testing access on an as-needed basis at the educational site or a one-stop career center.
 - The best approach, costs, and all testing parameters (timeframes) need to be identified and documented.
 - Agree on next steps and assignments to finalize testing.



Step 4: Develop Pilot Plan (Beta)

» Students (Job Candidates):

- Creating a pool of appropriate students (or potential job candidates) is key to the success of this venture. The group should discuss ways they will market this opportunity and whether these efforts have a good chance of producing the necessary numbers to make the program work.
- Discuss where qualified candidates for the job (and/or the training program) might be found. Here are some common approaches:
 1. Recent graduates (or completers from training programs) from your college or other local education providers that resulted in identified certification, i.e. NCRC, NIMS. You should find out if there is a training provider that has the certifications embedded in their program and identify the training/testing cycle. Your college can work with the company to inform current students about the opportunity, to allow the company to talk with the students, and perhaps interview them prior to or immediately after graduation.
 2. Individuals with industry experience and who are confident that they can pass the assessments can be given the opportunity to take the tests. If they do not pass there should be a process for referral to a remediation option or possibly a short-term program.
 3. Veterans with skills that are similar to those required by the company may be offered the chance to take the assessments and then offered remediation/ brush-up before they test again.
 4. Random Applicants for the job (but who lack the certifications) may be encouraged to contact the education/assessment provider to take the tests to see how they do.

REMEMBER: Unless the jobs have been professionally profiled, a company cannot deny an individual entrance into the pool of candidates if they meet the other requirements for the job. However, individuals with certifications might rank a little higher in the pool.

5. Individuals currently participating in a work readiness program with a community based organization or a program at an educational institution could be good candidates. A good relationship with the director of this program and clear understanding of the program goals and outcomes is critical to this partnership being a viable source.

6. Clients of the local One-Stop Center may be good candidates. Talk with the One Stops in your area about potential participants to see if they have clients they might funnel into the program.

- Companies can be part of the recruitment process. They can allow their name to be used in announcing the program and they can make referrals. If someone applies directly to the company but does not meet the criteria, the company can suggest that they consider pursuing the certification and can provide information on how to enroll in the training program.
- Often participating companies can help interview applicants to the training program so they know who is involved and can stay connected with the students during the training program.
- Agree on next steps and assignments.

» Employment:

- Since this is the ultimate goal, it is a good idea to begin now to map how the training process will lead into the employment process.
- This is where some of the discussions about employer commitment to tours, internships, and interviews should be documented and formalized.
- When would students complete the training? The certification? And, when/where might the interviews take place?
- What is the interview and selection process the company(ies) will follow?

CAUTION: Just because someone has the certification/s, does NOT mean they are a good fit for the company. The interview process and other selection criteria are still an important part of the process.

- Will the company offer a wage incentive for individuals with certification?
 - If the company is paying the same hourly rate to new hires without the certification, it may be less of an incentive to individuals to seek out the certifications.
 - Companies may be more open to paying a wage differential once they have experienced hiring and onboarding certified workers; and they have been able to document some of the cost savings and productivity improvements. (There are some good examples of companies that have done this in the Employer Spotlight series on the MI website.)
- Agree on any next steps and assignments related to the employment process.

NOTE: An HR question that frequently surfaces is around the legality of using these certifications for hiring. Point out that certifications are one tool in the selection process. It is best to indicate that a specific certification is preferred, not required. If an applicant has the certification, they may be ahead of someone who doesn't, but not having it does not disqualify any candidate.

- **Wrap-up the Meeting**

- » Summarize & Review Assignments – It will be important throughout this meeting that commitments and assignments are documented. This is your opportunity to summarize and review each of these in order to lock-it-in. It may be helpful to present these in three sections: (Each of these could be a flip chart that you added to throughout the meeting.)

- College and other Educational Partner Commitments – Things the college and other education partners have promised throughout the meeting that they will do. (Not specific assignments – captured below under TO DO's – but the general commitments made.)
- Company Commitments – Same as above, but for the manufacturing company or companies if multiple companies are participating.
- TO DO's – All actions committed to in order to advance the planning. These should include a brief description of the task, owner, and due date.

- **Schedule next meeting** – It is possible, but unlikely, that all the necessary planning was completed in this meeting. Be sure that a second meeting is on everyone's calendar in the near future. (Timing will depend on circumstances, and needs to allow enough space for assignments to be completed, but soon enough to keep the project moving forward and on schedule to meet the company needs. Two to three weeks is probably ideal.)



Step 4: Develop Pilot Plan (Beta)

Meeting 2 (perhaps at college location)

- If the college can host the meeting on campus, it provides a nice opportunity to showcase the facility and perhaps combine the meeting with a tour of the lab where the training or testing may actually take place. In this case, someone from the college should welcome everyone and set the tone for the meeting before you take over as facilitator. Introduce any new players in the room; Review the meeting purpose & agenda (See TOOLS: Sample Meeting Agenda – Pilot Planning Meeting 2)
- **Report on Assignments** – The success of this meeting depends on everyone having faithfully carried out their between meeting assignments. For this reason, you need to be sure that good minutes are sent out at the end of the prior meeting; and you may even want to send one or more reminders prior to the follow-up meeting. The information collected and the work completed will pave the way for the detailed planning that needs to happen in this session. Depending on the nature of the tasks undertaken you might follow one of two approaches:
 - » Pull out the TO DO list and proceed through each assignment in the order listed in the minutes. The downside of this, is that you may be pulled-into discussions prematurely simply because of the lists organization.
 - » Alternatively, you might keep this to very brief reports (“Yes, I did that!” “I’ve got it and can share today”) and then save the actual review of the work or the full input until the appropriate point in the agenda where that topic is being discussed.

- **Schedule Implementation Activities** –These topics were all addressed during the initial meeting. Your goal now is to circle-back to each area, review any homework done, and make final decisions as needed to firm up the pilot plan.
 - » **Curriculum:**
 - Review the curriculum outline as refined by the college; get confirmation from the company that it aligns with their needs.
 - Finalize the training timeline. Confirm training schedule, days, evenings, hours per day, hours per week ending date.
 - Review the costs; agree on how costs will be covered.
 - » **Testing:**
 - Confirm how the testing for the desired certification/s will be accomplished. Not all colleges will be able to set up testing sites that are available “on demand.” This could also vary depending on which certifications are selected, because some have more stringent testing requirements than others do. This needs to be carefully explored as part of the research and discussion.
 - Finalize the testing timeline
 - Review the costs; agree on how the costs will be covered. If possible, include the testing costs in the fees for the class so all students have paid for testing prior to completion.
 - » **Students:**
 - Review and commit to the plan to attract a pool of appropriate students. Be sure the college, any other education partners (if involved), and the business partner(s) are committed to follow-through with their commitments. Getting appropriate candidates into the program is critical.
 - Confirm the required numbers to make the program work and discuss options to deal with lower than anticipated enrollment.
 - » **Training/Employment Process:**
 - Ideally, there should be a seamless process all the way from an initial contact with a potential candidate through to their regular employment with the manufacturing company. Work out and document these details as detailed below. (See the Sample Training and Employment Process in the TOOLS section.)
 - Clarify and document the intake process that all referrals go through in order to be selected for the training program.
 - Where will referrals come from?
 - Will the National Career Readiness Certificate



(NCRC) be a requirement to enroll in the training? (or a requirement for completing the training program?)

- Will background checks be required for these employees? If so, should these be required before allowing someone into the training?
- Is drug testing required? When will it be done? (Before training or before employment?)
- Does the employer want to interview the candidates before they start the training program or when they are close to completion?

- **Clarify the employment process.** Companies follow a variety of practices when selecting and bringing in new hires. Be aware of those options and help them identify the best process for this pilot. Some elements that may be included:

- » Resumes – Do they want to collect and review these prior to a student entering training, or at some later point.
- » Employment applications – when would these be needed?
- » Is there any required company testing (for example drug screening) or background check? When should these occur?
- » If providing a paid internship, what is the intern selection process? How does that lead to employment
- » Does the company use temporary employment through a temp agency, with option to hire over time?

- **Confirm (and schedule) company involvement** throughout the educational process, including:

- Guest teaching engagements
- Company tours
- Internships
- Employment interviews

- It is a good idea to **identify any employee performance metrics** the company will monitor once the individual is hired. These metrics will be collected and used to evaluate the success of the pilot. (For example: retention, reduced OJT time, scrap rate, task completion, etc.)

- You might ask: Do we have baselines for the metric/s we want to track; or can we get them before we pilot this approach?
- Beginning now to address these questions will help ensure that the outcomes of the project can more clearly be documented.

- **Wrap-up the Meeting**

- » Summarize Decisions or Agreements – It will be important throughout this meeting that the implementation plan is well-documented.
- » Review Assignments/Next Steps – Ending with a clear review of commitments helps ensure everyone leaves the meeting ready to implement the plan.
 - It is likely that you will not formally meet again until the pilot is complete; however, you should establish one or more check-in meetings or conference calls with this group to monitor the pilot and ensure everything is working as planned.
 - Certainly, you will continue to coordinate things from the sidelines over the coming months as the pilot is implemented.

NOTE: Be sure to send out clear documentation following this meeting. Follow-up phone calls and emails to the group or to individuals will be your primary mechanism to ensure the project stays on track.



Step 4: Develop Pilot Plan (Beta)



Sample Step 3 Meeting Agenda

College and Community Partner Discussion Checklist

By this point in the process you need to begin involving your college and any other education partner(s). Do this as soon after Step 3 as possible as you will need their involvement as you move into Step 4. Be sure to do the following:

- Relay to all partners the company's needs, desires, and commitment to partnering.
 - Describe the Job and the certification(s) selected
 - Number of positions to fill and time period
 - Initial commitments to partnering
- Clarify the college's credentialing status. Do you have someone certified to deliver the desired credentials? You may need to help get someone on the faculty certified, or recruit new instructors who already have the required certifications. NOTE: The NIMS website has a list of colleges that are certified to offer NIMS if you wish to research this.
- Does their existing curriculum support the chosen certification? What is required to modify or expand the curriculum?
- Would this certification fit within an existing career pathway? (If not, is there a way that it could? It would be helpful to be able to share this possibility with the employer.)
- What is the minimum number of participants require to justify the effort? (NOTE: If this number is larger than one company's needs, you may be able to pool needs from other similar companies in order to increase the number of students.)
- Who is the contact who will work together with you and the company to plan the pilot. (They will want to attend the next meeting. You may need to spend some time with this individual to ensure they are fully up-to-speed and ready to participate in the employer meeting. You don't want to get to this meeting and have things implode.)
- What are the funding options for students – Some can get special loans or grants; Some funding is periodically available for special programs. (You may want to discuss with the financial aid office. Sometimes financial aid such as Pell grants are available or WIA funding.)
- There may be some “selling” required at this point. Explain the bigger picture and benefits of this partnership for all partners in the community.



Sample Meeting Agenda – Pilot Planning Meeting 1

This planning work may take place over a couple of meetings. If your situation requires more or less meetings, you will need to adjust this agenda, making sure that all pertinent topics are addressed.

PURPOSE: Our goal is to reach necessary agreements to be able to pilot selected industry certifications we have been discussing. This will require commitments from:

- » <Insert name of Company or companies involved>
 - How you will support the training and provide job opportunities for graduates.
- » <Insert name of College or Department> – What you will do to provide the training and a pool of certified candidates.

This will then allow us to move forward with details about how the pilot program will work.

AGENDA:

Welcome, Introductions, Meeting Purpose and Agenda

Set the Context

- » Provide overview previous conversations
- » Answer and Questions - provide clarifications

Discuss/Clarify Expectations and Commitment/s

- » Education Partner
- » Manufacturing Partner(s)

Discuss Implementation Process and Timeline

- » Curriculum
- » Testing
- » Students
- » Employment

Wrap-up

- » Summarize and Review Assignments
- » Schedule next meeting

Sample Meeting Agenda – Pilot Planning Meeting 2

This planning work may take place over a couple of meetings. If your situation requires more or less meetings, you will need to adjust this agenda, making sure that all pertinent topics are addressed.

NOTE: It may be nice to hold the second meeting at the college's facility; that way you may incorporate a tour of the training lab.

PURPOSE: Today we'll confirm and finalize all necessary agreements and finalize our plan to pilot the certification system we have been discussing.

AGENDA:

Welcome, Review Agenda

Report on assignments

Schedule implementation activities

- » Curriculum:
 - Finalize curriculum (including company involvement)
 - Finalize the training timeline and budget
- » Testing:
 - Confirm how the testing for the desired certification/s will be accomplished
 - Finalize the testing timeline and budget
- » Students:
 - Review and commit to the plan to attract a pool of appropriate students
 - Confirm the required numbers (and fallback plan)
- » Employment:
 - Finalize how the training process leads to the employment process.
 - Confirm (and schedule) company involvement throughout the educational process

Wrap-up

- » Summarize Decisions or Agreements
- » Review Assignments/Next Steps

PowerPoint: Step 4 Meeting Slides



Click on the photo to access a copy of this PowerPoint.

This PowerPoint show has two sections designed for use in facilitating sessions to plan the pilot (or Beta Test) of your new certification system.

- » 1. The first section guides the group through the work to be done in the initial meeting.
- » 2. Use the second set of slides, which begins on slide 9, to guide the group through the work you will do during the follow-up session.

After a few slides to set the stage for the session, it presents step-by-step the work to be completed within the meeting. Customize these slides for your group/situation.

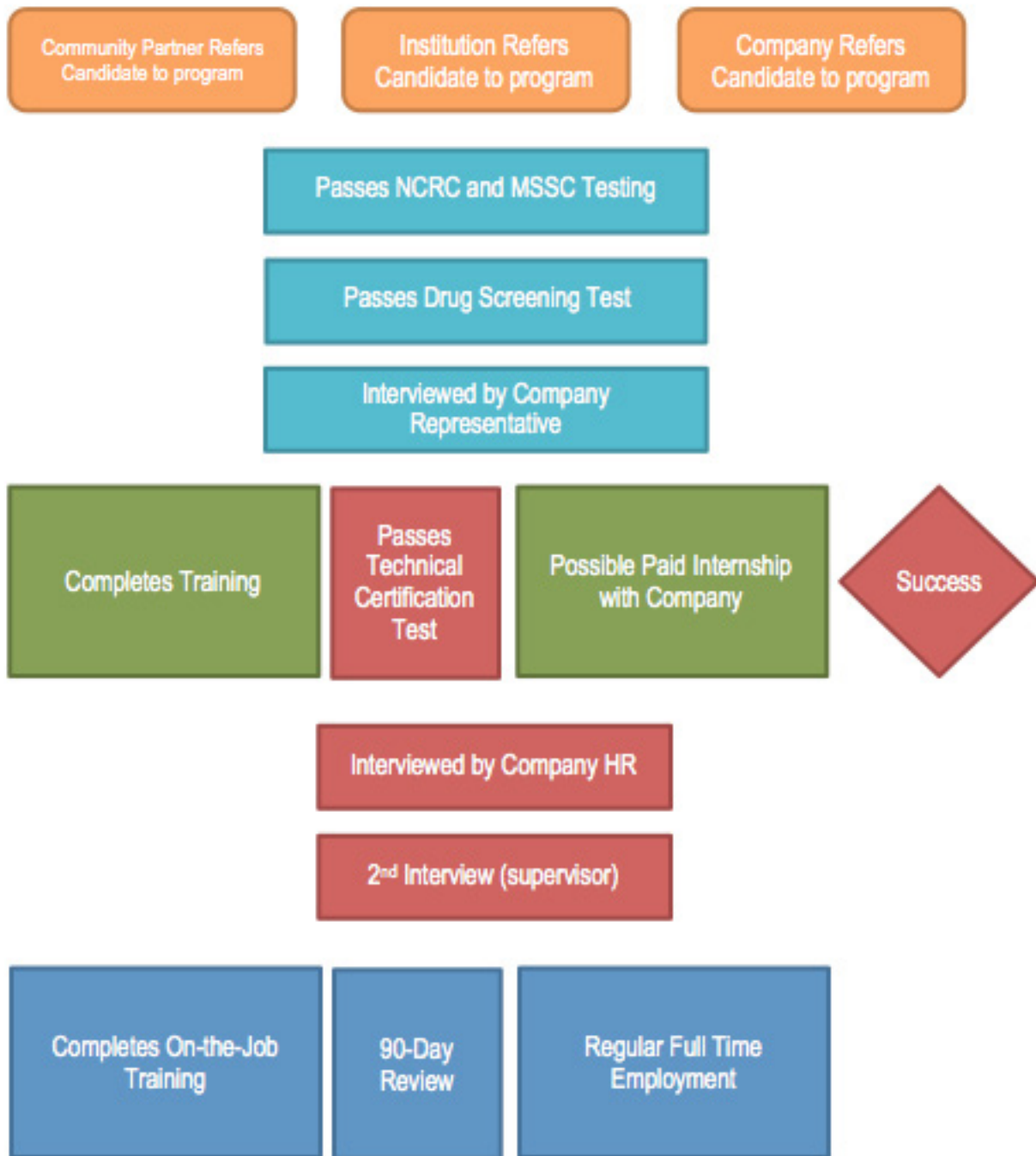
Detailed facilitation notes in the Notes Section of each slide provide talking points and tips for facilitating the meeting.

Step 4: Develop Pilot Plan (Beta)



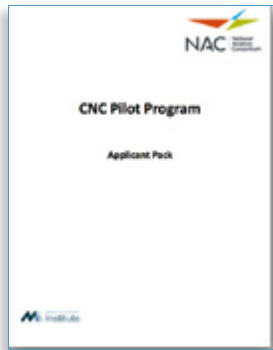
Sample: Training and Hiring Process

A chart similar to the one shown below is a useful way to outline the training and hiring process, including the decision and testing points along the way. Modify this to match the agreements reached during the planning process.





Sample Application Packet



This sample document is included as an illustration of the kind of packet that might be pulled together to give to job applicants.

Typically, this would be developed jointly by the College and the Company.

This document is specific to the National Aviation Consortium and is simply an example of a packet.

Click on the photo to access a copy of this PowerPoint.

Sections you will find in this sample Applicant Packet:

- Overview
- Requirements
- Program Content
- Program Fee:
- Steps to Apply
- Projected Class Schedule
- Program Contacts
- Payment and Funding Option
- Certification Overviews
 - o ACT/National Career Readiness Certificate
 - o National Institute of Metal Working Skills, (NIMS) Certificate



Calculating Value and ROI for Workforce Certification



This 10-page document provides a simple overview and examples that illustrate how companies can calculate the value (ROI) from implementing workforce certification.

Click on the photo to access a copy of this document.

This document explains how to establish metrics that can be used to demonstrate the impact of workforce certification. It guides you through how to help a company:

- Quantify the costs (and potential savings) related to hiring and OJT
- Quantify the costs of implementing workforce certification
- Calculate the Return on Investment (ROI) which they are realizing through implementing workforce certification.

Step 4: Develop Pilot Plan (Beta)



Workforce Certification Impact Calculator

Metrics 1-3 will provide HR managers a means to determine the return on investment Work Ready gives their firm.			
Metric 1: Calculating Time to Fill			
Time to Fill (Open Positions)	=	Date of Requisition	—
			Date Offer of Employment
(Calendar days divided by 7 x 5 = Actual working days)			
Metric 2: Calculating Cost per Hire			
Cost per hire	=	Hiring Costs	X
			Number of Applicants
Hiring Costs			
<i>Cost of Work Keys Test/person</i>			
<i>Cost of Test Room/20 people</i>			
<i>Cost of Standard Timing Model Testing/ person</i>			
<i>Cost of Advertising</i>	+	<i># of Applicants</i>	
<i>Cost of Background, Drug and Physical/person</i>			
<i>Cost of Interviewing and Administration/person</i>			
Metric 3: Retention Rate			
Retention rate	=	Number of hires remaining after given period	÷
			Total number of hires
Metrics 4-5 pertain to lean measurements and will help companies assess Work Ready's benefit to their productivity.			
Metric 4: Calculating Plant Waste			
Waste	=	Total Products Wasted	÷
			Total Number of Products Made
Metric 5: Calculating Mpads or Efficiency			
Mpads/Efficiency	=	Actual Number of Products made per hour	÷
			Targeted Number of Products made per hour

Above tool shows formulas, but there are no built-in calculations. Click on the above photo to open the document in Excel.



Bad Hire Calculator

There are a number of on-line sites that provide calculators companies can use to determine hiring costs.

ADP developed this calculator available [HERE](#).

Bad Hire Calculator	
Cost to Advertise the Position	
Number of ads placed	\$ 550.00 Price of each ad
HR Staff Costs	
25 Hours involved	\$ 44,800.00 Annual HR salary
Costs to Interview	
Number of candidates interviewed	3 Number of interviewers
\$ 40,000.00	Average salary of interviewers
Productivity Losses	
\$ 30,000.00	ENTER the position's salary
Relocation Costs	
\$ 9,708.00	ENTER 0 if relocation does not apply
Cost of Training	
	3 Number of months spent training
(recalculate)	
Total Cost of a Bad Hire	
\$ 50,379.15	

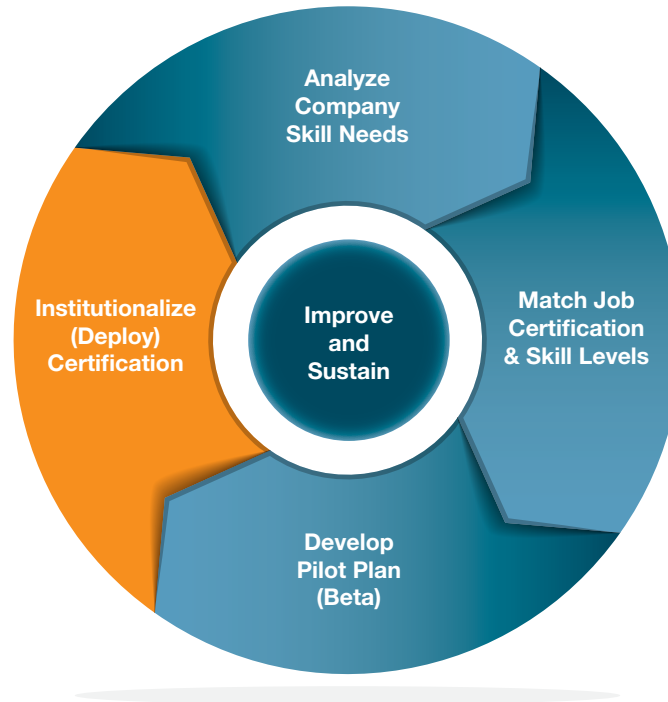
Here is yet another from HR World. Access it [HERE](#).

BAD HIRE CALCULATOR	
Employee turnover. Lost work days. These are just a few of the ways a bad hire can damage your bottom line. This calculator can help you estimate the costs your company incurs for making a bad hire.	
Cost to Advertise the Position	
Number of ads Placed	\$ 0
Price of ad	\$ 0.00
HR Costs	
HR Hours	\$ 0
Annual HR Salary	\$ 0.00
Costs to Interview	
Number of candidates interviewed	\$ 0
Number of interviewers	\$ 0
Average salary of interviewers	\$ 0.00
Productivity Losses	
Position's Salary	\$ 0.00
Relocation Costs	\$ 0.00
Number of months spent training	\$ 0.00
Total Cost of a Bad Hire	
\$ 0.00	
<input type="button" value="Calculate Total"/> <input type="button" value="Reset"/>	

Ashton Associates developed this calculator available [HERE](#).

BAD HIRE CALCULATOR	
Employee turnover. Lost work days. These are just a few of the ways a bad hire can damage your bottom line. This calculator can help you estimate the costs your company incurs for making a bad hire.	
Costs to Advertise	
Number of Ads Placed	Price of Each Ad
HR Staff Costs	
HR Hours Involved	Average Annual Salary
Costs to Interview	
No. of Candidates Interviewed	Number of Interviewers
Average Salary of Interviewers	Average Hours per Interview
Productivity Losses	
Enter Salary of Bad Hire	Number of Months Employed
Relocation Costs	
Enter 0 if No Relocation Costs	
Costs of Training	
Enter Salary of Bad Hire	Number of Months in Training
TOTAL COST OF BAD HIRE:	
\$ 0.00	

Step 5: Institutionalize (Deploy) Certification



Overview

This step is all about turning what was (hopefully) a very successful pilot – along with any of the lessons learned – into an ongoing process that is sustainable over time. It may also mean expanding the focus (or reach) of the initial pilot to the next level.

By this time, candidates have completed the training program and their internship experience if appropriate; and ideally they will soon be hired, or have already been on-the-job for a short time. You now reconvene the group to review the pilot process and outcomes and to identify next steps. Since this step may require more than one meeting, be sure to begin early enough so that you are ready to launch the next cohort in time to meet ongoing needs.

Preparation

Clearly, implementing the pilot program (Step 4) and this step overlap. In many ways, Step 5 is simply the logical continuation of what's been ongoing. Still, here are some preparation steps you should take:

- Review and summarize the project to date. This might take the form of a PowerPoint slide show; or you may choose to draft a formal report.
 - Pull together any data collected to date. (For example: number of applicants, students trained, program retention, percentage hired, etc.)
 - Collect and review student & employer evaluation forms.
 - Review all your notes from class visits and conversations with employers and educators.
 - Meet with students and discuss their experiences and their expectations for employment and continued education.

It is a good idea, if acceptable to the employer, to sit-in on some of the hiring interviews with students. This gives you a better sense of how these are conducted, the quality of the candidates, and whether students are measuring up to expectations.

☐ Schedule a meeting with all key players and send an agenda (See **TOOLS: Sample Meeting Agenda**). Be sure to invite:

- College partners (Program Coordinator, Instructors, Recruiters, etc.) and any other education partner/s involved.
- Company partners (HR personnel, Supervisors, Trainers, etc.)
- Any referral sources for candidates
- Any additional community partners that supported the project through referrals, supportive services, etc.



Facilitation

Keep these tips and techniques in mind as you meet with the group during this step. We will assume one meeting; but keep in mind that some groups may require additional meetings.

- **Get the Meeting Started:**

- » Welcome everyone – Introduce any new players in the room.
- » Review purpose and agenda for the meeting (See **TOOLS: Sample Meeting Agenda**)

Depending on the culture and what's available, it may be useful to have some slides on-screen to guide the session, or you could use a handout or flipchart. (See **TOOLS: Step 5 Meeting Slides**.)

- **Review and Discuss Progress**

- » Present your project recap in either PowerPoint slides or report format. When well-done this provides a solid foundation for the discussion that follows. If it is lengthy, you may wish to break it into sections and discuss each area as you proceed. Areas to cover include:
 - Student recruitment and screening
 - Training and Testing
 - Employment (might include internships, hiring process, orientation, and any OJT)
 - Overall results or outcomes to date – Include any metrics you have had access to and any anecdotal information you've gleaned.
- » Discuss above information with all participants.
 - Identify **WHAT WORKED** – Things we would like to continue
 - Identify possible **CHANGES** and improvements based on feedback.

- » Review impact metrics tracked by the employer (See Step 4 and tools provided there) to assess impact and value. It is early, so only minimal data may be available; but it is important to keep the focus on collecting impact data.
 - Ensure monitoring and gathering is continuing. (Sometimes the person initially doing this gets promoted or leaves the company.)
 - Confirm the process for collecting and reporting the data.
 - Identify the timeline for reviewing this information.
 - Document any TO DO's related to collecting, analyzing, and reporting data.

- **Confirm Ongoing Commitments** from the employer. This will be the basis for long-term success.

- » Secure a commitment from the company to use certifications as their preferred criteria for hiring and to continue to use this (or a modified) training/internship/hiring process to fill their vacancies.
 - Determine their future workforce needs/timeline. Confirm if the employer(s) will participate with the next class.
 - If it will be some time before they need additional employees, the program may need to be suspended, then offered again at a future date.
 - Another option is to identify other companies to participate going forward. Ask for referrals to other companies that might have similar needs.
 - Request a testimonial from the company and permission to share their experience.
- » Discuss the college's commitment to continue to offer this model program on an ongoing basis, based on demand.
 - It may not run continuously; but the college may be willing to deliver the program as needed, based on company demand. Having this commitment allows everyone to comfortably continue the program, and recruit companies for future classes.
 - Discuss plans around positioning this certification as part of a larger career pathway that the college will offer to students seeking to improve their employability. (This may also open the door to discuss certifications for other positions within the company.)
- » Make a Decision to continue the program. If you have commitments from all parties, then move the group into planning the next round. If the decision to continue cannot be made at this time, set a future date when you will re-assess the situation.

Step 5: Institutionalize (Deploy) Certification

- **Plan Implementation Details** – If all parties are committed to moving forward, take the necessary steps to establish long-term success and sustainability, including:
 - » Identify Process Owners – Each core process needs an owner to ensure it is sustained over time. Suggested process categories and owners are:

Student Recruitment	Joint ownership by company HR and CC recruiter
Education/Testing	CC Program Coordinator
Curriculum	Lead Instructor
Internship (if applicable)	Company HR
Hiring	Company HR
Program Outcome Metrics	Company Manager responsible for employee group

- » Document Processes – Now that everyone has been through the process once, it is important to collect and put down on paper all the necessary details to successfully repeat the process. Usually each process owner takes the lead to ensure this happens for his/her area of responsibility.
- » Agree on future actions – During the above discussion where you debriefed each of the core functions of the pilot you may have identified things that need to change. As always, it is best if each action item is documented, and has a clear owner and due date.

- **Wrap-up the Meeting** – Bring the meeting to a close by recapping the decisions made and all action items as agreed during the meeting. If appropriate, schedule a follow-up meeting to continue the planning, or to check-in on progress.

Once plans to formalize the training and certification process are established, it is common to move into a maintenance mode where the group checks-in with each other on a less frequent basis, such as quarterly or even semi-annually.

Success

You will know this new workforce training and certification process has been ‘institutionalized’ when:

- The employer documents quantifiable benefits to the program; and they agree to talk with other employers about their experiences and promote the program and workforce certifications.
- The employer agrees to identify the certification(s) as preferred criteria for hiring.
- The employer agrees to continue to use this (or a modified) training/internship/hiring process to fill their vacancies.
- The educational partner agrees to continue to make this training program available to students and to meet future needs.
- The college decides to make this new curriculum part of a larger education pathway.
- Everything continues successfully into the second and third cycles through the processes.

Tools

- Sample Agenda
- PowerPoint: *Step 5 Meeting Slides*

Sample Step 5 Meeting Agenda

This planning work may take place over multiple meetings. You may need to adjust this agenda, making sure that all pertinent topics are addressed.

PURPOSE: Our goal is to evaluate the pilot and plan for the continuation of this certification process.

AGENDA:

Getting Started

- » Welcome & Introductions
- » Meeting Purpose and Agenda

Review and Discuss Progress

- » Project Recap
- » What Worked/What do we Change?
- » Impact Metrics

Confirm Ongoing Commitments

- » Employer Partner(s)
- » College and Other Education Partner(s)
- » Community Partners
- » Decision to Continue

Plan Continuation Details

- » Process Owners
- » Document Processes
- » Future Actions

Wrap-up

- » Next Steps
- » Review Assignments
- » Schedule next meeting

PowerPoint: Step 5 Meeting Slides



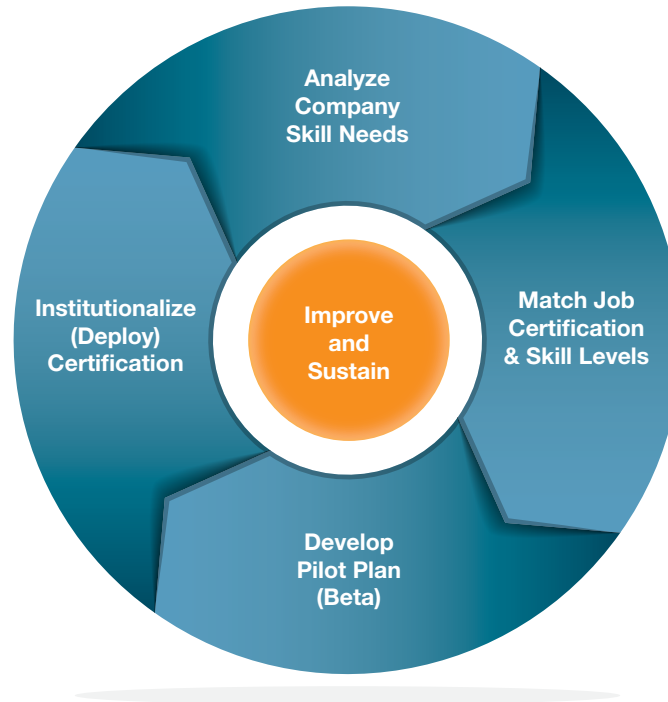
Click on the photo to access a copy of this PowerPoint.

This PowerPoint show consisting of nine slides is designed for use in a facilitating a meeting focused on transitioning from the Pilot to ongoing maintenance of the certification process. After a few slides to set the stage for the session, it then presents step-by-step the work to be completed within the meeting.

Slides can be customized for your particular group or situation.

Detailed facilitation notes in the Notes Section of each slide provide talking points and tips for facilitating the meeting.

Step 6: Improve and Sustain



Overview

Industry is constantly changing as manufacturers respond to marketplace demands: products sunset; new products emerge; evolving technology and new processes fundamentally alter the nature of the work. The skills that manufacturers require from their employees change too. For all these reasons it is important to regularly revisit what has been put in place in order to sustain and improve it.

Some companies have disciplined approaches in place to continually review and retool their hiring and training practices; others struggle to keep up. Left to themselves, they may make a last minute call to say, “I need 15 people next month. Remember that program we did a couple years ago? It would be great if we could run that again.”

You can play a valuable role by maintaining regular (quarterly or semi-annual) contact with key HR and training personnel regarding their workforce needs. Staying on top of these issues helps both the company and their educational partner proactively identify and address future workforce needs.

Preparation

Like the previous step, this step is a natural continuation of the partnership and positive momentum that you have built-up over the previous months. Take these actions to prepare for your quarterly or semi-annual check-in with the employer (or employers, if your certification program involves multiple companies):

- Send the meeting reminder and agenda to the full group of partners involved in the certification program. By now you’ll have that distribution list well-documented; but be aware of the need to add/remove players as things shift both for the employer as well as the education partner. (See **TOOLS: Sample Meeting Agenda**)
- Touch base with the employer/s to remind them of the data needed regarding the status of the current workforce as well as any projections or potential changes that will affect future needs.



Facilitation

Keep these tips and techniques in mind as you facilitate the group at this check-in meeting.

- Begin the meeting by welcoming and asking everyone to introduce themselves. Even though the group has likely met many times, there are always members coming and going; and members may forget names and specific roles of those present. Review the meeting purpose and agenda. (See **TOOLS: Sample Meeting Agenda**)
- Review the current certification process – Progress Updates – You might start by providing updates regarding any assignments you or others present have completed since the last meeting. While these may be small details, they are likely important to maintaining the process. Thank those who have completed tasks. Be sure to recognize those present for their contributions on behalf of the program.
- Confirm the certification process is still working for the company. Your probing with the following questions may reveal things that the employer has not yet verbalized:
 - Does the training content and certification still match the needs?
 - Has the product itself changed; or, have new products been added?
 - Has the production process changed? Are there new materials, tools, or technologies?
 - As a result, is there a change in what is required of employees?
 - Does anything need to be added to the curriculum?
- Review the impact metrics. Use these regular check-ins as an opportunity to continue to monitor the outcome data the company committed to collect.
 - What does the data tell us about our successes? Whenever possible, use success data to underscore the value certification is providing for the company. Ask if they are willing to allow you to share their success story with others.
 - Does the data indicate any areas for improvement? For example, if the retention metrics are poor and all those great people recently hired are gone, you may want to ask: What happened? If they all went down the street to the employer for fifty cents an hour and benefits, this may open the door for a discussion about what can be done? How much is it costing the company to save that 50 cents?
 - Is there a continued reduction in OJT time or are they finding they need to do more than initially projected?

- Ask about their future plans. Employers may be able to make some projections regarding their needs over the next 6-12 months or beyond. Many struggle with making these estimates. Still, they may be aware of coming changes that will impact their workforce planning. Help them think through these issues.
 - » Will production continue indefinitely or is the product being sunset?
 - » Have other positions emerged that require new/different skill sets? Perhaps the company now needs welders. Some companies are deciding to bring back work that was previously off-shored. This may be an opportunity to repeat steps 2-5, focusing on this new group.
 - » Do you know how many people you need and when?
 - » Can we begin now to develop a training program and identify a certification to address these needs?
 - » Revisit the idea of career pathways – Are there other positions that need to be filled (or next steps for these employees) that we may be able to begin preparing them for now?
 - Having these conversations as far in advance as possible will allow everyone to be more proactive.
- Wrap-up the meeting by reviewing any assignments identified during the above discussions. If possible, schedule the next meeting, before you leave so that you will continue the discipline of these regular check-ins.



Success

The following are ongoing signs that the certification process you established over months of diligent work is healthy and well:

- The planned review meetings have taken place; they are well attended by all partners.
- The data has been collected and analyzed; the data validates the value of the investment in the program (and sometimes reveals improvement opportunities).
- All parties express an ongoing commitment to continue.
- Additional opportunities may have surfaced for certification and training (and plans to address these are being initiated).



Tools

Sample Meeting Agenda
 Success Checklist (compiled for all six steps)

Step 6: Improve and Sustain



Sample Step 6 Meeting Agenda

Typically, this will be a quarterly or semi-annual check-in between the manufacturing and educational partners. You may need to adjust this agenda to ensure that all topics pertinent to this company (or carried forward from previous reviews are addressed).

PURPOSE: Our goal is to review the status of the certification process and to consider any opportunities to improve what we are doing to better meet current (or future) needs.

AGENDA:

Getting Started

- » Welcome & Introductions
- » Meeting Purpose and Agenda

Review Current Certification Process

- » Provide updates re: assignments
- » Confirm process is still working

Review Impact Metrics

Discuss Future Plans

- » Ongoing needs
- » New positions/needs

Wrap-up

- » Review Assignments
- » Schedule next meeting





Success Checklist – Compiled for ALL Six Steps

Success with Step 1: Decision:

Is Certification Right for US?

It is important that a company has settled in their own minds that certification might be right for them BEFORE you invest the time and energy to pursue the additional steps outlined in this Toolkit. You'll know the company is READY to move on to the next step when most of the following are true:

- They express a desire to be more certain of the applicant's skills in order to make better hiring decisions
- Someone has made a preliminary determination that there may be a certification that matches with their skills needs.
- They agree to do an initial analysis of one or more jobs to determine if there might be a match with one of the NAM-endorsed certifications.
- OR, they invite you back to talk with a larger group to see if there is consensus that certifications might be a good fit for them.

Success with Step 2: Analyze Company Skill Needs

You will know you have completed the necessary work and the company is READY to move on to the next step when most of the following are true:

- You have confirmation that the job description accurately describes the job and skills required.
- The group has begun to think about certifications that may match the skills required.
- They continue to express interest in moving forward with implementing a workforce certification for at least one job.

Success with Step 3:

Confirm Certification Match and Required Levels

It is important that a company has confirmed the certification(s) are a match for them and that they are ready to pilot this. You will know the company is READY to move forward when the following are true:

- There is a consensus among the company leaders (and SME's) that the certifications and levels are appropriate for the position.
- If necessary or preferred by the company, there is initial agreement to test selected incumbent workers. (This planning will be part of the next step.)
- You have identified a potential training partner and potential sources of qualified candidates.
- There are/will soon be job vacancies and the company is willing to use these certifications as a preferred qualification.
- They understand the ballpark costs, and are prepared to discuss moving forward with a pilot.

Success with Step 4: Develop Pilot Plan (Beta)

- All the key players have come together (for the required number of planning sessions) and have actively engaged with each other to build the plan
- The plans are clear, including WHAT, WHO, WHEN; These plans have been well-documented; and everyone involved is committed to the plan
- YOU are committed to continuing to monitor and support those involved throughout the pilot – you are not just saying “Good Luck!” as you head off for other assignments.
- The company has agreed to measure and evaluate the impact of hiring certified workers.
- The college is committed, views this as a sustainable model to be implemented with other companies, and is willing to do what it takes to make this a success.

Success with Step 5: Institutionalize (Deploy) Certification

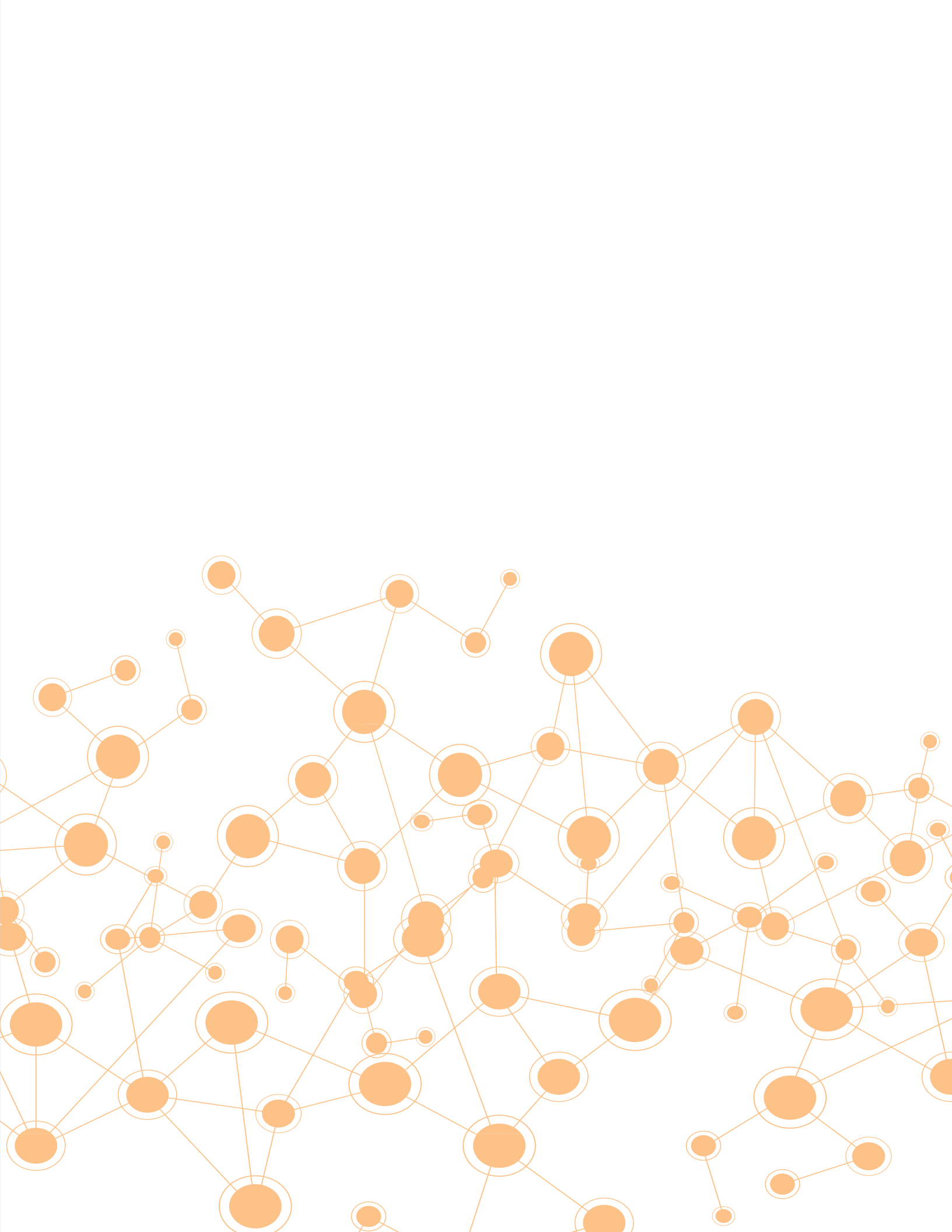
You will know this new workforce training and certification process has been ‘institutionalized’ when:

- The employer documents quantifiable benefits to the program; and they agree to talk with other employers about their experiences and promote the program and workforce certifications.
- The employer agrees to identify the certification(s) as preferred criteria for hiring.
- The employer agrees to continue to use this (or a modified) training/internship/hiring process to fill their vacancies.
- The educational partner agrees to continue to make this training program available to students and to meet future needs.
- The college decides to make this new curriculum part of a larger education pathway.
- Everything continues successfully into the second and third cycles through the processes.

Success with Step 6: Improve and Sustain

The following are ongoing signs that the certification process you established over months of diligent work is healthy and well:

- The planned review meetings have taken place; they are well attended by all partners.
- The data has been collected and analyzed; the data validates the value of the investment in the program (and sometimes reveals improvement opportunities).
- All parties express an ongoing commitment to continue.
- Additional opportunities may have surfaced for certification and training (and plans to address these are being initiated).



ANNEX 17

EDUCATION & WORKFORCE DEVELOPMENT WORKCREEK 2

Educator Toolkit



BUILDING A PIPELINE INTO MANUFACTURING CAREERS

A Toolkit for Educators on Implementing Industry Certifications

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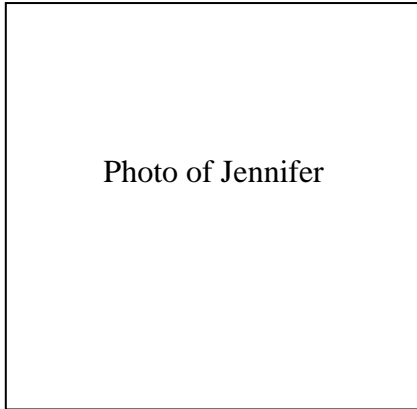


Photo of Jennifer

Manufacturers in our communities cannot win the race to compete in the global marketplace without the talent they need. Yet skill shortages continue to impact all stages of manufacturing – from skilled production to engineering. The challenge will only grow as the demographics of our workforce drive “boomer” retirements. Never before have the stakes been so high.

The good news is that many schools across the country are rising to the challenge of preparing a skilled workforce for our nation’s manufacturers. They are creating innovative, accelerated learning models that equip workers with the skills employers want and need.

The opportunity now is to bring these innovations to scale. We need many more high schools, community colleges and universities to jump on board in support of manufacturing education. To reclaim the mantle of leadership in technical education and to address the skills gap, the U.S. must transform its education system to create a clear path to successful and lucrative manufacturing careers.

If you are interested in being responsive to the needs of manufacturers in your community or already have a history of providing manufacturing-related education and training programs to manufacturing partners, this toolkit is for you. It builds off nearly ten years of experience in working with educational institutions across the country to rethink and repackage the way we do manufacturing education.

The heart of this toolkit is a system of industry certifications – designed by and for industry and endorsed by the National Association of Manufacturers. They represent the skill standards educators can use to design programs of study aligned with manufacturers’ needs.

We invite you to join the hundreds of educational providers across the country using industry certifications as validation for their programs of study. This toolkit provides the basics on how you can begin.

Sincerely,

Jennifer McNelly
President
The Manufacturing Institute

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Sample Career Pathway Visual

Advanced Manufacturing Competency Model

Resources

The Skills Gap

- 74% of manufacturers report that the skills gap has negatively impacted their company's ability to expand operations.
- 69% of manufacturers expect the shortage in skilled production workers to worsen.

**Deloitte Consulting LLP and The Manufacturing Institute, The Boiling Point? Skills Gap in U.S. Manufacturing, 2011.*

Photos or Image Here

Credentials in the Marketplace

The marketplace is flooded with various degrees, certificates, diplomas, certifications, licenses, and badges offered by a wide variety of educational institutions and credentialing organizations. One reason for the growth of these credentials is the great risk, to employers and jobseekers alike, when a new hire turns out to be a poor fit. For companies, this can mean losing out after spending hundreds of hours of recruiting, onboarding, and training. For individuals, a mismatch between their knowledge, skills, and abilities and available jobs can be catastrophic.

Employers are seeking the best possible talent. They are increasingly relying on credentials as screening tools for the knowledge, skills and abilities needed to do the job. Young people and adults gravitate to credentials to provide documentation and evidence of marketable skills to secure employment and advance in their careers.

Yet, because of the variety of credentials in the marketplace, customers – both employers and students – are often confused. Many terms sound the same, but can mean very different things. Three different terms are particularly important: **credential, certificate and certification.**

Credential* - Refers to an attestation of qualification or competence issued to an individual by a third party (such as an educational institution or an industry or occupational certifying organization) with the relevant authority or assumed competence to issue such a credential. Examples of credentials include:

- Educational Diplomas and Certificates (typically for one academic year or less of study);
- Educational Degrees, such as an Associate's (2-year) or Bachelor's (4-year) degree;
- Registered Apprenticeship Certificate;
- Occupational Licenses (typically, but not always, awarded by state government agencies); and
- Industry-recognized or professional association certifications.

Certificate** - A curriculum in which courses are taken that directly relate to a particular occupational area. A certificate program is usually half the time from start to completion as an associate degree. Pell grants cannot be applied toward certificate programs.

Certification** - An industry-recognized credential that has been approved by business and industry leaders to possess the necessary rigor, technical and academic standards.

*As defined by the Department of Labor, Employment and Training Administration, Training and Employment Guidance Letter No. 15-10, December, 2010

**As defined by the American Association of Community Colleges (AACC), 21st Century Initiative, Glossary of Terms, 2013

Credential is the broadest of the terms, referring to a wide variety of tools for reflecting competence. *Certificate* is typically used as a term to refer to a shorter-term program of study at an educational institution. *Certification* is primarily the term used by industry to validate skills.

Industry certifications have gained importance in the marketplace because companies cannot find individuals with the knowledge and skills they need and they are constantly faced with turnover and lost productivity. Here are a few of the challenges:

- **Teaching vs. Learning:** Although education and training programs provide students knowledge and skills, employers are uncertain whether students have *mastered* the content and *can actually perform* what was taught.
- **Validating Skills and Abilities:** Experienced workers indicate they have the skills for the position but an employer is not sure if they can do what their company requires.

Industry certifications can solve these challenges. They are unique in that they are not tied to a single educational institution; they are not awarded by a school but rather by a third party that maintains the assessments and oversees their administration and use. An industry-endorsed certification validates the individual's knowledge and skills *as compared to industry standards*. It takes the guesswork out of the hiring process and provides an objective assessment of the skills needed to do a specific job.

The **Health Care** industry provides a good example of the value of certifications. Regardless of which nursing school you attend, in order to become a registered nurse you have to pass the *National Council Licensure Examination for Registered Nurses*. Everyone understands what that means; it is viewed as a validation of the individual's knowledge and skills. In the same way, manufacturing certifications validate worker skills and take some of the risk out of hiring decisions for employers.

This Educator Toolkit focuses on **industry certifications**. It provides background information on their value to both employers and students. It highlights why you should consider embedding industry standards and certifications into your programs of study.

It offers examples of models for certification that have proven effective in other colleges. And it walks you through the basic steps in how to begin!

Skills Certification System

The Manufacturing Institute launched the Skills Certification System to redefine manufacturing education to industry standards and address the skills gap challenge in this country. The system was developed by manufacturers, for manufacturers, to help them create a pipeline of workers with high-demand skills.

The Skills Certification System links education and work through manufacturing-related industry certifications. Students earn not only an education certificate or degree, but also industry-validated, nationally portable transportable certifications with real value in the marketplace.

The curriculum in each program of study is aligned with the requirements of the industry certifications, ensuring graduates have the knowledge and skills required for jobs in today's manufacturing economy. Ideally, certification assessments or testing is embedded in the actual course requirements, and not "optional," so students can document that they have mastered the skills required to do the job, and can present that documentation to employers.

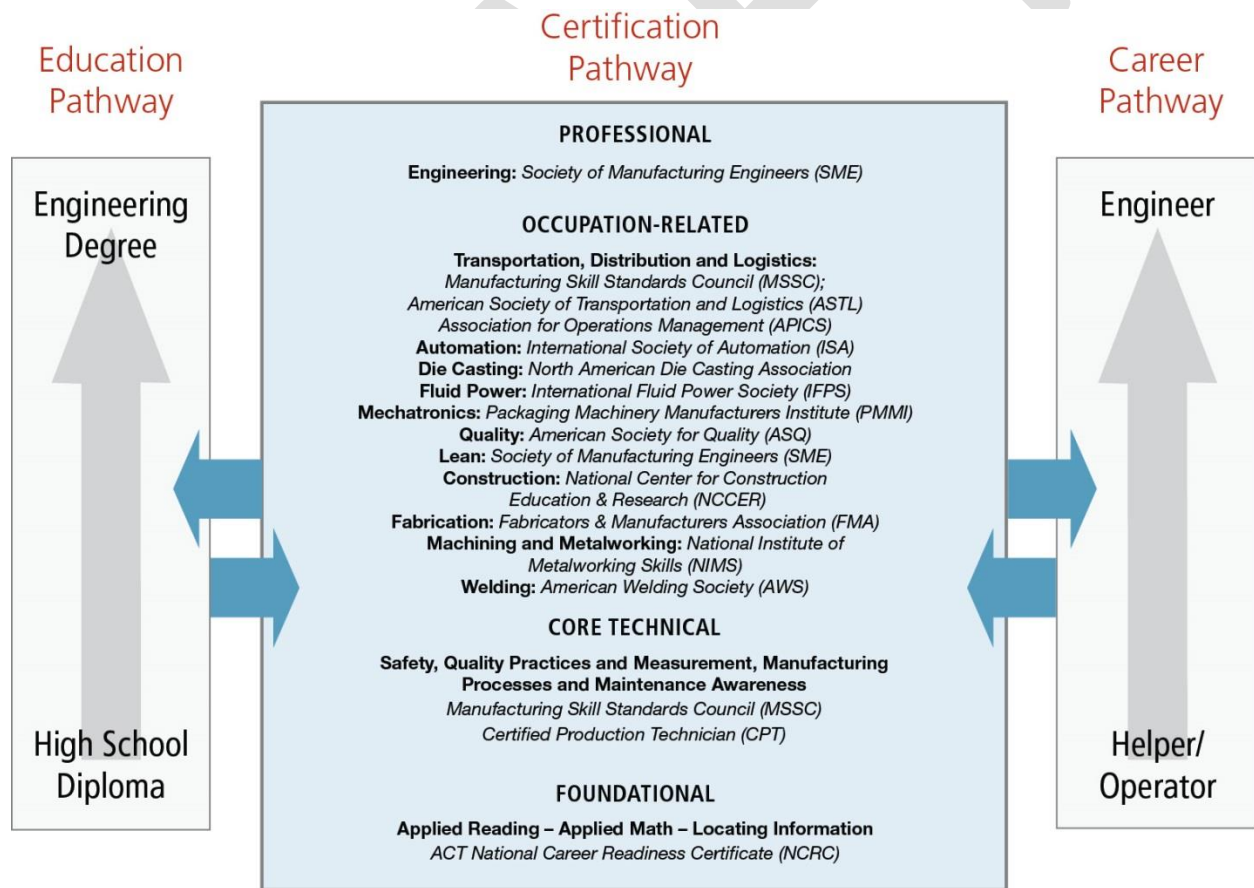
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The Manufacturing Institute has endorsed 15 industry certifications that are nationally portable and third-party validated. The Skills Certification System consists of certifications from the following partners:

- ACT
- American Society for Quality
- American Society of Transportation & Logistics
- American Welding Society
- Association for Operations Management
- Fabricators & Manufacturers Association
- International Fluid Power Society
- International Society for Automation
- Manufacturing Skill Standards Council
- National Institute for Metalworking Skills
- North American Die Casting Association
- Packaging Machinery Manufacturers Institute
- Society for Manufacturing Engineers
- The Manufacturing Skills Institute

The visual below illustrates the Skills Certification System—stackable industry certifications that serve to link content mastered in educational programs of study with real jobs. The foundation is grounded in basic academic and workplace skills, such as critical thinking, following instructions and reading for information, as measured by the National Career Readiness Certificate (NCRC.) From there, workers gain core technical skills, including safety, quality and maintenance, as assessed by the Manufacturing Skill Standards Council (MSSC) Certified Production Technician. Finally, workers are certified in specialized, occupationally specific skills, such as welding, machining and logistics, as measured by a number of industry-based certification sponsors.

Generic educational pathways (left column) and career pathways (right column) in manufacturing are aligned through “stackable” industry-based certifications (middle column). While nationally portable, certifications are typically embedded in curricula based on regional employment needs.



In the manufacturing Skills Certification System, education, industry certification, and career pathways are aligned

Why Certifications?

Skills certifications are becoming the “new currency” in the marketplace. Employers are seeking clear ways of determining what workers know and are able to do on the job. Workers are seeking alternatives or add-ons to degrees to demonstrate marketable competencies. Educational systems are looking for efficient ways to provide seamless, effective delivery of programs from high school through four-year institutions. Industry certifications are a win-win-win proposition.

Certifications provide an objective way for:

- **Students** to validate the talent they can bring to the job;
- **Educational providers** to establish the value of their product; and
- **Employers** to have a level of certainty about the skill level of an individual before hiring them.

A common metric of standards and competencies, as reflected in industry-based certifications, can serve as the bridge that connects manufacturing-related programs of study across educational levels and institutions.

*Jennifer McNelly, President
The Manufacturing Institute*

While third-party certification can be awarded after testing, *totally apart from the education process* itself, embedding certifications *within education pathways* benefits the student, the educational provider, and the employer.

Visual of student here. Would be great to superimpose a quote from that student on the value of certification, if we have such a combination.

Value. The Manufacturing Institute has been collecting documentation on the value of certifications over the past ten years. Some of the major observations on value include:

Benefits for Students

- Documents knowledge and skills gained through education or life experiences
- Offers a competitive advantage when looking for work or career advancement
- Increases career opportunities and earning potential
- Enhances transferable skills across industries within manufacturing or other sectors

Benefits for Educators

- Outlines critical foundation and workplace skills employers are demanding
- Identifies technical skill sets employers require, particularly in high growth occupations
- Provides clear guidance for updating/aligning curricula with industry requirements
- Standardizes learning outcomes across similar programs nationally

Benefits for Educational Systems

- Enhances efficiencies of the education and workforce delivery systems
- Supports sector-based strategies, linking closer to an economic development agenda
- Increases acceptance of credits for articulation across programs and institutions
- Promotes student completion

Benefits for Employers and Communities

- Access to a skilled workforce they can further develop through on-the-job training
- Ability to focus during the hiring process on the candidate “fit” within the company
- Reduced training costs and turnover, enhanced workplace safety and increased productivity
- Improved quality of the workforce and workforce expertise in a community or region

The Skills Certification System is applied STEM. It puts a heightened focus on critical science, technology and critical thinking skills.

Embedding industry-based certifications in manufacturing-related programs of study will help ensure colleges and universities are graduating technicians and technologists with the skills manufacturers need.

Certification Models

One of the major lessons learned over the past few years about establishing certification systems in communities and states is that there is no “one size fits all.” Each college, each community and each state is unique. Having said that, several generic models have emerged that provide a good overview of how the Skills Certification System can be embedded at different levels and for different student populations. A few examples are provided below.

- High School to Community College
- Embedding Certifications into For-Credit Community College Programs
- Non-Credit to Credit
- Community College to Four-Year
- Right Skills Now Accelerated Model
- Apprenticeship

High School to Community College (Alamo Community College, San Antonio, TX)



The Alamo Community Colleges model builds on the success of its nationally-recognized Advanced Technology and Manufacturing Academy (ATMA).

High-school juniors and seniors region-wide spend 2½ hours each day at Alamo campuses completing an industry-driven curriculum to develop work ready skills in manufacturing. The dual-credit program, which is at no personal cost to students or parents, allows participating students to graduate high school with 27-35 credit hours, the equivalent of a college occupational diploma or one-year certificate in Manufacturing Technology. Students can also earn their National Career Readiness Certificate (NCRC) and the Production Technician Certification from the Manufacturing Skills Standards Council (MSSC). The program serves at-risk, minority students from low income families and enrolls approximately 60 students a year.



Certification Leads to Toyota Job Opportunity

Class: ATMA Senior Graduate 2012

Internship 2010-2011: Toyota Motor Manufacturing, TX

College Certificates: Marketable Skills Award; OSHA Safety Card; Level 1 – Certificate

Certifications: NCRC, MSSC Safety, Quality Practices & Measurement, Manufacturing Processes & Production.

Embedding Certifications into For-Credit College Programs of Study

(Lorain County Community College (LCCC), Cleveland, Ohio)



While the manufacturing base in the Cleveland area has declined significantly in recent years, employers are still in need of skilled workers to fill vacancies and replace retiring workers.

As part of the industry certification initiative at Lorain, college leadership launched a significant curriculum review process and aligned curriculum with numerous industry certification requirements. Targeted occupations included: Mechanical Design, Machining, Quality Assurance, Welding, and Automation (Systems Specialist).

To spur employer engagement, the Manufacturing Advocacy & Growth Network (MAGNET), an employer-led organization that also serves as the Northern Ohio Manufacturing Extension Partnership, facilitated numerous employer meetings to validate the certification pathways and discuss embedded skills, including both applied STEM and critical “soft” skills.



Based on input from employer partners in the region, LCCC now embeds a number of certifications into its for-credit course offerings, including the National Career Readiness Certificate in TECN 11, a technical problem solving course. The photo shows President Obama visiting with Dr. Roy Church and LCCC high-tech welding facility, where students can earn a number of industry certifications offered by the American Welding Society (AWS).

Lessons Learned

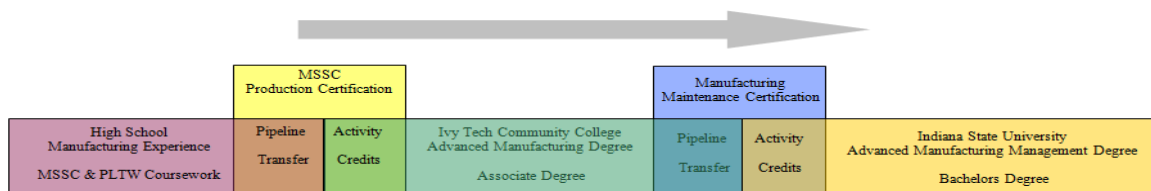
- Every college, every community and every state is at a different level of readiness to implement skills certification.
- There is no “one size fits all” model – design a model that fits within the unique framework of your college/community vision and faulty orientation.
- You already have many of the pieces in place!
- Other colleges and communities have many tools to share, so there is no need to worry about “starting from scratch.”
- Communication is key! Keep all your partners engaged on a regular basis and celebrate success through human interest stories.
- Skills certification is not a stand-alone effort or special “program” – it needs to be woven into the fabric of the college.

Community College to Four-Year Institutions (Ivy Tech Community College and Indiana State University (ISU), Indiana)

Ivy Tech logo
here

Indiana leads the nation with the number of manufacturing related, industry-based certifications offered through its statewide community college system.

Ivy Tech has been using the Manufacturing Skill Standards Council (MSSC) Certified Production Technician (CPT) since 2006 in Workforce Development. In 2007 the college embedded the CPT certification within the Advanced Manufacturing degree at ten regional Ivy Tech campuses. That created the opportunity to provide a crosswalk from training to academic credit and increase regional adoption of CPT assessments. Current articulation agreements with Indiana State University include the Advanced Manufacturing degree into ISU Advanced Manufacturing Management or ISU Technology Management and build in credit earned for MSSC as a critical component.



1. Math
2. Troubleshooting/problem solving/critical thinking
3. Leadership concepts/teamwork
4. Quality systems/Lean
5. Manufacturing Enterprise/Computer concepts
6. Technical Skills
 - Electro-Mechanical
 - Manufacturing Management
 - Automation Systems
 - Manufacturing Design: CNC, CAD-CAM

Non-Credit to Credit (Career Technical Education in the State of Florida)

In 2007 the Florida Legislature passed the Career and Professional Education Act (CAPE). The purpose of the Act was to provide a statewide planning partnership between the business and education communities in order to attract, expand, and retain targeted, high-value industry and to sustain a strong, knowledge-based economy. While originally focused on industry certification attainment by secondary students, the 2013 Legislature expanded to include industry certification attainment by postsecondary students. Gold Standard Industry Certification Articulation Agreements ensure students receive college credit for successfully earning a nationally recognized industry certification. Receiving the MSSC Production Technician Certification is currently valued at 6 credits toward an Electronics Engineering AS/AAS Degree; 9 credits toward a Manufacturing Technology degree; and 15 credits towards an Engineering Technology degree.

Right Skills Now Accelerated Training (A Collaboration of the President's Jobs Council, The Manufacturing Institute, Dunwoody Community College & Southcentral College)

Right Skills Now is an acceleration of the NAM-Endorsed Skills Certification System, which includes nationally portable, industry-recognized certifications that are combined with for-credit education programs. These education pathways are directly aligned to career pathways in manufacturing, so students progressing through the programs earn college credit towards a degree, a national certification with labor market value, and the hands-on technical experience to be successful on the job. In the current Right Skills Now Program, students earn a National Career Readiness Certificate (NCRC) and four certifications from the National Institute for Metalworking Skills (NIMS). The program is 24 weeks long and broken down into 18 weeks of classes and hands-on lab work, followed by a paid internship. Credits earned can be applied toward an AAS Degree in Machine Tool Technology.



Certifications and Apprenticeship (National Institute for Metalworking Skills - NIMS)

The NIMS Competency-Based Apprenticeship System brings national standards and third party objective assessments to the nation's metalworking industry. To become a NIMS Certified Machinist, Toolmaker, CNC Setup Programmer or a Certified Journey Worker in any NIMS occupation, the apprentice must earn NIMS credentials in demonstrating satisfactory performance in a required number of competencies. The system integrates the NIMS national metalworking standards and credentialing assessments, combining the traditional on the job learning of apprenticeship with the use of NIMS assessments as performance measures. Using attained competencies in lieu of a rigid set of hours, the project builds on the 24 sets of NIMS standards and credentials and enables employers to apply the NIMS credential as milestones within their apprenticeship training. Employers are able to customize training to meet their own needs while maintaining the national integrity of apprenticeship training.

Key Steps to Launching Skills Certification

Implementing the NAM-Endorsed Skills Certification is a multi-step process that typically takes many months and even several years. Based on the experience of early adopters, the four major “buckets” and ten steps below provide a guide or map to successful implementation.

While not purely linear, the steps as listed do build on each other. Some of the steps may be done by other partners in the community. Those where educators are likely to play a lead role are highlighted in red.

PLANNING AND RESEARCH

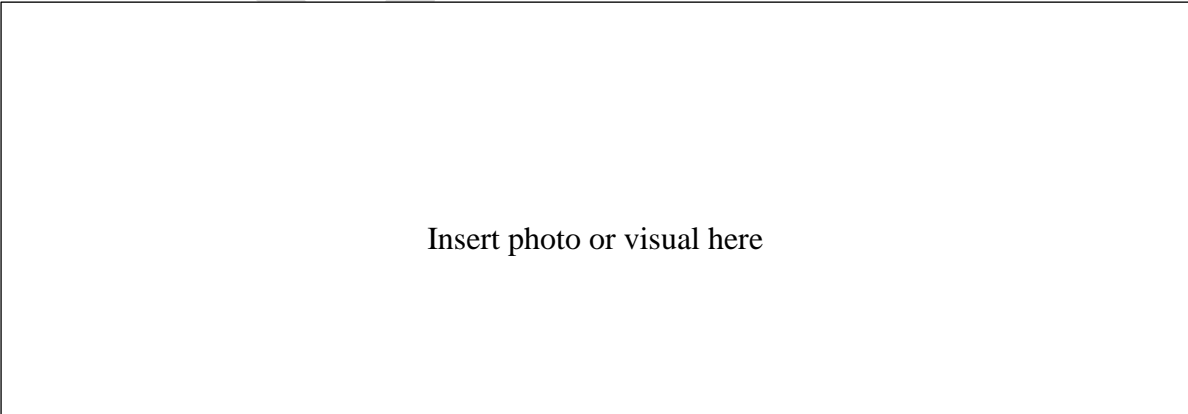
#1 Identify State/Regional Economic Demands and LMI: Use state and regional economic data to guide decision making. Identify potential growth industries, projected worker demand, high-demand occupations and cross-cutting skill requirements.

#2 Launch Planning/Create an Asset Map: Take stock of all the resources and expertise already available in your community to support skills certification. See the Asset Map Template in the Resources section of this Toolkit.

DESIGN AND DEVELOPMENT

#3 Engage Industry Leaders/Build Demand: It is critical to build employer demand while producing a supply of certified workers. Use marketing tools and deploy employer champions who stress the return on value for using certifications as part of their hiring process. Business organizations and trade associations can play an important role here.

#4 Recruit Community Support/Build Program Model: Based on state and/or regional economic data, determine which high-growth industries and which high-demand occupations to target for certification efforts. Often high-demand occupations will support numerous projected high-growth industries. Identify the career pathways/programs of study that support those high-demand occupations.



IMPLEMENTATION AND SYSTEM BUILDING

#5 Align Programs to Certification Requirements: Faculty objectively audit/analyze existing curriculum against the needs of regional manufacturers and the requirements of targeted industry certifications. Faculty identify gaps in curricula and develop new instructional modules to fill gaps and determine where in the sequence of instruction the various certification exams should be given. See an example of a curriculum crosswalk in the Resource section of this Toolkit.

#6 Build Systems to Support Your Model: Identify all possible systems that might feed potential students into career pathway pipelines. Consider WIA, Adult Basic Education, Continuing Education, returning military, displaced workers, etc. Also consider partners that can help open doors for job placements, such as Manufacturing Associations, professional trade organizations, and the Manufacturing Extension Partnership (MEP). Provide an in-depth orientation to key stakeholders at the college and community level so “buy-in” begins early. Build in mechanisms for ongoing engagement, such as regular faculty sessions to share progress and operational meetings with community stakeholders to review progress.

#7 Design Career Pathways and Articulation Agreements: Based on targeted high-demand occupations, develop career pathways that connect progressive levels of education, training, support services and credentials in a way that optimizes the progress and success of individuals with varying levels of abilities and needs. Collaborate across secondary, two-year and four-year institutions, and develop the articulation agreements necessary to maximize transfer of credit. Aggressively build applied STEM skills into all career technical curricula. See an example of a career pathway visual in the Resource section of this Toolkit.

#8 Incorporate Real-World Learning Experiences: Work closely with employer partners to incorporate as many real-world experiences as possible into your program design. Include job shadowing, internships, co-op, and pre-apprenticeship opportunities for students, and externships for teachers.

POLICY AND SUSTAINABILITY

#9 Drive a Policy Agenda: Identify “big picture” policy barriers that are impeding progress. Develop a policy agenda for driving needed policy interventions. Leverage local successes to promote regional and statewide change.

#10 Sustain the Certification System/Track ROI: Identify key performance indicators to serve as benchmarks for measuring progress. Collect data on a regular basis to assess actual vs. plan progress. Work with employers to help them develop a plan for tracking key metrics, such as employee turnover and productivity, so they can measure the impact of certified workers to their bottom line outputs. Develop a comprehensive plan for sustaining the certification effort beyond any grant funding that may have launched it.

Frequently Asked Questions

My students are already able to get jobs, often before they even complete the program. Why do I need to add certifications?

Students who go to work without having completed your program have no marketable credential. When programs have embedded industry certifications, students can earn them as they work through the curriculum and gain the necessary skills. Students often complete a National Career Readiness Certification (NCRC) before they begin technical instruction, because it provides a good baseline measure of their applied academic skills. Certain technical certifications, like AWS and NIMS, can be earned throughout a semester. Then, if students do go to work, they have the benefit of a transferable certification with real value in the marketplace.

Employers are not asking for industry certifications, so why should we add them?

The experience of The Manufacturing Institute working with thousands of employers over many years suggests that the answer is straightforward: Many manufacturers simply do not know about industry certifications and the value they can add to the bottom line. Building a supply of certified workers needs to go hand-in-hand with building a group of employers who want and value them. Students need to know that their additional investments of time and energy in earning industry certification will pay off. Employers who learn about the value of certifications and see a return on that value will begin to prefer job applicants with documented skills. Manufacturing Associations and trade organizations can help build the demand side.

What difference can certifications really make?

A recent survey conducted by The Manufacturing Institute and MAGNET showed that the lack of skilled employees to fill available jobs is creating significant costs for companies:

- 55% of companies report a >5% increase in **production down time**
- 60% of companies report a >5% increase in **production cycle time**
- 70% of companies report a >5% increase in **overtime**

Over 90% of companies that use industry-recognized certifications believe they make a difference in validating the skills of their employees. Companies see positive impacts on: training costs, employee retention, employee engagement, workplace safety and personnel decision-making. This kind of documentation demonstrates that industry certifications are making a difference.

When should certification tests be taken?

Don't think of certification as an "end of course" assessment. Industry certifications test should be taken as soon as the student has mastered the knowledge and skills necessary to pass the exam. That might be four weeks into the semester.

What is tested on industry certification exams?

Some are purely knowledge-based exams, and so are computerized (or paper and pencil upon request). Others are performance-based and require the student to demonstrate a skill to a certain level of proficiency or tolerance. Others are a combination of the two. Certification sponsors vary in their specific requirements. The best source of information on certification requirements is each sponsor's website. Links to all the NAM-endorsed certification sponsors are included on the following pages of this Toolkit.

Who pays?

This is a very important question. There are three answers: the student, government, and employers. In some cases colleges have aligned programs of study with industry certification requirements, but do not take the next step and actually get students to take the certification exam – it is considered optional and the student typically pays out of pocket. Experience has shown that this is ineffective. Many colleges are now taking advantage of state and federal dollars – or foundation grants - to cover certification costs. While that strategy helps to establish value in the short term, it is not sustainable in the long term. Some colleges are building the costs of industry certifications into the student fee structure as part of their longer term strategy. Employers are sometimes willing to cover the cost for certifying existing workers so they can keep their skills current.

Does an individual need to take or pass a program of study or curriculum to sit for an industry certification?

No. Industry certifications are not tied to a particular curriculum or educational program. They test and validate the competencies employers need in the workplace. For that reason, some individuals can pass an industry certification based on their work or life experience and need no additional training. Military veterans are a good example.

Where do students take the exams?

It varies, but in all cases the exams must be administered by a trained, third-party evaluator. For some certifications, like the MSSC Certified Production Technician (CPT), which are purely knowledge-based, the test is administered at an authorized MSSC testing center. The college can apply to be such a center, by getting its computer lab approved and a test proctor trained, or there may already be a testing facility in the community. For other certifications, which are performance-based, testing needs to be conducted in an appropriate facility on specialized equipment. In most cases, the instructor who trained the student cannot also test the student. Some certification sponsors train manufacturers in the community to serve as evaluators on performance-based exams.

How can I learn more about how to work with employers regarding industry certifications?

The Manufacturing Institute is in the process of developing a Toolkit for Educators 2.0 that will provide a deeper dive into the process, including specific steps and extensive tools.

Certification Partners

[Use same Certification Partners pages as in the Employer Toolkit.]

DRAFT

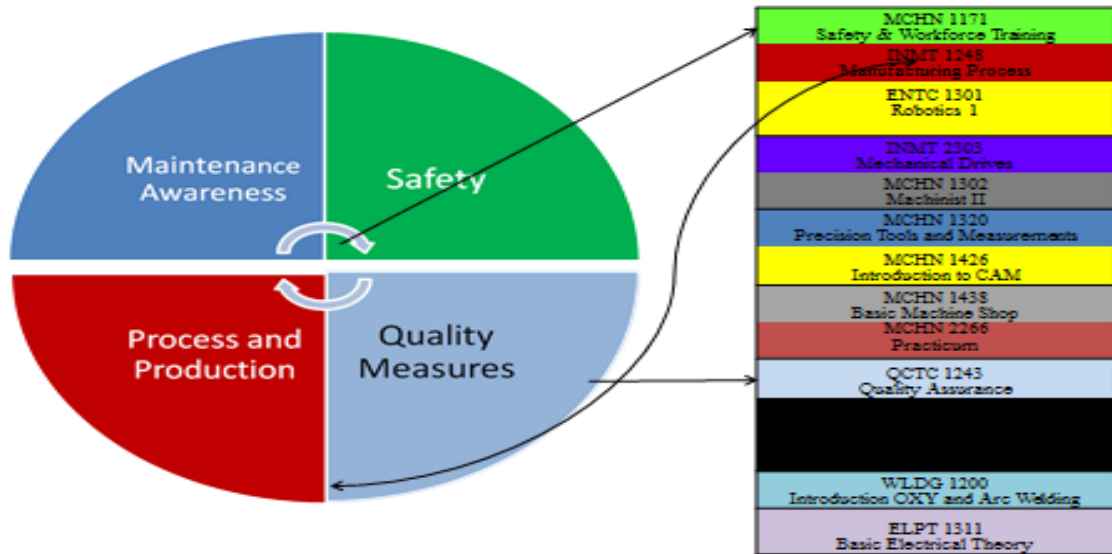
Manufacturing Skills Certification System: Asset Map Template

This Asset Map Template is a tool to help you take stock of the programs, resources, and organizations that may support rollout of the Skills Certification System. The scope of the Asset Map can cover an individual community, a region or an entire state.

- 1. What programs of study specific to manufacturing already exist at you community college or other colleges in your region/state?** The programs of study can be grouped into categories by high-demand occupations.
- 2. What types of programs currently serve as education pathways for manufacturing?** Include: High school career academies; secondary vocational and technical education programs; internship or externship programs; apprenticeship programs; 2+2 programs between high schools and community colleges; and programs at four-year universities. Other resources to include: Skills USA; First Robotics; Project Lead the Way; Jobs for America's Graduates; Job Corps, etc.
- 3. What state initiatives currently support either the manufacturing sector or skills certification?** These might include gubernatorial initiatives in manufacturing, education, or workforce development; sector or cluster projects around manufacturing; or legislative programs/directives that require industry-recognized credentials or technical diplomas.
- 4. What are the manufacturing organizations or associations in the state?** Include: State Manufacturing Association; Regional Manufacturing Associations; and Manufacturing Extension Partnership (MEP). How does your college currently interact with these groups?
- 5. What career awareness and student recruitment strategies are there in the state?** Do you have connections with: MI's *Dream It. Do It.* campaign or other statewide marketing initiatives on careers in manufacturing? Are there career camps for students or teachers?
- 6. What other government programs might already be aligned to support skills certification?** State and Local Workforce Investment Boards: do they have specific initiatives or goals around manufacturing or skills certification? Economic development organizations: are they targeting manufacturing as an industry in their strategic plans?
- 7. What other groups might be focused on the same topics and be willing to leverage resources?** If there are major foundations active in the state, are their programs related to the goals of this project? There are also a number of government programs that provide money for education and job training. How many of those funds go toward manufacturing education or careers?
- 8. What are universities doing to support the manufacturing industry or community colleges?** Do they offer entrepreneurship programs, business incubators, technology transfer initiatives, focused community college partnerships and articulation programs?

Investing the time to do an asset map pays off in the long run. It will allow you to identify and leverage important community and state resources, and also help to create a network of organizations and programs to support deployment of a manufacturing skills certification system.

Alamo Academy MSSC Credit Course Integration

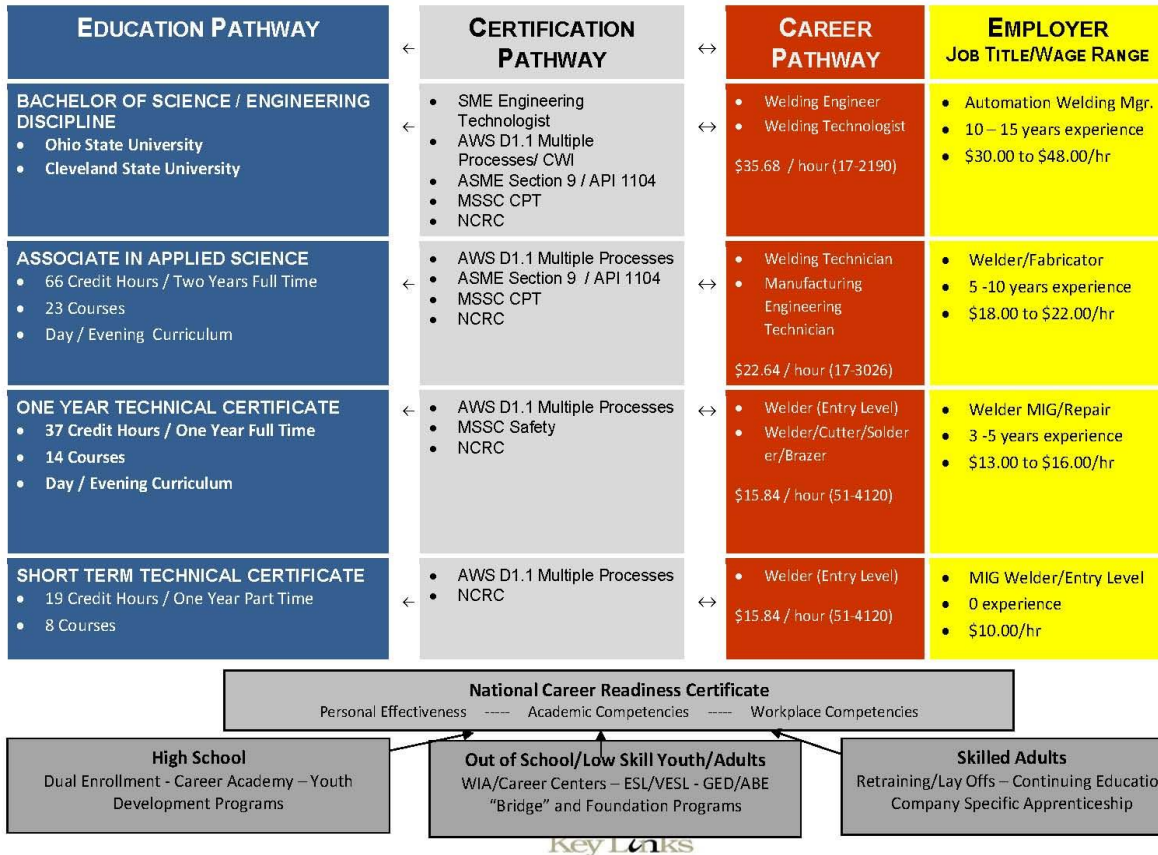


Manufacturing Operations Technician	Production Tool Operator / Maintenance Assistant (Academy)	CNC Manufacturing Technician
ECON 1301	General Education, not covered specifically in the Academy	ECON 1301
ENGL 1301		ENGL 1301
PHYS 1305		PHYS 1305
SPCH 1321		SPCH 1321
ITSC 1301		ITSC 1301
MATH 1333		MATH 1333
ELPT 1419	ELPT 1319	
ENTC 1301	ENTC 1301	ENTC 1301
INMT 2303	INMT 2303	
WLDG 1313	MCHN 1302	MCHN 1302
MCHN 1320	MCHN 1320	MCHN 1320
MCHN 1438	MCHN 1438	MCHN 1438
MCHN 2266	MCHN 2266	MCHN 2266
	MCHN 1426	MCHN 1426
QCTC 1243	QCTC 1243	
RBTC 2447		RBTC 2447
WLDG 1428	WLDG 1200	MCHN 1330
WLDG 2439		MCHN 2403
ELPT 1420	INMT 1248	MCHN 2431
ELPT 1441		MCHN 2434
ELPT 2419		MCHN 2435
ELMT 1305		MCHN 2438
	24 of 31 Sch Crosswalk	
		19 of 31 Crosswalk

Resource: Sample Career Pathway Visual



ALIGNING EDUCATION, CERTIFICATION AND CAREER PATHWAYS For the Welding Industry at Lorain County Community College



This visual represents the alignment of the education, certification and occupational pathways. The left column includes the courses required for the degree, the gray column shows the certifications aligned with the courses, and the red column includes common job titles and salary ranges at the national level. The information in the yellow column was gathered through the employer engagement seminars and represents feedback and comments from the employers based on their own knowledge and experience.

Advanced Manufacturing Competency Model

[Use same Competency Model page as in the Employer Toolkit.]

DRAFT

Resources

[Use same Resource page as in the Employer Toolkit.]

DRAFT

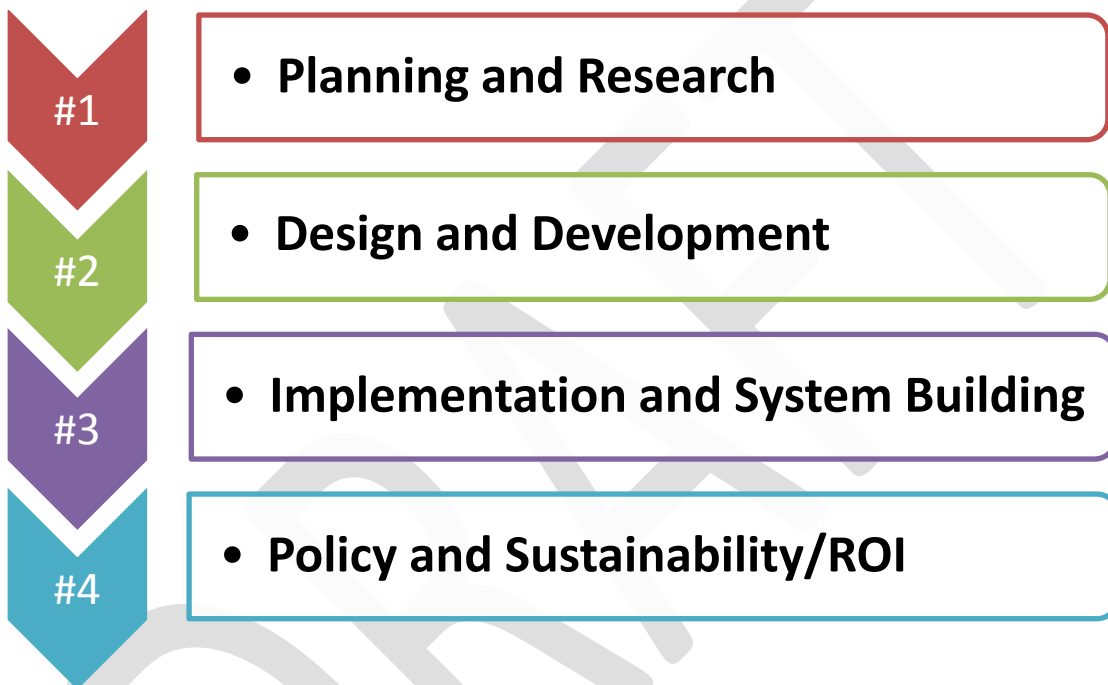
ANNEX 18

EDUCATION & WORKFORCE DEVELOPMENT WORKCREEK 2

Community Toolkit

How Does a Community Use Skills Certification to Support its Manufacturing Workforce?

Putting in place the Skills Certification at the community level is a multi-step process. The four major steps below provide a guide or map to successful implementation. Click to learn more about the major steps that lead to success.



Lessons Learned

- Every state and every community is at a different level of readiness for implementation.
- You already have many of the pieces in place!
- The steps to implementation are not necessarily linear, but some do build off others.
- Other communities have many tools to share, so there is no need to worry about starting from scratch.
- You can participate in a national **Community of Learners Network** (link to webinars on MI website) to learn about how others have achieved results.

|

NOTE: This process map is intended to show progressively greater levels of detail. When someone clicks on “Planning and Research” (on page 1), they would see the next level of detail in the box below, possibly with a general description of what each of the two major steps include. If they click on “Identify State/Regional Economic Demands” they would see the material on page 3, etc. ... Resources are linked to the more macro, topical areas (i.e., the “Ten Steps” listed below, as opposed to the more micro, activity levels outlined. The pattern continues with all four “buckets.”

Learn More about the Ten Steps for Building a Skills Certification System. Click on each step below to take a self-assessment of your community’s progress to date and access resources that will help you fill gaps.

DRAFT



- **Planning and Research**

- #1 Identify State/Regional Economic Demands and LMI
- #2 Launch Planning/Create an Asset Map

- **Design and Development**

- #3 Engage Industry Leaders/Build Demand
- #4 Recruit Community Support/Build Program Model

- **Implementation and System Building**

- #5 Align Programs to Certification Requirements
- #6 Build Systems to Support Your Model
- #7 Design Career Pathways and Articulation Agreements
- #8 Incorporate Real-World Learning Experiences

- **Policy and Sustainability**

- #9 Drive Policy Innovations
- #10 Sustain the Certification System/Track ROI

Planning and Research

As you read through the list below, click on each activity to assess whether you have already taken and completed each critical step. In areas where you have gaps or may need to do additional work, click on the linked resources and tools for help.

Planning and Research	Need Assistance?
1. Identify State/Regional Economic Demands and LMI	Link to Resources
2. Launch Planning/Create an Asset Map	Link to Resources

#1: Identify State/Regional Economic Demands and LMI. Have you...	Check if complete	Check if in-progress or a “gap”
<ul style="list-style-type: none"> ▪ Collected relevant data about your state/region, including # of firms, size of firms, and distribution of firms? 		
<ul style="list-style-type: none"> ▪ Considered the data available across the full range of advanced manufacturing (including traditional industries such as primary metals, chemicals, food processing, and many more), as well as areas that are often classified as high technology (such as semi-conductors and medical devices.)? 		
<ul style="list-style-type: none"> ▪ Determine the economic development priorities of the state/ region as relates to manufacturing? 		
<ul style="list-style-type: none"> ▪ Analyzed the data to identify potential high-growth industries and high-demand occupations? 		
<ul style="list-style-type: none"> ▪ Conducted a skills survey or held focus groups to verify and/or supplement needed data? 		
<ul style="list-style-type: none"> ▪ Identified which high-demand occupations will support which high-growth industries? (Note: Often high-demand occupations will support numerous projected high-growth industries.) 		
<ul style="list-style-type: none"> ▪ Identified the career pathways/programs of study that support those high-demand occupations? 		
#2: Launch Planning/Create an Asset Map. Have you...	Check if complete	Check if in-progress or a “gap”
<ul style="list-style-type: none"> ▪ Identified manufacturing-related programs of study at the high-school, community college, and four-year levels? 		
<ul style="list-style-type: none"> ▪ Identified existing career pathways that incorporate a seamless transition for students across organizations? 		
<ul style="list-style-type: none"> ▪ Catalogued various regional and state initiatives that support manufacturing talent development? 		
<ul style="list-style-type: none"> ▪ Determined the various manufacturing organizations and associations that function in the area, and their leaders? 		
<ul style="list-style-type: none"> ▪ Explored the various career awareness and student recruitment activities? 		
<ul style="list-style-type: none"> ▪ Researched government programs and/or external funding opportunities? 		
<ul style="list-style-type: none"> ▪ Considered STEM-related initiatives? 		

Design and Development

Design and Development	Need Assistance?
3. Engage Industry Leaders/Build Demand	Link to Resources
4. Recruit Community Support/Develop Program Model	Link to Resources

#3: Engage Industry Leaders/Build Demand. Have you:	Check if complete	Check if in-progress or a "gap"
<ul style="list-style-type: none"> ▪ Convened industry leaders to confirm data findings and discuss potential responses? 		
<ul style="list-style-type: none"> ▪ Partnered with The Manufacturing Institute to identify manufacturing champions in your state/region? 		
<ul style="list-style-type: none"> ▪ Provided an orientation session to key manufacturers in your state/region regarding industry certifications? 		
<ul style="list-style-type: none"> ▪ Developed the business case for how certifications can deliver positive return on investment and impact the bottom line? 		
<ul style="list-style-type: none"> ▪ Developed/adapted marketing tools that stress the benefits of industry certification? 		
<ul style="list-style-type: none"> ▪ Identified and/or developed a set of industry leaders who have adopted industry certifications in the workplace and can advocate for their value? 		
#4: Recruit Community Support; Develop Program Model. Have you:		
<ul style="list-style-type: none"> ▪ Reached out to community stakeholders to share results of employer requirements? 		
<ul style="list-style-type: none"> ▪ Provided an in-depth orientation to key stakeholders regarding industry certifications so you can start to gain their buy-in? 		
<ul style="list-style-type: none"> ▪ Determined your focus of effort: high-school, community college, apprenticeship, incumbent workers – or a combination of several levels? 		
<ul style="list-style-type: none"> ▪ Determined which programs of study at which levels to target for initial certification efforts based on labor market demand? For example, welding or machining technology. 		
<ul style="list-style-type: none"> ▪ Considered funding implications and sources of revenue? 		
<ul style="list-style-type: none"> ▪ Developed a timeline for action? 		

<ul style="list-style-type: none"> Identified strategies for on-going engagement of key stakeholders? 		
<ul style="list-style-type: none"> Determined roles and responsibilities of key stakeholders, so everyone has a stake in the game? 		
<ul style="list-style-type: none"> Identified a “leader” who owns responsibility for managing the effort? 		
<ul style="list-style-type: none"> Established mechanisms for ongoing communication among key stakeholders? 		

Implementation and System Building

Implementation and System Building	Need Assistance?
5. Align and Map Programs to Certification Requirements	Link to Resources
6. Build Systems to Support Your Model	Link to Resources
7. Design Career Pathways and Articulation Agreements	Link to Resources
8. Incorporate Real-World Learning Experiences	Link to Resources

#5: Align and Map Programs to Certification Requirements. Have the targeted education providers in your region:	Check if complete	Check if in-progress or a “gap”
<ul style="list-style-type: none"> Analyzed the curriculum in targeted programs of study against the requirements of industry certifications? 		
<ul style="list-style-type: none"> Identified the critical applied math, science, and technology skills imbedded in certification requirements? 		
<ul style="list-style-type: none"> Done a crosswalk between certification requirements and current curriculum to identify gaps? 		
<ul style="list-style-type: none"> Developed new instructional modules to fill identified gaps? 		
<ul style="list-style-type: none"> Adjusted the sequence of curriculum, if required? 		
<ul style="list-style-type: none"> Determined when various certification exams should be given, which is not always at the end of the course? 		
<ul style="list-style-type: none"> Put a mechanism in place to help faculty assess their current knowledge and skills relative to the certification requirements? 		
<ul style="list-style-type: none"> Determined which faculty has which industry certifications? 		
<ul style="list-style-type: none"> Arranged for faculty to participate in training provided by certification sponsors, if needed? 		

<ul style="list-style-type: none"> ▪ Required faculty to earn the required certification(s) for the program areas they teach? 		
<ul style="list-style-type: none"> ▪ Built certification requirements into college HR recruitment practices for faculty? 		
<ul style="list-style-type: none"> ▪ Identified a point of contact with relevant certification sponsors? 		
<ul style="list-style-type: none"> ▪ Developed a working relationship with relevant certification sponsors? 		
<ul style="list-style-type: none"> ▪ Established assessment centers as required by certification partners? 		
<ul style="list-style-type: none"> ▪ Taken steps to get required programs accredited? 		
#6: Build Systems to Support your Model		
<ul style="list-style-type: none"> • Developed a student recruitment strategy? 		
<ul style="list-style-type: none"> • Implemented a student recruitment strategy? 		
<ul style="list-style-type: none"> • Incorporated various forms of media into your strategy? 		
<ul style="list-style-type: none"> • Leveraged the Dream It. Do It. campaign? 		
<ul style="list-style-type: none"> • Identified all possible systems that might feed potential students into career pathway pipelines? 		
<ul style="list-style-type: none"> • Considered the workforce system, Adult Basic Education, Continuing Education, returning military, displaced workers, etc., for their roles in recruitment, service delivery, and funding? 		
<ul style="list-style-type: none"> • Developed mechanisms to assess student baseline skills? 		
<ul style="list-style-type: none"> • Evaluated various approaches to offering prior learning assessment? 		
<ul style="list-style-type: none"> • Formed seamless connections to manufacturing programs of study? 		
<ul style="list-style-type: none"> • Connected with state job banks, as well as online recruiters? 		
#7: Design Career Pathways and Articulation Agreements.		
Have you:		
<ul style="list-style-type: none"> ▪ Established partnerships with area high schools/technical schools that offer programs in the targeted occupational area(s)? 		
<ul style="list-style-type: none"> ▪ Established partnerships with area community colleges that offer programs in the targeted occupational areas(s)? 		
<ul style="list-style-type: none"> ▪ Established partnerships with area four-year colleges that offer programs in the targeted occupational area(s)? 		
<ul style="list-style-type: none"> ▪ Determined the number of credits that will transfer forward to allow for “stackable credentials”? 		
<ul style="list-style-type: none"> ▪ Developed a mechanism for converting non-credit to 		

credit?		
<ul style="list-style-type: none"> ▪ Developed a mechanism for awarding credit for industry-certifications earned? 		
<ul style="list-style-type: none"> ▪ Negotiated articulation agreements among various educational partners to ensure seamless transition for students across program levels? 		
<ul style="list-style-type: none"> ▪ Developed a visual to represent the career pathway flow for students? 		
<ul style="list-style-type: none"> ▪ Packaged and marketed career pathways for various audiences, including students, parents, and employers? 		
#8: Incorporate Real-World Learning Experiences		
<ul style="list-style-type: none"> • Included a range of career development activities that expose students to real-world learning experiences, including job shadowing, internships, and co-ops? 		
<ul style="list-style-type: none"> • Developed a menu of activities to employers with varying commitment levels so they can chose how to engage? 		
<ul style="list-style-type: none"> • Developed a number of employers interested in supporting student learning activities in the workplace? 		
<ul style="list-style-type: none"> • Communicated with employers about the menu of options and gotten commitments? 		
<ul style="list-style-type: none"> • Explored best-practices in work-based learning, including apprenticeship models? 		
<ul style="list-style-type: none"> • Developed institutional policies for prior learning assessment? 		

POLICY AND SUSTAINABILITY

As you read through the list below, click on each activity to assess whether you have already taken and completed each critical step. In areas where you have gaps or may need to do additional work, click on the linked resources and tools for help.

Policy and Sustainability/ROI	Need Assistance?
9. Drive a Policy Agenda	Link to Resources

|

10. Sustain the Certification System/ROI	Link to Resources
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#9: Drive a policy agenda. Have you:		
<ul style="list-style-type: none"> Identified policy barriers at the local/regional and state levels that are impeding progress? 		
<ul style="list-style-type: none"> Developed a policy agenda for driving needed policy interventions? 		
<ul style="list-style-type: none"> Explored best practice innovations from other communities and states? 		
<ul style="list-style-type: none"> Leveraged local successes to promote regional and statewide change? 		
#10: Sustain the certification system/ROI. Have you:		
<ul style="list-style-type: none"> Identified key performance indicators to serve as benchmarks for measuring progress? 		
<ul style="list-style-type: none"> Developed a plan to collect data on a regular basis to assess actual vs. plan progress? 		
<ul style="list-style-type: none"> Determined how you/students will pay for certification costs? 		
<ul style="list-style-type: none"> Developed a comprehensive plan for sustaining the certification effort beyond grant funding? 		
<ul style="list-style-type: none"> Provided employers tools for calculating the return on investment for adopting industry certifications? 		

ANNEX 19

EDUCATION & WORKFORCE DEVELOPMENT WORKCREEK 2

Employer Success Stories



Challenge

EJ Ajax and Sons, a manufacturer of progressive metal stampings and sheet metal fabrication in Fridley, Minnesota.

However, EJ Ajax had difficulty finding skilled workers to fill their production level jobs. During the economic downturn in 2008, EJ Ajax struggled to survive.

Action

EJ Ajax invests 5.5% of payroll into workforce education, training, and professional development.

A key component of their investment is the M-Powered program, which provides fast-track manufacturing training through Hennepin Technical College. A local nonprofit job development organization identifies low-income and displaced workers to participate in the program. Graduates of this program have career opportunities with EJ Ajax and Sons, and by earning National Institute of Metalworking Skills (NIMS) credentials, have realized significant entry-level wage increases.

EJ Ajax and Sons also uses nationally portable, industry-recognized certifications as a means of employee retention. The company pays 100 percent tuition up front for a wide variety of training courses, including, for new employees, an 8,000-hour apprenticeship program with curriculum certified by NIMS. Sixty-one percent of EJ Ajax and Sons' workers have achieved NIMS credentials, and are re-certified every two years to maintain quality in performance and productivity. As a result of continuously upgrading skills, EJ Ajax and Sons' employees earn more than the national average.

Results

>> Increased Productivity:

Productivity has improved at EJ Ajax. This increase in productivity, in turn, enables them to invest more in their employees' training and compensation.

>> Faster Economic Rebound:

EJ Ajax continued their commitment to innovation, training and safety to maintain their competitive advantage even during the recession. Their revenue rebounded, profits increased, capital equipment investments returned, and employees who had been laid off were brought back to work.

>> Increased Morale:

Employees at EJ Ajax call each other family. "Everyone knows everyone, even the president" and "I really like working with everyone here," are common statements from employees. The increased morale increases productivity, teamwork, and profits.



>> For More Information:

7773 Ranchers Rd NE
Fridley, MN 55432
(763) 571-1660
www.ejax.com/

The Personal Impact



"I will continue to promote advanced manufacturing as a rewarding career choice to women that have strong STEM skills and a desire to work with their hands and their minds. I encourage and mentor my colleagues to innovate, be willing to grow and most importantly be lifelong learners."

- Altheha DrePaul,
Key Account Manager

As an immigrant, Altheha came to the U.S. with a goal: to make a better life for herself and her children. Through her success, she is now determined to be a role model and an inspiration for others like her. She believes fervently that manufacturing is one of the keys to keeping America strong, and is aware that the lack of skilled workers is the biggest issues America faces.

Altheha has advanced rapidly on the manufacturing career ladder thanks to her strong work ethic and combination of mechanical aptitude and people skills. From her beginnings as a machine operator, through apprenticeship, continuing education, and ultimately in her promotion to Key Account Manager, Altheha has always showed her willingness to take on additional responsibilities. Altheha has also acted as a friend and mentor to women and people of color, both the colleagues of EJ Ajax and the students following in her footsteps in the M-Powered program.



Challenge

Sun Hydraulics manufactures high-performance screw-in cartridge valves that incorporate precision processes requiring a high-skilled workforce. During the recession of 2009, instead of laying off workers, Sun leadership instituted a rolling furlough system so it could maintain and invest in the skills of its workforce. The company wanted to find a training program linked to certification that would be a fit with its production needs.

Action

Working with Polk State College and the State College of Florida, the company launched an in-house training program based on the Manufacturing Skills Standards Council (MSSC) modules: Safety, Quality Practices and Measurement, Manufacturing Processes and Production, and Maintenance Awareness. Workers who complete all four certifications earn their Certified Production Technician (CPT) credential.

As interest in the training grew among workers, Sun entered into a partnership with nearby State College of Florida's Engineering, Technology, and Advanced Manufacturing (ETAM) program to deliver the MSSC training. The college offers a variety of options: workers can attend class two nights a week, watch a live broadcast using a phone-in connection, or view previously taped broadcasts over the internet. This flexibility allows workers to take advantage of training based on times convenient to their work and life schedules. The cost of the program has been shared among the company, the state and a federal funding grant.

While many of the workers have never been through "formal" training before, they find many concepts of the training familiar based on their job experience. Sun recently instituted a mentor program so that successful graduates can provide support to those still in training.



"At Sun Hydraulics we believe developing and certifying the skills of our workforce is a direct investment in the productivity and overall performance of the company."

- Tim Twitty,
Operations

Results

>> More Certified Workers:

170 workers – over 30% of the production workforce – have earned Certified Production Technician (CPT) status. The goal is 100%.

>> Higher Levels of Engagement:

Workers who have earned certifications are more involved in area audits and continuous improvement efforts within the company.

>> Improved Company Performance:

Company leadership sees increased worker skills as contributing significantly to improvements in efficiency and overall company performance.

>> Increased Benefits:

Workers realize the benefit of investing time in continuous learning for professional and personal growth. They see firsthand how it links to success in a rapidly changing, technology-driven workplace.



>> For More Information:

1500 West University Parkway
Sarasota, FL 34243
(941) 362-1200
www.sunhydraulics.com/



Challenge

Permac Industries specializes in components and assemblies for aerospace, medical, transportation, food, and beverage industries. During the recent economic downturn, Permac streamlined processes and developed a leaner approach to most aspects of its business. Its major challenge continues to be finding employees with the skills necessary to run sophisticated precision machine tools and equipment while also maintaining the company's reputation for on-time delivery and quality service.

Action

Darlene Miller, President and CEO of Permac, serves on the President's Council on Jobs and Competitiveness and co-chairs the High Tech Education Subcommittee. She is a strong advocate for skills training and led the creation of a solution to the manufacturing skills gap in her region.

Working closely with other precision machine shops that shared similar problems, Permac convened two regional community colleges (Dunwoody and South Central), along with The Manufacturing Institute, ACT, and NIMS.

Together they created "Right Skills Now." It is a fast-track, accelerated learning package that combines a semester of applied instruction plus a paid internship, with a goal of turning out entry-level CNC operators. Students earn a college certificate, a National Career Readiness Certificate, and four NIMS machining certifications, validating their high-demand skills.

As each class completes training, regional manufacturers hold a "reverse job fair" in which graduates interview companies for placement opportunities. Permac hires operator level workers through Right Skills Now, with the goal of advancing those workers through additional training to higher level positions within the company – a true "grow your own" strategy.



"Working with our area community colleges, Permac and other precision machine shops were able to design a new accelerated model that meets our hiring needs – Right Skills Now!"

- Darlene Miller,
President and CEO

Results

>> Accelerated Learning:

The accelerated pace of the Right Skills Now model gives Permac a ready source of skilled workers much more quickly than traditional college programs.

>> More Job-Ready Applicants:

Industry-based skills certifications built into the Right Skills Now program provide a guarantee of what entry-level workers know and can do, minimizing risk to the company.

>> Easier Hiring Process:

The training partnership with the local colleges greatly facilitates the company hiring process for entry-level workers.

>> Increased Awareness:

Launch of the Right Skills Now program and the media attention it has generated has greatly increased awareness of manufacturing as a viable career and the availability of high-wage jobs in the industry.



>> For More Information:

14401 Ewing Ave S
Burnsville, MN 55306
(952) 894-7231
www.permacindustries.com/



Challenge

One factor of Bison's success is access to talented individuals. With a workforce comprised of engineers, production, and other critical personnel the training needs at Bison run a gamut of soft skills to more technical requirements. Hiring production personnel and having them be work ready on day one is a constant challenge. Having the tools in place to assess our talent for our succession planning is a key objective. Mentoring workers for success is a top priority and motivating each of them to build their skill sets. We strive to achieve a 100 percent certified production workforce. Bison works closely with community college's and is a true advocate of the "learn and earn" philosophy.

Action

In 2008, Bison launched an aggressive strategy to incorporate industry certifications into its hiring processes and incumbent worker training. Bison first began offering current workers the opportunity to improve knowledge through an online curriculum developed by the Manufacturing Skill Standards Council (MSSC) and provided at the Bison Learning Center.

Four critical areas are covered: Safety, Quality Practices and Measurement, Manufacturing Processes and Production, and Maintenance Awareness. Workers are rewarded with \$100 for each of four modules they pass and an additional \$100 if they pass all four and earn their Certified Production Technician (CPT) credential. Workers typically spend 16-18 hours of self-study to complete each module.

In 2011, Bison started using the ACT WorkKeys assessments as a part of its hiring process. Applicants need to score at least a Level 4 (Silver) on the National Career Readiness Certificate (NCRC) in Applied Math, Reading for Information, and Locating Information to be considered for hire.

Results

>> Increased Productivity:

Productivity has improved by 31% since 2008. The 2011 quality level set a new standard in the history of the company.

>> Improved Safety and Quality:

Bison credits the certification with fewer accidents, increased quality improvements, and a more self-directed, confident and engaged workforce.

>> Better Candidates:

100% of new hires since 2012 have achieved an NCRC prior to being hired into the Bison workforce.

>> Increased Service Levels:

Return on measurement can also be tracked to Bison Gear's "Pride Rating", which measures On-Time Delivery, Service Responsiveness and Field Warranty. Following the launch of the MSSC training, the rating bumped from 62% to 90% and has leveled off at a consistent 85%, a gain of 23%.



>> For More Information:

3850 Ohio Ave
St Charles, IL 60174
(630) 377-4327
www.bisongear.com



"Credentials clarify competencies and provide insight for job placements, rotations and promotions."

- Sylvia Wetzel,
Chief Learning Officer

ThyssenKrupp Bilstein



Challenge

ThyssenKrupp Bilstein's competitive edge is its ability to compete in the global marketplace. Despite having competitive wages and benefits, the company's turnover rate rose to almost 50% in 2006. Bilstein became concerned about its ability to remain competitive and to meet production deadlines. Management decided to research possible solutions and to identify a strategy to reduce the turnover rate and improve retention.

Action

Working with a regional consortium of manufacturers having similar turnover issues, Bilstein launched a pilot program based on a successful model in Indiana. They partnered with a local career center to pilot a training program based on the Manufacturing Skill Standards Council (MSSC) Certified Production Technician (CPT) modules.

Both unemployed individuals and incumbent workers participated. Prospective students were screened for qualifications using WorkKeys tests. The consortium secured state funding for the pilot class, and member companies were required to contribute. Bilstein hired the first graduate from the course—an employee who remains with the company today, four years later. One of its current production supervisors was also among the first graduates.

The company credits the CPT program for helping it successfully address turnover challenge. Bilstein now prefers the certification as a criterion for employee selection, pays a premium starting wage to new hires with certifications, and encourages incumbent workers also to participate in the training.

For the third year in a row, the company earned Top Work Place honors in the Cincinnati Enquirer's Top Work Places 2012 and was named as a finalist three straight years in the Cincinnati Business Courier's Best Places to Work competition.

Headquarters: Hamilton, OH
Products: world-class, monotube shock absorbers
Employees: 285 in Hamilton, OH; 360 within the US

www.bilstein.com

Results

- >> **Reduced Turnover:** Turnover rate is now 7%, well below the industry average. Incumbent workers are more engaged, sparking interest among other workers to participate in certification training.
- >> **Increased Overall Equipment Effectiveness:** This measure of equipment utilization and efficiency improved to world-class levels during program implementation and has been maintained during a lean campaign.
- >> **Improved Teamwork:** The MSSC curriculum enables workers to be better team members and understand the importance of each role in the production process.
- >> **Lower Recruitment Costs:** Certified workers are productive more quickly and more likely to stay with the company, reducing the costs of recruitment.



"Candidates with the MSSC CPT certification are familiar with key manufacturing concepts like safety and quality before they walk through our door. That allows them to be more productive sooner."

—Thomas A. Barnes, HR Manager

ANNEX 20

EDUCATION & WORKFORCE DEVELOPMENT WORKCREEK 2

Educator Success Stories



Challenge

The focus of the mission at Stark State College in North Canton, Ohio is to support the workforce by providing training for future employees. The foundation for the college is partly to develop a pipeline for manufacturing.

Stark State realized that employers were looking for certifications, and found students that had them more valuable. Thus, the college began to offer stackable credentials for credit and non-credit to help employers find a qualified candidate pool and to provide training to meet company needs.

Action

When implementing the certification programs, Stark State had to go through the typical regulations to get any curriculum approved. Instructors were trained and companies were contacted to utilize equipment and offer certifications that were meaningful. An advisory board was formed of employers to provide information on changing needs. Now, employers are surveyed and the curriculum is modified if necessary to ensure needs are met.



“Certifications will be part of the workforce of the future. They are needed in order to increase graduates, assist veterans, and compete globally while ensuring individuals meet the needs of a changing workforce.”

-Lada Gibson-Shreve, PhD,
Provost of Stark State

Results

>> Retention and Completion Rates:

Stark State notes that retention is higher with certification programs. Emphasizing the value of certifications early in the program has helped with completion rates.

>> Improved Recruitment:

High school students have the opportunity to take more technical courses and receive college credit. Students see the certification impacting employment and recognize the value.

>> Marketing Tool for Employers:

Credentials are offered as short-term training for employers. Many employers request certifications and Stark State will tailor the program towards the company needs or even go on-site for training when it is specific to a certain organization.

“Employer dialogue is vital to the success of certification programs. Certifications will change as technology changes –employers need to validate what will be recognized and how we can help students acquire the skills they need.”



-Kathleen Steere,
Coordinator of Oil & Gas Programs at Stark State

>> For More Information:

6200 Frank Ave NW
North Canton, OH 44720
(330) 494-6170
www.starkstate.edu/





Challenge

Gateway Technical College located in Kenosha, Wisconsin, wanted to find a way to validate programs and develop a highly qualified workforce. Employers were requesting third party validation and placed value on certification programs. Gateway embedded training and certifications into their program.

Action

Gateway began the process of implementing certification programs by asking employers which skills were most important to them. They explained the value of the certifications to employers and found that some companies were willing to pay additional raises based on certifications.

One of the necessary steps to success in this process was sharing what everyone else was doing and learning from them. Gateway discussed certifications with other community colleges and employers to gain different perspectives and best practices.

Results

>> Placement Rates:

The bootcamp program implemented with certifications embedded yielded a 95% job placement rate.

>> Credible Curriculum:

The curriculum is nationally vetted and improved, leading to greater credibility and ease of transferability.

>> Student Success:

Students become advocates of the program. They believe it helps them stand apart from other candidates. They educate employers on the value of the certifications.

>> For More Information:

Wisconsin, USA
(262) 741-8492
<https://www.gtc.edu/>



“Certification programs are highly valuable. At Gateway, they add to what we offer as a curriculum and make our college stand out from other colleges that don’t offer them. It is a talking point with businesses in saying that

we are aligned with a national program and third party validation. Certifications provide a common terminology across education and business that brings us closer together.

*-Debbie Davidson,
Vice President, Workforce & Economic
Development Division, Gateway Technical
College*





Challenge

Forsyth Tech, located in Winston-Salem, North Carolina, began hearing from employers that they were having a difficult time finding individuals with the right skills, even though unemployment was high. The college realized that there was a skills gap that was becoming a growing concern as the economy grew. Inconsistencies in training existed due to different curriculum depending where you went.

Forsyth identified third party certification as a way to align training with national standards and credentials and provide employers candidates that had the skills they needed.

Action

In the summer of 2010, Caterpillar, Inc. decided to build a \$426 million manufacturing plant in Forsyth County, bringing more than 500 jobs to the area. According to Caterpillar executives, Forsyth Tech, under the leadership of its president, Dr. Gary Green, "offered them good business training and promises of good education for its employees," therefore guaranteeing that Forsyth County was going to be a good place to do business because they could access an educated and skilled workforce.

In order to implement, Forsyth worked closely with The Manufacturing Institute to select the right credentials. They ran a pilot study and made the decision to integrate the skills certification process into the curriculum rather than add it on so students could benefit.

The implementation required openness in faculty and program leaders to adjust what and how they were teaching to utilize the changing skills and technology. Faculty and staff were provided training and facilities were upgraded when necessary.

>> For More Information:

2100 Silas Creek Pkwy
Winston-Salem, NC 27103
(336) 723-0371
www.forsythtech.edu/



Results

>> Expanding Quality Education:

The North Carolina Community College System is now expanding industry-recognized certification efforts across the state to impact students at all 58 community colleges, supporting a broad array of industries, including advanced manufacturing, aerospace, biotechnology, and energy.

>> Preference Among Employers:

Over time, offering the certifications provided the college a preference among employers. Organizations realized that third party certifications would get them the skills they needed to succeed.

>> Growth in Demand:

The confidence of having an ongoing pipeline of workers with the skills needed led to a growth of jobs and demand in the area. This increased the credibility of Forsyth as a provider of these skills. For example, companies including Caterpillar and Siemens chose to locate new manufacturing facilities in the area in a large part due to the college adopting the nationally recognized credentials.

>> Improved Brand Recognition:

Forsyth became known as a provider of a highly skilled technical workforce for the region.

>> Enhanced Recruiting and Retention:

Students see the success rates based on national standards and opportunities for growth. Demand is high and students remain in program knowing they will be able to get jobs afterwards.

"Skills certification for advanced manufacturing has led to more and better jobs for people in our community who have a real need for those jobs (particularly coming out of recession) and ensures employers have an ongoing pipeline of highly skilled workers to be competitive in the global market."

-Dr. Gary M. Green,
President of Forsyth Tech

North Carolina Community Colleges



Challenge

North Carolina Community Colleges have always offered certification programs of one kind or another. However, before partnering with the Manufacturing Institute, they utilized somewhat of a shotgun approach. Now, they build credentials into programs to validate skills and to provide opportunities to use portable and flexible credentials in developing a workforce for the future.

Action

The first step in taking action was to review and revise the current programs. North Carolina Community Colleges engaged in a Curriculum Improvement Project (CIP) in which third party validated credentials were integrated into their programs. In addition, the manufacturing industry was getting more involved in workforce development.

The next steps were figuring out how to build in fees for certifications and getting industry buy-in. After the program was implemented, the benefits and value of certifications were realized.

NC Community Colleges offer certifications the National Career Readiness Certificate, Manufacturing Skill Standards Council (MSSC), National Institute for Metalforming Skills (NIMS), American Society for Quality (ASQ), American Welding Society (AWS), among many others.

Results

>> Redefinition of Completion:

Credentialing systems have changed the way completion is defined. It is measured not only in degrees, but also in number of certifications.

>> Company Demand:

Some companies won't even look at students unless they have credentials. Others have built it into their training programs so students are coming to NC Community Colleges for training.

>> Program Marketing:

The certifications become a great advertising tool for the colleges because it indicates that NC Community Colleges offer a nationally portable and stackable credential that is valued in the work place.

>> Positive Student Perceptions:

Students understand the value and realize the benefits of being more prepared for work and having the right skills to find jobs.



For More Information:

200 W Jones St
Raleigh, NC 27603
(919) 807-7100
www.nccommunitycolleges.edu

“Students with credentials are more valuable than those with pure associate degrees. The right credential should be something that we are measured on as a sign of success for our students.”



-Matthew Meyer, Ph.D.,
Associate Vice President STEM Innovations,
North Carolina Community Colleges



Challenge

Ivy Tech wanted to drive long-term change in how education was delivered in support of completion. The project focused on four objectives: (1) increase the number of Hoosiers who will earn a postsecondary credential with value in the workplace; (2) align stackable industry-recognized skills certifications with educational degree pathways in the Ivy Tech community colleges and four-year institutions (Purdue and Indiana Universities regional universities) and with career pathways in advanced manufacturing; (3) modularize college curricula along the pathway to shorten the time to credentials and provide more on- and off-ramps in postsecondary education; and (4) strengthen employer engagement.

Action

The first step to implementing certification programs was to conduct research. Ivy Tech gathered teams of subject matter experts to determine what certifications do and which ones to offer. Then, they put suggestions forth to curriculum committees and voted to implement. Next Ivy Tech educated employers on the value of certifications and began to see evidence of success.

In addition to the technical certifications, particular attention is paid to workplace and academic skills. Students must complete the National Career Readiness Certificate for academic and workplace readiness, and have access to Work Keys training to build up skills in reading, applied mathematics, and locating information. Students also must pass a drug test, participate in a personal interview, and meet high attendance standards, akin to what is required on the job, during the training.

The companies have a unique arrangement: after 90 days successful retention, they pay half the cost of training (about \$1,300) back into the consortium. This is a win-win and saves the companies money that otherwise would have gone to turnover, retraining costs, and staffing agency fees.

>> For More Information:

(888) IVY-LINE
www.ivytech.edu

Results

>> Grant Competition:

Offering certifications has helped Ivy Tech gain grants as they are awarded for certification systems in place as well as the number of credentials completed.

>> Program Validation:

The passing rates are high indicating that that programs offered match the levels of skills needed. This helps validate the educational value of Ivy Tech and keeps them competitive.

>> Multiple Credentials:

Block scheduling classes allows students to obtain multiple credentials and makes it more likely that they will finish the program. Completion rates are now as high as 92% for certification systems. Moreover, Indiana has moved from 5th to 3rd in state ranking relative to the delivery of certifications.

“For us as a school, certifications have turned our focus towards students more and whether these students get the outcomes they need and are prepared to take and pass the certification tests. We were early adopters and people laughed at us saying it would never catch. One of the reasons it works here is because we believe it works. We want the mainstream certs that are valued by employers and make sure we are operationally capable. It is a value-added all the way around.”

*-Vearl Turnpaugh,
Associate Vice President Career & Technical
Programs, Ivy Tech*



ANNEX 21

EDUCATION & WORKFORCE DEVELOPMENT WORKCREEK 2

National Roadmap for Action

NATIONAL ROADMAP FOR ACTION

1. **Identify levers of change in each state.** In most cases, this will be an employer association who will take the responsibility of generating awareness of skills certification for employers, and lead colleges supporting the efforts to build consensus for system-wide implementation.
 - a. Convene state leadership teams – determine business, education, and government partners to serve as leadership
 - b. Use labor market information to determine high-demand manufacturing competencies
 - c. Work with early adopter colleges to align to industry certifications
 - d. Provide technical assistance to community colleges in certification and curriculum reviews, gap analysis, and pathway alignments.
2. **Determine whether there are good regional programs in the state and expand upon them.** If it's too hard to go statewide all at once, build on successful, smaller programs incrementally in order to replicate it throughout the state.
 - a. *Modularize existing applied associate degree and technical diploma programs.* Embed short-term credentials in longer-term programs that are eligible for federal student financial aid.
 - b. *Award credit for learning represented by non-collegiate credentials.* Assess prior learning and provide educational credit, particularly useful for reintegrating veterans and reemploying dislocated workers.
 - c. *Create dual-enrollment options that enable students to work toward high school diploma, post-secondary education, and job training programs.*
3. **Drive the effort through employer involvement.** Without the backing of industry and manufacturing employers in particular, the effort is likely to fail. States should involve business early, listen to what they say, and provide a tangible, meaningful part to play in planning and implementation. One state representative said it was critically important to make the entire “ask” about something tangible for employers and that would result in business-to-business engagement: “I engaged businesses by getting them to commit to one internship and then I asked that employer to pick up the phone and call at least one other manufacturer and get the word out.”
4. **Work backwards!** Determine what is needed, the vision for change, the ultimate goals to be achieved, and plan an incremental approach to get there. It is also important for each state to assess its strengths and weaknesses based on that vision, analyze what gaps exist, and how those gaps will be addressed. This approach applies both from an educational perspective (start with what companies need, then back into the curriculum) and also from an economic development and legislative perspective (e.g. what kinds of companies do we want to invest in our state, then how do we get them here?).
5. **Build a talent pipeline.** Identify middle and high school programs to target and build a supply of students for the manufacturing pipeline. Ensure the strategy is engaging both the key influencers (parents, teachers, counselors) and expanded pipeline populations (veterans, under or unemployed, out of school youth)

THRUWAYS – Tips to make the road easier to travel

- **Equipment Donations.** We are encouraging employers who are purchasing updated equipment to donate their old equipment to colleges if it's five years old or newer. When buying software, we ask them to buy an additional license and give one to the college. This is a cost-efficient way to bridge the gap between the outdated equipment colleges are teaching with and put into the classroom the technology employers are actually using in their production.
- **Memorandum of Understanding.** Nevada used a heavy employer engagement strategy to begin building out its pathway by funding internships and asking manufacturers to sign a Memorandum of Understanding. This memorandum states that manufacturers would hire into full-time jobs workers who had completed community college training programs as long as the workers could demonstrate the required skills. This was an unprecedented partnership between workforce training, economic development, education, and employers, who had previously been highly critical of the education system, to fast-track people on unemployment insurance into full-time jobs with benefits. The entire effort was driven by employer demand.
- **Statewide Pledge.** Conexus Indiana created the Indiana Employer Pledge for Workforce Excellence in order to educate employers about credentials and other strategies to strengthen the quality of the workforce and to enlist their commitment to apply those strategies to their hiring and personal policies. This pledge has been signed by more than 70 employers. Other states have employed a version of Indiana's strategy because the experience clearly demonstrated that employers are most enthusiastic when they are given choices of meaningful ways to engage.
- **Use the *Dream It, Do It* Campaign.** Places where *Dream It, Do It* was adopted often had success with employer engagement when other efforts had failed. *Dream It, Do It* is an Institute-led network and the grassroots authority on influencing the perception of manufacturing careers by leveraging strategic partnerships to attract and recruit a qualified manufacturing workforce. Currently in 28 states, the program supports manufacturers' engagement in youth-focused activities, ranging from mentoring and internships, to social media, to full-fledged advertising campaigns. Many states said that finding resources to support communications marketing dollars is a challenge, and the ability to spread awareness through a statewide campaign—for everyone to hear the same message at the same time—was critical to launching and sustaining their efforts.
- **Involve facilitators.** Contracting with a third-party can help manage discussions between community college and employers. A professional facilitator with a proven process and expertise in working through competing interests and conflict can bring the needed neutrality that helps move participants past their long-held positions, leading them to consensus and a solid plan for moving forward.

- **Build a Community of Learners.** Develop a means for state leaders, employers, educational institution, and community leaders to share best practices and utilize webinars to allow all of the states to hear from a broad base of experiences.

ROADBLOCKS – challenges in traveling the path to implementing credentialing systems

- ❖ The most significant challenge is securing funding to expand the model and sustain the effort long enough where it is imbedded in statewide systems. States that were awarded TAACCCT grants from the U.S. Department of Labor will be able to expand their efforts more broadly without losing momentum. However, the considerable investments required to integrate the model systemically will take the combination of resources of states, private foundations, employers, and federal programs—and leveraging them to achieve the desired result.
- ❖ Job turnover in key leadership positions impeded the ability to move forward with a cohesive message and vision, forcing several states to stop or slow their progress.
- ❖ One state said its biggest challenge was helping all stakeholders understand the big picture and how they have a vested interest in achieving a skills certification system. An integrated model would illustrate that everyone gets something from it: K-12 (higher graduation rates), community colleges (higher completion rates), workforce development (decreased unemployment and improved labor exchange), economic development (proof of a skilled workforce to attract new companies), policymakers (proof that things are working in their state), and employers (skilled, job-ready workers).

ANNEX 22

EDUCATION & WORKFORCE DEVELOPMENT WORKCREEK 2

Certification Implementation Guidelines

CERTIFICATION SYSTEM GUIDE TO IMPLEMENTATION

Overview of Skills Certification System: The NAM-Endorsed Manufacturing Skills Certification System is a system of stackable credentials applicable to all sectors in the manufacturing industry. These nationally portable, industry-recognized credentials validate the skills and competencies needed to be productive and successful in entry-level positions in any manufacturing environment. The [*NAM-Endorsed Manufacturing Skills Certification System*](#) includes both technical and non-technical skills, ensuring that individuals have both the personal and professional skills necessary for advanced manufacturing. The skill sets include four tiers of manufacturing competencies: personal effectiveness, essential academic skills, core manufacturing competencies, and key technical skills. The result is a professional technical manufacturing workforce with valuable industry credentials, making companies more innovative, more competitive, and more marketable.

Action Guidelines for Employers. This guide will help link current employees to professional development and training opportunities so that skills can be upgraded and advanced to integrate new technologies, lean the operation, and drive productivity in your company. The nationally-portable, industry-recognized certifications help to standardize, simplify, and improve practices to realize talent strategy.

IMPLEMENTATION PROCESS

Implementing the NAM-Endorsed Certification System is a multi-step process. Based on the experience of early adopters, the sixteen components outlined below provide a guide or map to successful implementation. While not purely linear, the steps as listed do build on each other.

SECTION 1: PLANNING & RESEARCH

1. Identify State/Regional Economic Demands

Below are some important considerations you may want to address as you think about identifying state and regional economic data. Have you:

- Collected relevant data about your state/region, including: current state of manufacturing (# companies, #workers, average wage, etc.); projected worker demand; projected high-demand occupations; implications for worker skill levels?
- Considered the spectrum of manufacturing activity in your state/region in:
 - Advanced Manufacturing data (for traditional industries such as primary metals, transportation equipment, chemical, etc.)?
 - High-Tech data (for technology-based industries such as semi-conductors & other electronic components, electro-medical, audio/visual equipment, etc.)?
- Analyzed the data to identify potential growth industries; projected worker demand; high-demand occupations; cross-cutting skill requirements?
- Used data driven decision-making to determine the economic development priorities of the state/region as they relate to manufacturing and how your Skills Certification

initiative can be designed to support state/regional economic development priorities?

2. *Create an Asset Map*

To create the asset map, each of the states should focus on the contributions that organizations and programs can make to a statewide Skills Certification System and how the policies and resources of those assets already align to support such a system.

3. *Determine Advanced Manufacturing Career Pathways*

Based on state and/or regional economic data, determine which high-growth industries and which high-demand occupations to target for certification efforts. Often high-demand occupations will support numerous projected high-growth industries. Identify the career pathways/programs of study that support those high-demand occupations. Below are some important considerations you may want to address as you determine Advanced Manufacturing career pathways. Have you:

- Determined which high-growth industries to target for certification efforts (based on economic data)?
- Determined which high-demand occupations to target for certification efforts?
- Determined which high-demand occupations to target for certification efforts
- Identify the career pathways/programs of study that support those high-demand occupations?

4. *Develop a Timeline for Action*

Every community college is in a continuum in implementing educational pathways related to manufacturing and will have different “starting places in integrating industry credentials into degree programs of study, giving each institution the opportunity to accelerate its implementation in existing programs of study that have elements of credentialing. Based on targeted career pathways, develop a timeline that reflects major milestones for action. Use the timeline to benchmark planned vs. actual progress of implementation. Be realistic – building a skills certification system takes time.

SECTION 2: DESIGN AND DEVELOPMENT

5. *Engage Industry Leaders & Build Demand*

Manufacturers look at their workforce as a business investment: the more mobile, adaptable, technology-savvy, and creative an employee, the more secure the investment. To build the “demand” side, The Manufacturing Institute and its partners continue to develop [tools](#) that will assist employers in their hiring process. In order to succeed in this, build employer demand while producing a supply of certified workers. Use [marketing tools](#) that stress workforce as a business investment. Recruit business champions who can speak to the positive impacts of hiring certified workers. Below are some important considerations you may want to address as you engage industry and build local, regional and/or state demand. Have you:

- Partnered with NAM/MI to identify a few manufacturing champions in your state/region?
- Provided an orientation session to key manufacturers in your state/region regarding the certification system?

- Developed marketing tools that stress the benefits of industry certification?

6. *Engage Faculty and College Leadership*

Critical to the success of integrating the learning content related to nationally portable, industry-recognized credentials into for-credit programs of study is the full engagement of faculty and college administration. Prior to launch, provide an in-depth orientation to key stakeholders at the college level so “buy-in” begins early. Build in mechanisms for ongoing engagement, such as regular faculty sessions to share progress. Facilitate best practice development within individual colleges across content areas as well as across colleges in similar content areas. Below are some important considerations you may want to address as you engage faculty and key stakeholders within the college. Have you:

- Provided an in-depth orientation to key stakeholders at the college level so “buy-in” begins early?
- Identified strategies for ongoing engagement, such as regular faculty sessions to share progress?
- Established mechanisms for sharing best practices among faculty in different content areas within colleges?
- Established mechanisms for sharing best practices among faculty in the same content areas across colleges?

7. *Audit Programs of Study*

A community college carefully examines its current programs of study to “map” its assets. Faculty objectively audit/analyze existing curriculum against the needs of regional manufacturers and the requirements of targeted industry certifications. Faculty are proactively engaged in identifying gaps in their curriculum. Below are some important considerations you may want to address as you examine and audit programs of study. Have you:

- Determined which programs of study to target for initial certification efforts?
- Analyzed the curriculum in those programs of study against the requirements of targeted industry certifications?

SECTION 3: IMPLEMENTATION

8. *Align and Map Certifications to Programs*

Pursuing alignment in college programs will help professionalize the careers in manufacturing as high-tech, high-skill, and high profile programs. The process of aligning with the industry certifications involves several steps. Faculty must identify and/or develop new instructional modules to fill in curricular gaps. Faculty also must determine where in the sequence of instruction the various certification exams should be given. Below are some important considerations you may want to address to align certifications to college programs. Have you:

- Identified and/or developed new instructional modules to fill identified gaps in curriculum?
- Determined where in the sequence of instruction the various certification exams should be given?

9. *Align to STEM*

Identify the critical applied math, science, engineering, and technology skills imbedded in certification requirements. Aggressively build those applied STEM skills into all career technical curricula.

10. *Assess Faculty and Implement Professional Development*

Support is in place to help faculty assess their current knowledge and skills relative to the certification requirements in their content area. If needed, faculty can participate in training provided by certification sponsors. Faculty earn requisite certifications. Below are some important considerations you may want to address as you develop a plan to engage faculty in professional development. Have you:

- Put a mechanism in place to help faculty assess their current knowledge and skills relative to the certification requirements in their content area?
- Determined which faculty have which industry certifications?
- Arranged for faculty to participate in training provided by certification sponsors, if needed?
- Required faculty to earn the required certification(s) for the program areas they teach?

11. *Develop Certification Partnerships*

To successfully develop certification partnerships, implementers reach out to and develop significant partnerships with certification partners. In some cases colleges elect to go through specific program accreditation as required by a specific certification sponsor. Below are some important considerations as you develop certification partnerships. Have you:

- Identified a point of contact with relevant certification sponsors?
- Developed a working relationship with relevant certification sponsors?
- Taken steps to get required programs accredited?

12. *Deploy [Dream It. Do It.](#) & Student Recruitment Strategies*

As part of our engagement strategy, the Institute launched Dream It. Do It., a career awareness and recruitment initiative that is an attraction and engagement tool focused on the broad range of high quality, middle class jobs available in the manufacturing economy and the educational pathways incorporating the skills certification programs in the community colleges. Dream It. Do It is now active in 21 states or regions across the nation and continues to grow. Below are some important considerations you may want to address as you deploy an effective student recruitment strategy. Have you:

- Developed a student recruitment strategy?
- Implemented a student recruitment strategy?
- Incorporated various forms of media into your strategy?
- Leveraged the Dream It. Do It. campaign?

13. *Develop Feeder Systems*

Identify all possible systems that might feed potential students into career pathways. Consider WIA, Adult Basic Education, Continuing Education, returning military,

displaced workers, etc. Develop strong linkage mechanisms that help assess baseline skills and form seamless connections with manufacturing programs of study.

SECTION 4: REASSESS FOR CONTINUOUS IMPROVEMENT

14. Develop Benchmarks

Identify key performance indicators to serve as benchmarks for measuring progress. Collect data on a regular basis to assess actual vs. planned progress.

15. Drive a Policy Agenda

Identify “big picture” policy barriers that are impeding progress and develop an agenda for driving needed policy interventions. Leverage local successes to promote regional and statewide change.

16. Sustain the Certification System

Develop a comprehensive plan for sustaining the certification effort.

ANNEX 23

EDUCATION & WORKFORCE DEVELOPMENT WORKCREEK 3

Employers' Playbook for Building Apprenticeship Programs

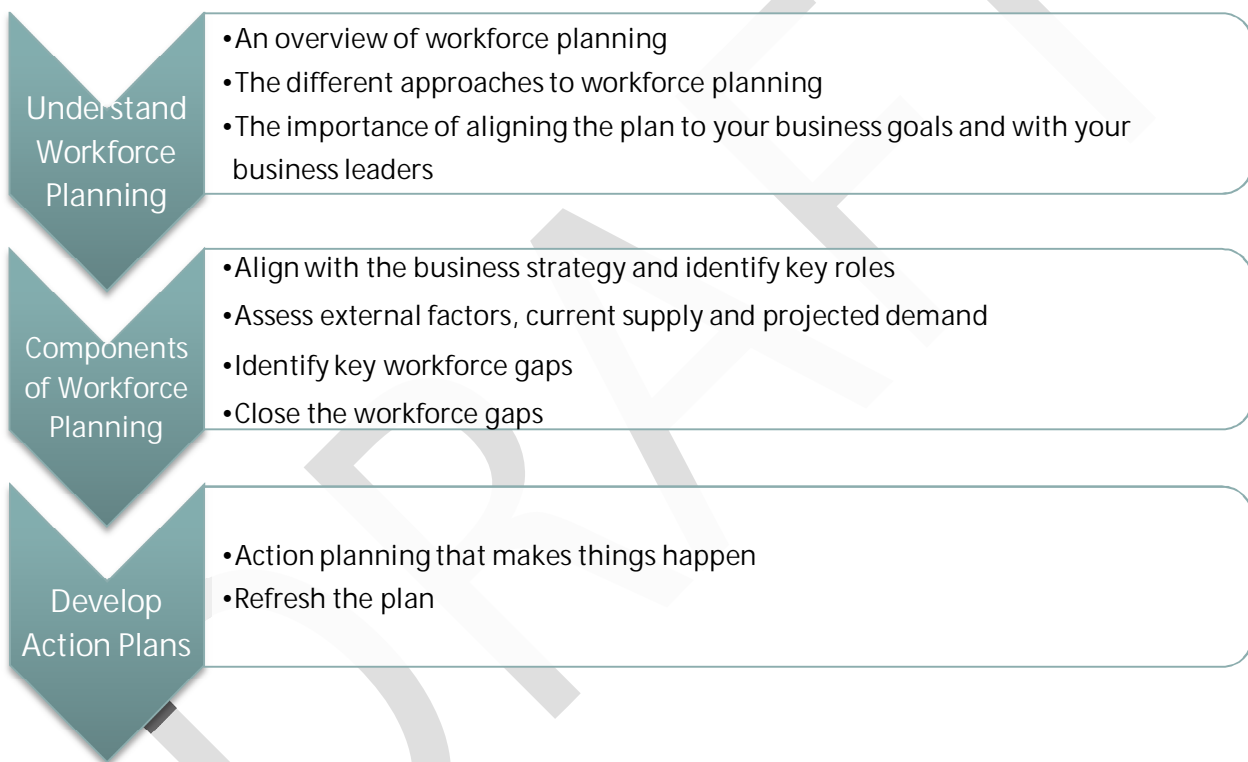
Employer's Playbook



for Building an Apprenticeship Program

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Effective workforce planning is the foundation for creating meaningful, business aligned workforce strategies. Often it is mistaken for an HR process, but it is really a business process focused on mitigating operational risk. Successful execution of a business strategy requires the right people with the right skills at the right time to convert the business plan into results. Workforce planning is key to making this happen. In this chapter you will learn what workforce planning is, its various components and keys for a successful implementation.

“An organization can be staffed more efficiently if it is able to forecast it’s need for talent in various areas, as well as the actual supply of talent that will be available in the future in those needed areas. ”

- Shujath Ali, Plant Manager, Siemens, Alpharetta, GA

- Conduct a Workforce Plan
- Implement Workforce Process Components
- Develop Action Plans

An Overview of Workforce Planning

You have likely heard of the term workforce planning, but have you ever wondered what it really means? Workforce planning refers to a process that business leaders can use to assess their workforce capability in support of the needs of the business. It is focused on determining your operational risk related to having too few or too many of the resources and skills needed to run your business. It is important to note that this is a forward looking process and is typically focused on assessing the workforce over a three to five year period. It is not the annual budgeting process, nor a headcount report, nor focused on the here and now. A good workforce plan aligns the most important segments of the workforce to meet the needs of the business and prevents shortfalls or overages.



The workforce plan is also not expected to be perfect. The plan is not created and then placed on a shelf, it should be considered a living document which is updated annually and adjusted as changes in the business needs or the workforce occur. It is also not an academic exercise, there are many ways to conduct workforce planning and the important thing is that you use the process which makes sense for your business and fits well within your culture.

Different Approaches to Workforce Planning

Just like any other assessment, there are different ways to assess your workforce supply and workforce demand. The most important thing to remember is to make sure the process fits your needs and culture. Creating a process which is overly complex, difficult to update or to action plan from will only result in a plan which will not be used. Workforce planning is not about the plan itself, it is about driving targeted actions to close the gaps. If your planning process is seen as non value-add, then it certainly will not be used, actions will not be generated and the value of the process is lost.

A chart which outlines some of the different approaches to workforce planning is below for your reference. Remember, there is not a silver bullet solution and you must apply business logic to defining your approach. As a best practice, workforce plans should be updated roughly on a 12 – 18 month schedule. Some may require a stronger workforce planning infrastructure and demand inside of the organization.

Process Alternatives:

	Structured Annual Approach	Event Driven Approach	Periodic Approach
Definition	Preparing a workforce plan as a part of a larger annual update process	Completing a workforce plan in a just-in-time fashion based on a specific business need	Providing both standards but allowing for location level flexibility
Example	Embedding standard workforce planning into the annual budget process resulting in each budget owner developing a plan	Performing this process as a response to the launch of a new production line	Using standard tools but varying cadence for the workforce planning, depending when the location manager identifies a need

Scope Alternatives:

You should also be thinking about the scope of your workforce planning efforts. For example, you can apply your process at a department level, a location level, a regional level or a global

level. You need to be focused on applying the process in a manner which will add value for the business. You need to work with your business leaders to define not only the appropriate process, but also the appropriate scope. In some cases, it may make sense to complete a workforce plan for a plant, while in other cases it may make sense to complete a workforce plan for a certain position which spans across many locations and geographies.

	Department Level	Location Level	Regional Level	Global Level
Definition	Workforce planning for a specific work group or function	Implementing planning for one specific geographic site	Applying the process for a defined geographic area (Ex: Zone or district)	Planning for your entire company, across the globe
Example	Creating an action plan due to a need to build a talent pipeline in your assembly department	Workforce planning to address the shortage of a skilled labor pool for your Atlanta site	Planning to shift the skill set of employees in the South due to the market conditions	Utilizing the process to support a business initiative encompassing all of your work locations

Regardless of which approach and scope you choose, the important thing is that the planning connects the overall business strategy with the workforce needs.

Align Business Leaders

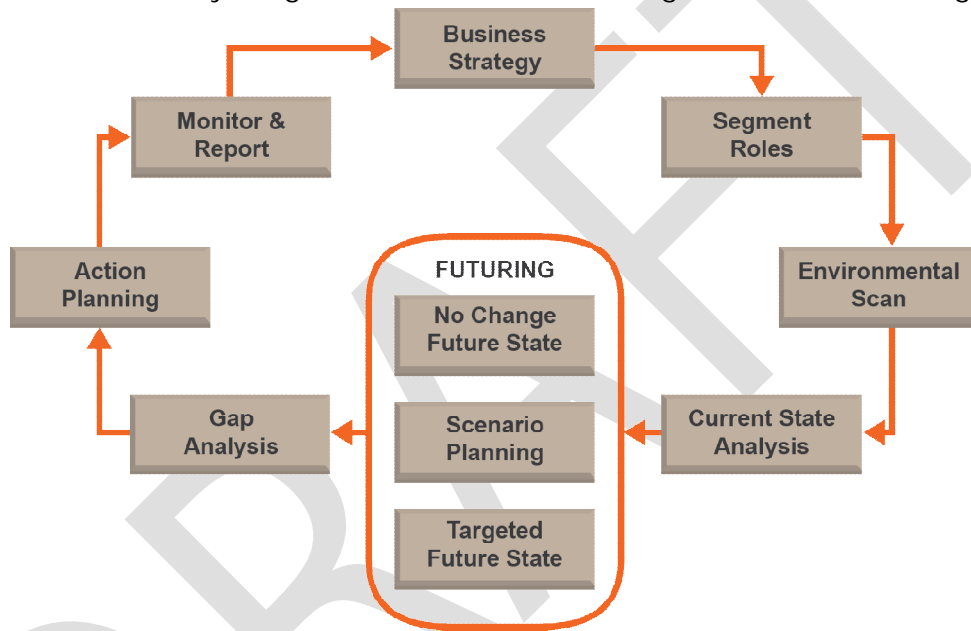
As previously mentioned, the workforce planning process, tools and scope must be seen as a value added effort by your business leaders. Workforce planning is facilitated by human resources, but it must be owned by the operational leaders. You may need to sell the concept to your leadership team depending on what level of familiarity and acceptance your organization has towards workforce planning. The formula for success is simple:



- Conduct a Workforce Plan
- Implement Workforce Process Components
- Develop Action Plans

Components of a Workforce Planning Process

Regardless of the approach or scope that you use, the high level steps of workforce planning are the same. HCI provides a good overview of the thought process related to workforce planning which shows that everything starts with understanding the business strategy:



Business Strategy and Role Segmentation

This first step in the process is to thoroughly understand the business strategy and to identify the roles which impact the ability of the business to deliver the strategy. Remember, not all roles are created equally and you need to know which ones are most important. When assessing the needs for an apprenticeship program, you will need to understand the production strategy enough to be able to project the future needs for the skilled trades in a plant. All of these factors come into aligning the roles to the strategy:

What is the expected financial performance of the plant?

Is the plant growing or shrinking?

What areas of the plant are most impacted?

What skilled trades in the plant are most critical today and what will be tomorrow?

In identifying the key positions that you would like to focus your workforce planning efforts on, you may want to consider the following:



Importance vs. Difficulty:
How strongly the role contributes to the success of the business and the level of difficulty in acquiring those skills in the market.

Criticality vs. Complexity:
How critical the role may be for achieving the strategic business goals as well as what level of complexity the responsibilities entail.



Roles can be categorized into one of the following categories depending on how it corresponds with strategy:



(<http://www.hci.org/blog/2013-workforce-planning-analytics-conference-part-5-role-segmentation-fedex>)

Environmental Scanning

HCI outlines a step in their process focused on conducting an environmental scan. The intent of this step is to make sure that you spend time focused externally on the roles you have selected to review. Specifically, you should focus on what is happening in other businesses, the local labor market, or politically, which may impact your supply or demand for the role. This is a key step as many times companies become too internally focused and this step will force you to think beyond your company and plant.

A good resource for you to tap into in order to get an accurate assessment of the environmental changes occurring in your area is the local workforce investment board. As the party responsible for development and oversight of the public workforce system, they can assist with:

- Providing regional indicator data and analysis that captures economic development to support informed workforce development decision making
- Identifying gaps between the skills of the regional workforce and current as well as future needs of employers
- Collaborating with companies to develop strategies to address identified gaps
- Developing innovative programs that can be utilized to address local workforce needs

Current State (Supply) and Future State (Demand)

A key part of the process is projecting supply and demand. Typically, the first step is having a detailed understanding of your current state within the roles you have selected. As a part of this step you should document the number of positions you have, the unique skills current employees possess, your populations' retirement eligibility and attrition rates and your current operating skill gaps. The goal of this step in the process is to understand what is good and what risk you have relative to your current employee base. Specific outcomes from this step include:

- What staffing levels do you have today?
- What % of people currently in the role will still be in the role over the next few years?
- What skills and knowledge are at risk?
- What departments are at the greatest resource risk and how do they contribute to delivering the strategy?
- What production risk do you have?

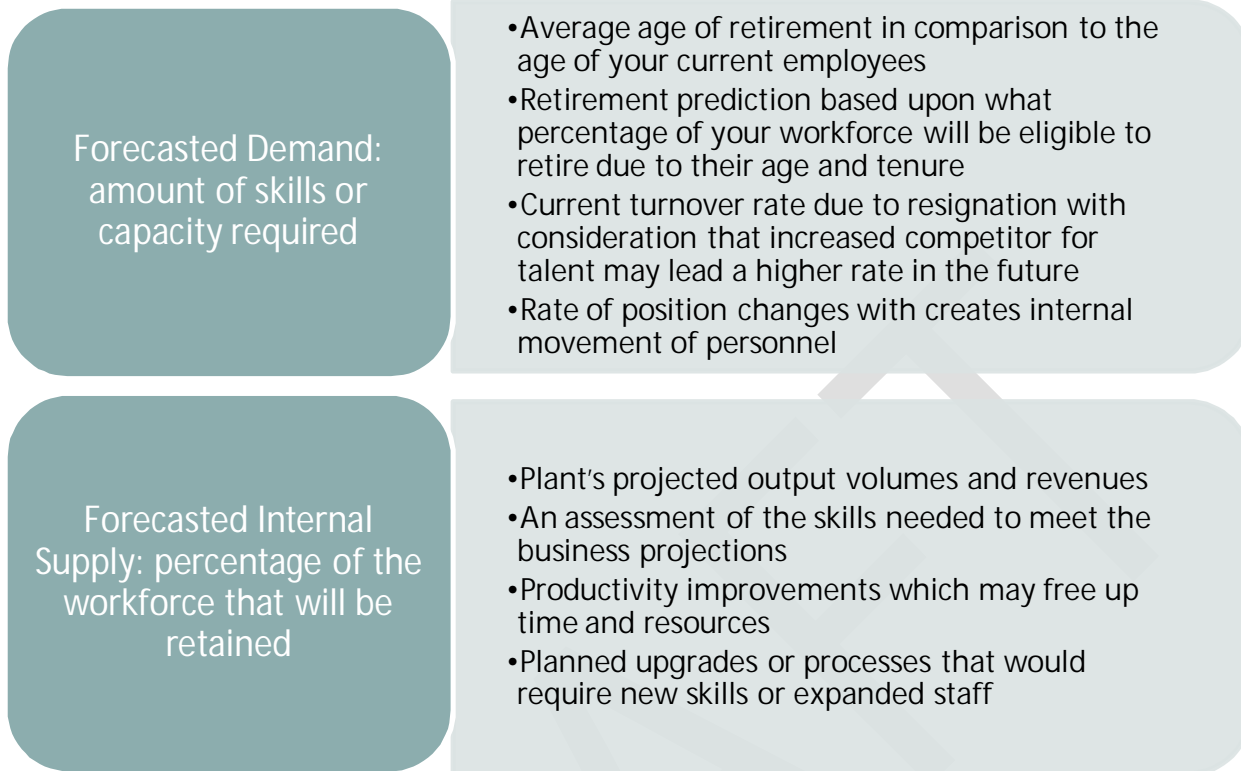
The end of the current state analysis provides you a view of what the workforce will look like in the future if you simply do nothing. Typically, there is a cost of doing nothing and you need to make sure the business leaders understand what this impact will be.

With the current condition complete, you now need to shift your focus to the target condition, or what your business and workforce should look like in the future to deliver your business plan effectively. In this step you outline many of the attributes you did in the current state, but you outline them in a way that you ensure your business can meet its strategic obligations. Specific outcomes from this step include:

- What staffing levels are required across the plant?
- What staffing levels are required in the most critical departments?
- What skills are required in each department and what are the most important skills?
- What will be most important production areas and what need will they have?
- What emerging technology will be used and what specifically is required for the workforce to be successful with the technology?

The end of the target state analysis provides you a view of what the workforce will need to look like in the future if you are to meet the needs of your business.

Below is a chart which outlines the combined effect of the supply and demand concept:



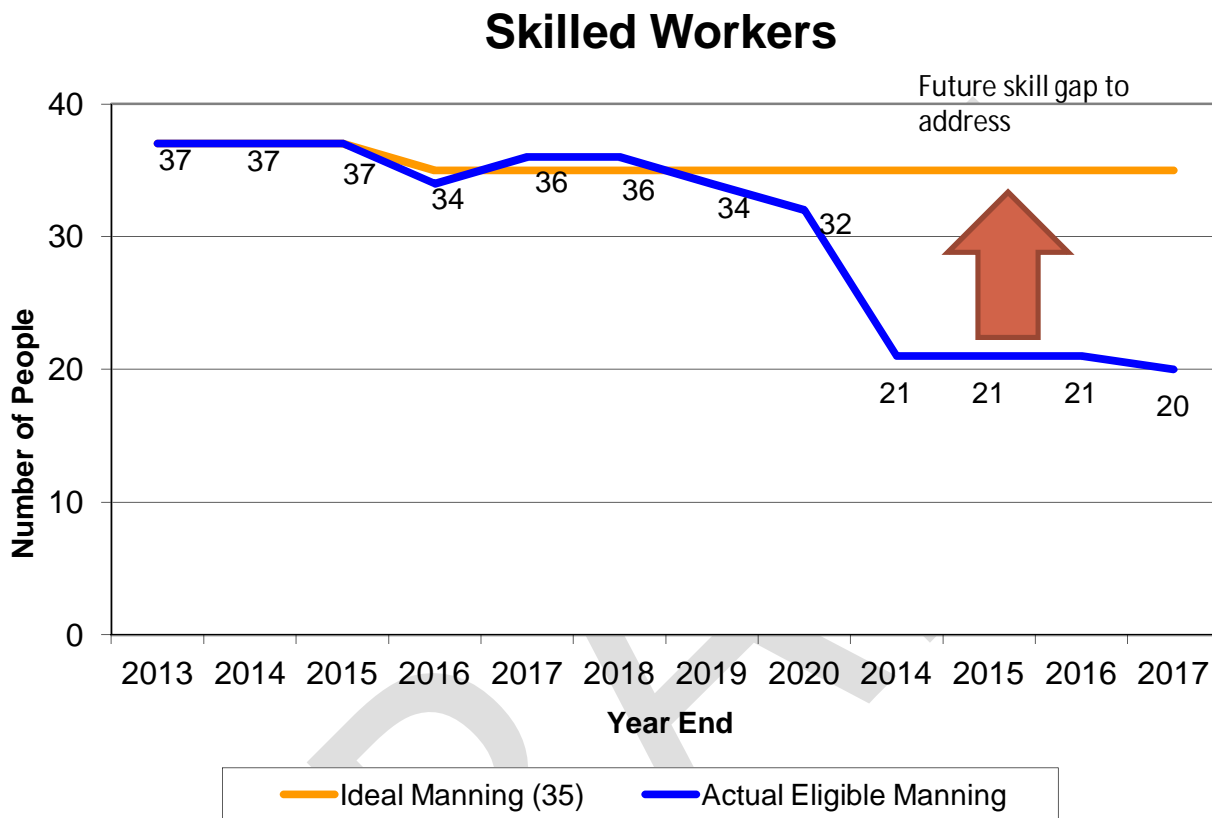
Gap Analysis

It is critical that you focus on identifying the most impactful gaps from your supply and demand analysis. You should be focused on targeting the areas which will clearly negatively impact your ability to meet the business strategy. In addition, you should focus on those areas which will create the highest operational risk and pose the biggest threat to achieving your strategic goals. This is accomplished by simply comparing your target state to your current state and focusing on understanding the difference in several key areas including:

- Employee surpluses
- Employee deficits
- Skills surpluses
- Skill deficits
- Knowledge surpluses
- Knowledge deficits

Based on the approach, you will typically find many gaps when comparing the current condition to the target condition. The important step is to identify the most meaningful gaps for which you will need a gap closure plan. You do not want to try and focus on many unimportant gaps, you want to focus on the gaps that will mitigate operational risk and deliver the

business plan. Remember, you want to make the outcomes are actionable and impactful. This is critical for success of the overall workforce plan. Below is an example which outlines a potential employee deficiency that you would need to develop a plan to address:

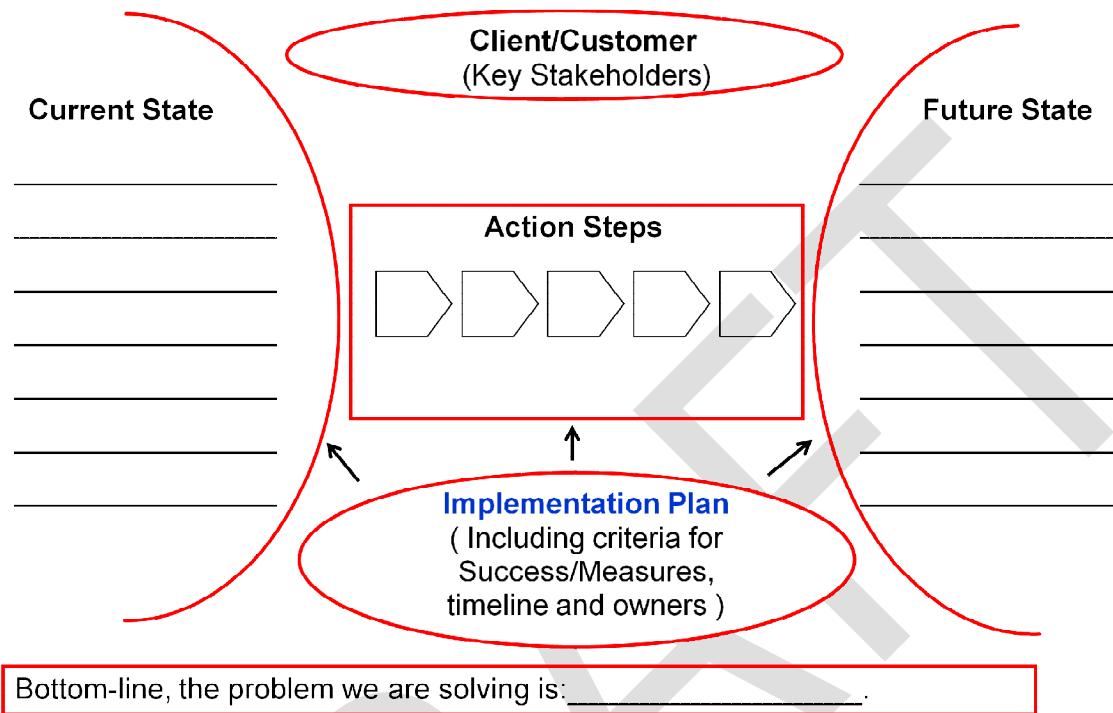


- Conduct a Workforce Plan
- Implement Workforce Process Components
- Develop Action Plans

Close the Gap

Once the critical gaps are identified, the most important work begins. You need to now change your focus from the conceptual and determine what tangible actions will be put in place to close the gaps previously identified. This is most easily done when you outline an action plan for each gap including the timeline, single point of accountability and measures for success. The more binary you can be with your action plan, the higher the likelihood of completing the action and closing the gap. Many times leaders will be looking for details on how to best close the identified gaps.

Gap Analysis Worksheet



Source: Linkage

The "6B and OD framework" is a decision-making tool that can be applied to workforce planning to determine the best techniques to provide needed skills and capabilities for your business (HCI). Additional information on the model as well as a worksheet can be found in the toolbox to help facilitate taking action.

Remember: Nothing else matters in workforce planning if you do not execute.

An Apprenticeship as a Way to Build your Workforce

Ultimately you may find that it is most effective to attract individuals with potential and utilize an apprenticeship program to incubate talent and fill your skill gaps. Reasons it may be the best solution for building your workforce needs includes:

Your current traditional hiring strategies, such as temp to perm or using local agencies, are no longer yielding required results.

There is a disconnect between the skill sets of the unemployed and the types of jobs available.

Your position requires multiple or unique skills which complicates the ability to find an individual that meets your unique needs.

You are focused on addressing long-term needs. Limited talent in the external market is projected to continue in the future.

There is a growing shortage of technically skilled shop talent and current model is no longer a viable solution and comes at a high cost.

Did you know? The ManpowerGroup's 2014 Talent Shortage Survey identified skilled trade workers as the most difficult jobs for employers to fill.

Action Planning that Makes Things Happen

To make sure that the gap closure plans are executed you need to have a simple and effective way of tracking the actions. The best action plans have a few things in common:

- A simple template which outlines the action, who is accountable and current status
- A visual indicated on the status of each action. Many times "stoplight" logic is used indicating red as behind, yellow as at risk and green as all moving well
- The template needs to be reviewed frequently in standard meetings
- Accountability needs to be reinforced, the action plans need to take priority
- On a periodic basis, the team needs to assess the relevancy of the action plans and the collective impact.

A sample action plan template is below to provide you an example of a format which promotes transparency, ease of use and accountability:

Action Plan Format 1

Action Count	Key Focus Area	Targeted Department	Targeted Outcome	Specific Action	SPA	Planned Due Date	Current Due Date	Actual Result Achieved vs Targeted Outcome
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

Action Plan Format 2

Mission Challenges (Define the issue)				
Strategy (Define the broad category of planned action)				
Expected Outcome (What do you want as a result of the strategy?)				
Measure of Success (How will successful completion of strategy be measured?)				
	Action Items (What steps will be taken to achieve strategy?)	Person(s) Responsible (Who is accountable?)	"Complete By" Date (When will each step be completed?)	Resources Needed (What do you need to get it done?)

United States Geological Survey: Workforce Planning Desk Guide
 Prepared by: Strategic Initiatives Team
 Office of Human Resources, US Geological Survey

Refresh the Plan

Remember: Your workforce planning model is meant to be dynamic and flexible; making changes does not mean there is a flaw. It is critical that you periodically review the plan and refresh to address any internal or external changes that have occurred since it was created or last refreshed.

Recommendations for how often and when to review the plan:

- You should revisit it as frequently as needed based upon the business needs.
- At a minimum, we advise that you revisit progress of existing plans quarterly.
- We also recommend that you update plans for the key roles every 12-18 months.
- The ideal time for this holistic review to take place would be prior to or in conjunction with the budgeting or other strategic processes to ensure that appropriate funds are allocated to support the updated plan.

Do's and Don'ts for Workforce Planning

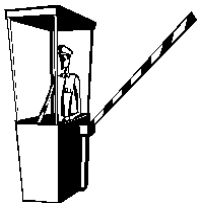
Do!

- Make it relevant and business based.
This is not just a process to check the box with, it is only valuable if you are using it to address your business needs.
- Do keep it simple and straightforward.
The process involves numerous steps, ensure your approach is applicable to your needs.
- Make business leaders the owner.
This is a business process that HR supports, not drives.
- Focus on action plans and progress.
It is not just performing the planning; develop an action plan, execute upon it and progress until your gaps are closed.
- Do utilize and commit all resources available.
These include people, processes or tools. Leverage trusted advisors to 'bounce' your ideas and plan.

Don't!

- Don't make the process overcomplex.
If the process is too complicated, you will lose stakeholders and their buy-in and it is less likely to be used.
- Don't skip defining the right approach and scope.
When performing planning, it must be clear how proactive rather than reactive it will be and what scope the process will cover.
- Don't perform the planning in a vacuum.
Involve all stakeholders, both internally and externally, gain buy-in and incorporate their feedback.
- Don't underestimate the need for business ownership and buy in.
This is a long-term investment and commitment at all levels is needed from the start for sustainability.
- Don't confine your thinking.
Challenge the status quo as your workforce needs must not only be met through strictly conventional approaches.

Check Point:



Check Point:

Review the checklist to evaluate your understanding of workforce planning fundamentals. You should have successfully completed the checklist items and can move to the next chapter.

- Understand the different approaches to workforce planning and business linkage
- Understand the components of the workforce planning process and develop a relevant scope and approach for your business

- Complete a workforce planning process and have a meaningful action plan
- Decide that an apprenticeship program is the best solution to secure the talent you will need

Toolbox:



6 Bs Toolbox
Info.docx



6Bs and OD
Worksheet.docx



HCI Strategic Job
Gaps.pdf



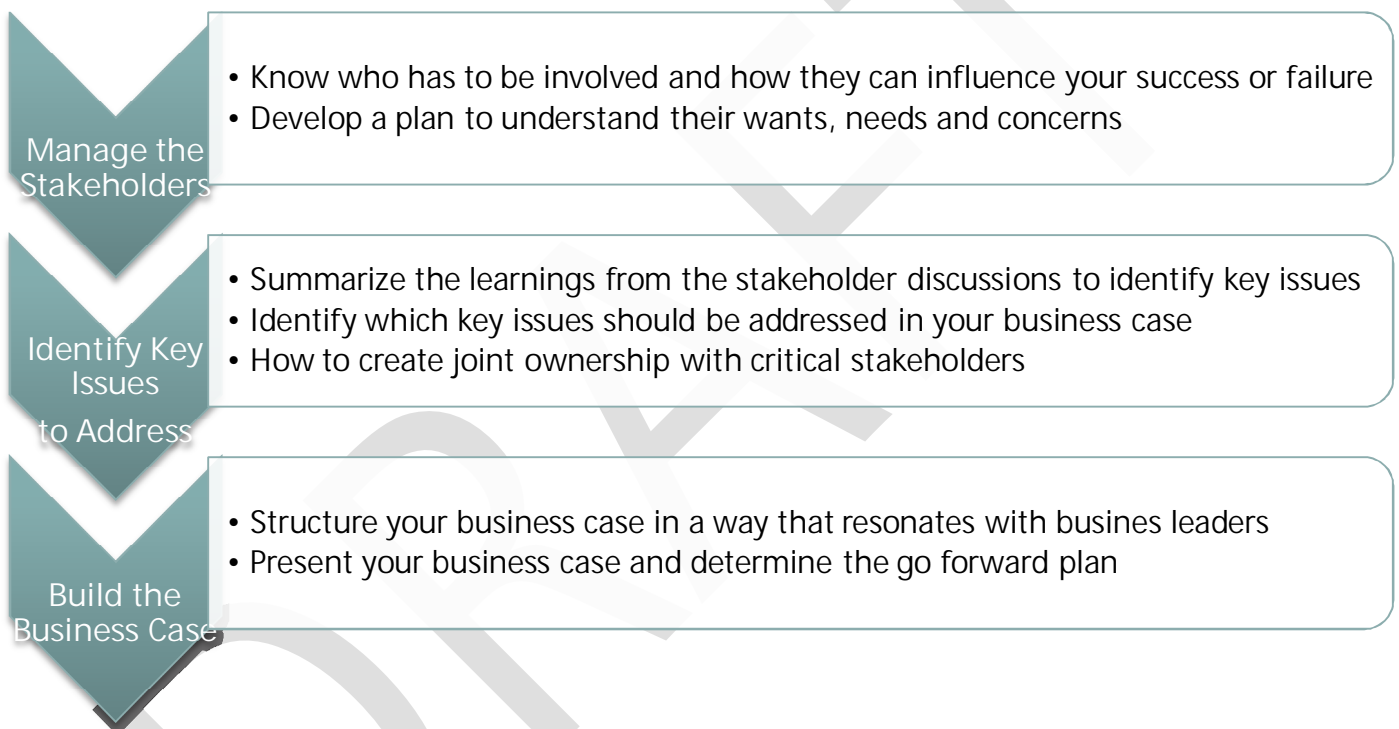
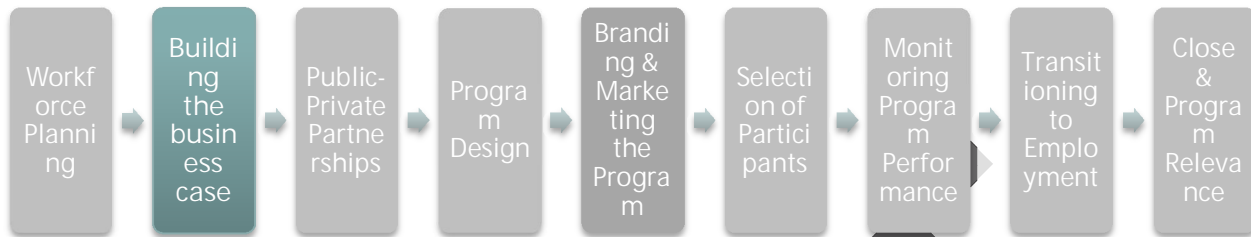
Siemens Detailed
Workforce Development Framework.ppt



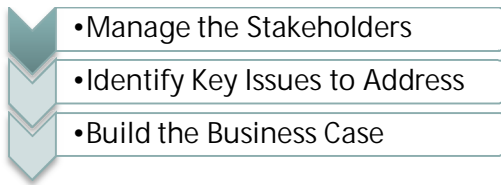
Workforce_Develop
ment_Framework.ppt

TEMPLATE FOR GAP CALCULATION PENDING

DRAFT



An Apprenticeship Program requires an investment and similar to any investment developing a good business case is essential to success. A strong business case will secure leadership buy in, identify cost and time requirements and promote overall accountability for program success. In this chapter you will learn how to identify the key stakeholders, understand the issues and build a business case with broad support and measures for success.

- 
- Manage the Stakeholders
 - Identify Key Issues to Address
 - Build the Business Case

Manage the Stakeholder

Before you prepare a business case you need to understand the views and opinions of the individuals who will be impacted by your recommendation to develop an apprenticeship program. By understanding their needs, concerns and key issues you can proactively address many of the concerns resulting in a stronger business case and a higher degree of ownership and probability of program success.

The first step in stakeholder management is simply developing a list of the stakeholders. The stakeholders are the individuals who are impacted by, or can impact, the approvals or outcomes of the program.

Here are some questions to help you identify possible stakeholders:

It is all about:

- Who are the decision makers who will approve or not approve the program?
- Who are the individuals who will help build and deploy the program?
- Who are other individuals who will be indirectly impacted by the program?

- Who will need to approve the program and support the overall effort to ensure success?
- Who will benefit from the program? Who will be negatively impacted by the program?
- Who will be responsible for delivering the program?
- What organizations outside of the company have a vested interest or accountability for the program?
- Who are key influencers in the organization?
- Who has previous experiences with prior programs - good and bad?
- Who should be aware of the program outside of the location?

Develop a Stakeholder Map

To help you think through the stakeholders it is recommended that you develop a stakeholder map. This is simply a spreadsheet listing each stakeholder, their criticality to the success of the program and key needs and issues which may be relevant. Below is a simple example of a stakeholder map:

	Stakeholder	Criticality to success (high, medium or low)	Relevant needs or issues
Internal	Plant Manager	High	How do I get this funded?
	Plant Controller	High	What is the financial impact and accuracy?
	HR Manager	High	What are the business and workforce implications?
	Business Leaders	High	What is the strategic impact and business implications?
	Corporate Public Relations	Medium	Does this impact the community and how can we leverage it?
	Department Managers	Medium	What are the resource impacts – good and bad?
	Supervisors	Low	What are the resource impacts – good and bad?
	Existing Employees	Low	What does this mean for me?
	Corporate Human Resources	Low	How does this fit into our broader workforce strategies?
External	Community Colleges	High	What does this mean for the college?
	State DOL Office	High	How can we help with program registration and funding?
	Regional Business Organizations	Medium	What is the impact on the region?
	Other Local Businesses	Low	What are other companies doing?
	Professional Associations	Low	How can we help?

Develop a Stakeholder Engagement Plan

Once your stakeholder map is complete, you will need to identify the individuals critical to building, reviewing and approving your business case for a new program. It is recommended that you focus on those who will be making the decision to approve or not approve your business case and other individuals who will be critical to providing feedback necessary to build your business case. This will typically include all your critical resources identified in your stakeholder map like plant manager, controller and the appropriate community college contact.

With the key business case stakeholders defined, you should outline key issues you believe are relevant to that stakeholder in advance of having a discussion. Prepare a simple list of discussion topics which will include the broader results of the previous workforce planning efforts to help you in the discussion. You should schedule time with the stakeholders separately and use your discussion list to identify their key needs, issues and concerns.

Remember: listen, ask probing questions and use their input to help solve any obstacles that appear.

Below is a brief example of a discussion guide:

Controller discussion guide and questions example

Set the Context as You Kick off the Conversation:

Introduce the concept of an Apprenticeship Program as a result of the workforce planning efforts and indicate that you are building a business case in support of a new program and his or her feedback and support:

- Question 1 - What do you see as the financial challenges in launching the program?
- Question 2 -What operational risk do you see if we do not develop the program?
- Question 3 - What you share with me any spending constraint for the program?
- Question 4 - Would you share with me your personal opinion on the value or any concerns with the program?
- Question 5 - What are the main topics to focus and financial templates to use in preparing the business case?
- Question 6- Who can I partner from the team to help me on the financial portions of the business case?

•Manage the Stakeholders

•Identify Key Issues to Address

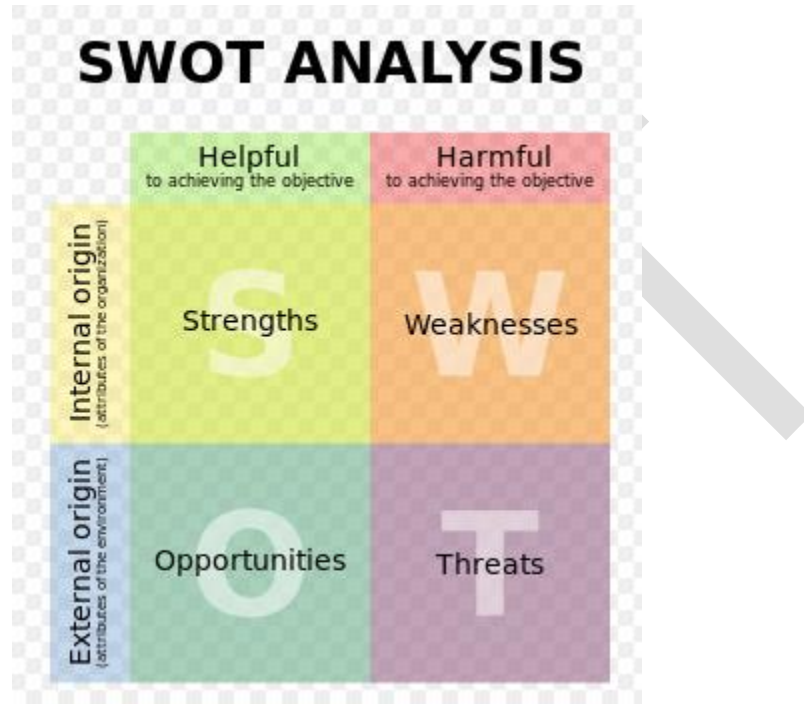
•Build the Business Case

Summarize the Learnings

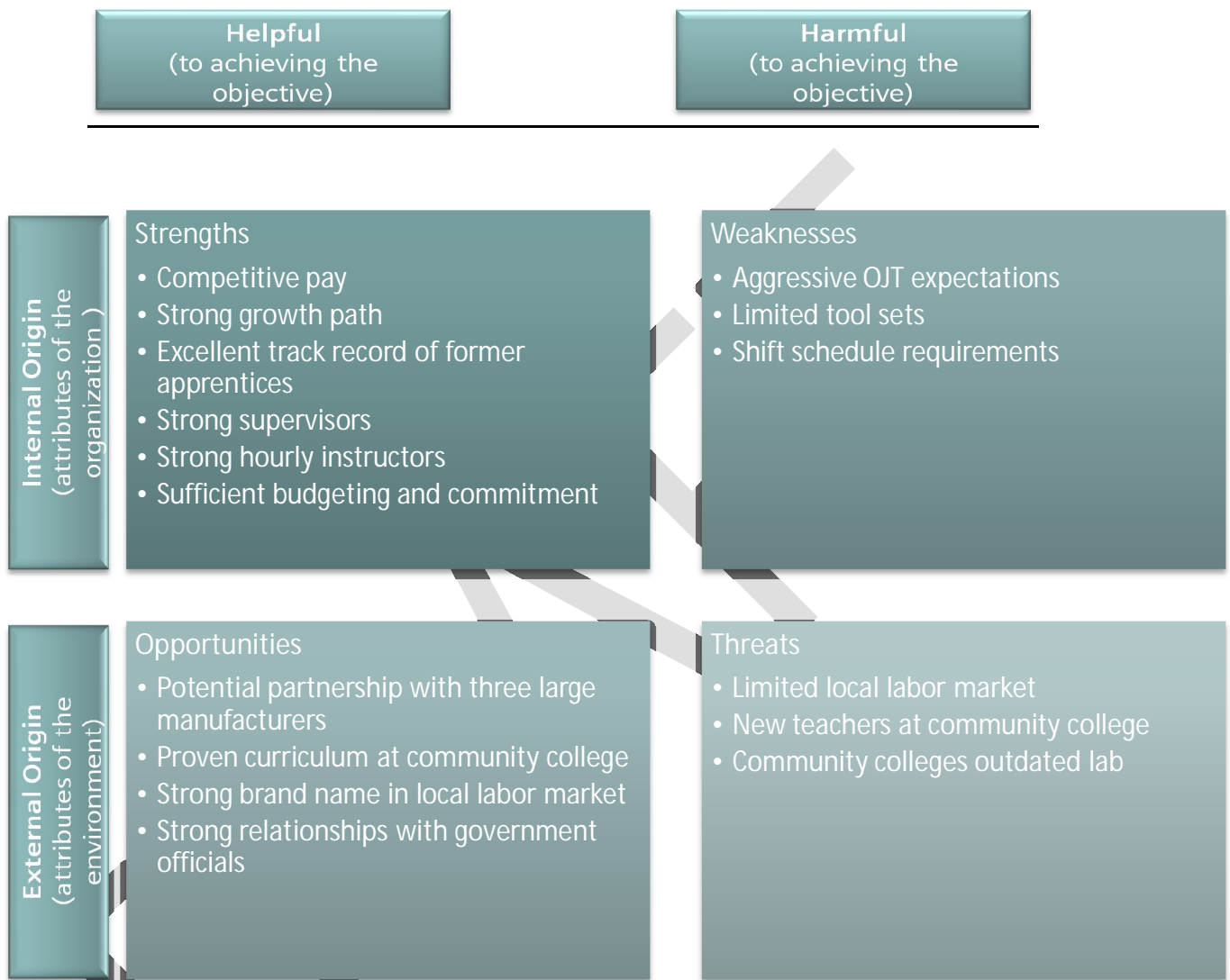
Once the discussions are completed with the stakeholders, you may find it helpful to summarize the issues to identify the critical issues which must be included in the business case. One tool which can help you summarize the learnings is a SWOT Analysis. The SWOT Analysis is a simple tool to help evaluate the strengths, weaknesses, opportunities, and threats involved with a particular business objective. It is very help in identifying the internal and external factors that are favorable and unfavorable to achieving the goal. The applicable definitions and a sample template are below:

- Strengths: characteristics of the business or project that give it an advantage over others.
- Weaknesses: characteristics that place the business or project at a disadvantage relative to others

- Opportunities: elements that the project could exploit to its advantage
- Threats: elements in the environment that could cause trouble for the business or project



The framework will help you consolidate the feedback from your stakeholders and it will help you think through how to best include or address the learnings as part of your business case. A sample SWOT analysis is below:



Create Joint Ownership with the Critical Stakeholders

The reason you are engaging your stakeholders and understanding their key issues is simple – you want to create a sense of ownership with the key players which will ultimately lead to a higher probability of success for the program. This is an ongoing process, but critical during the business case development phase. A model showing the different levels of ownership is outlined below and provides a simple overview of this concept:

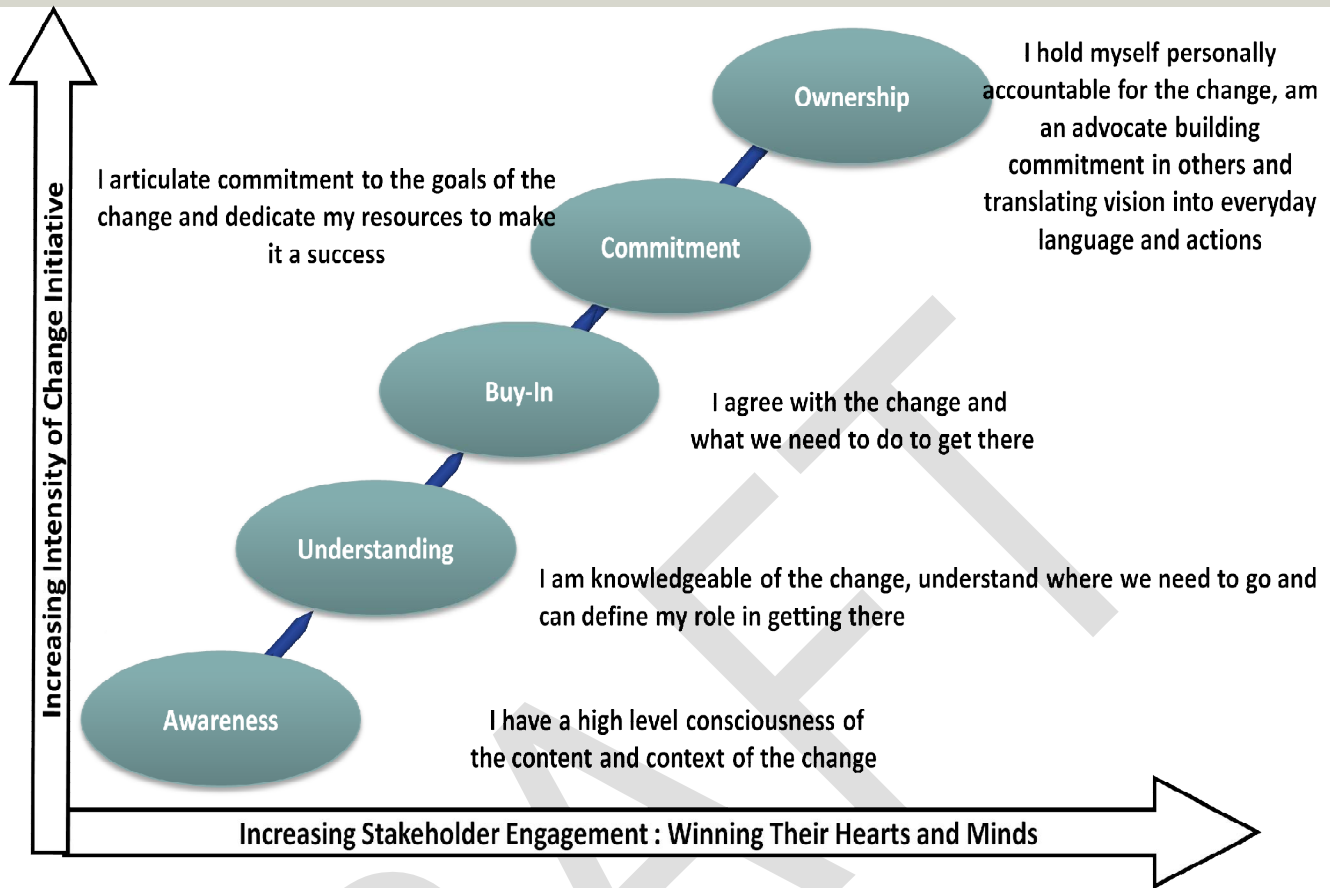


Chart: Alcoa Change Management Tool Kit Slides

- Manage the Stakeholders
- Identify Key Issues to Address
- Build the Business Case

Develop the Business Case

With the workforce plan complete and with the stakeholder analysis complete you are now ready to develop the business case for your program.

! Remember, the business case is critical as it will secure approval to move the program forward and will be the baseline for measuring program success.

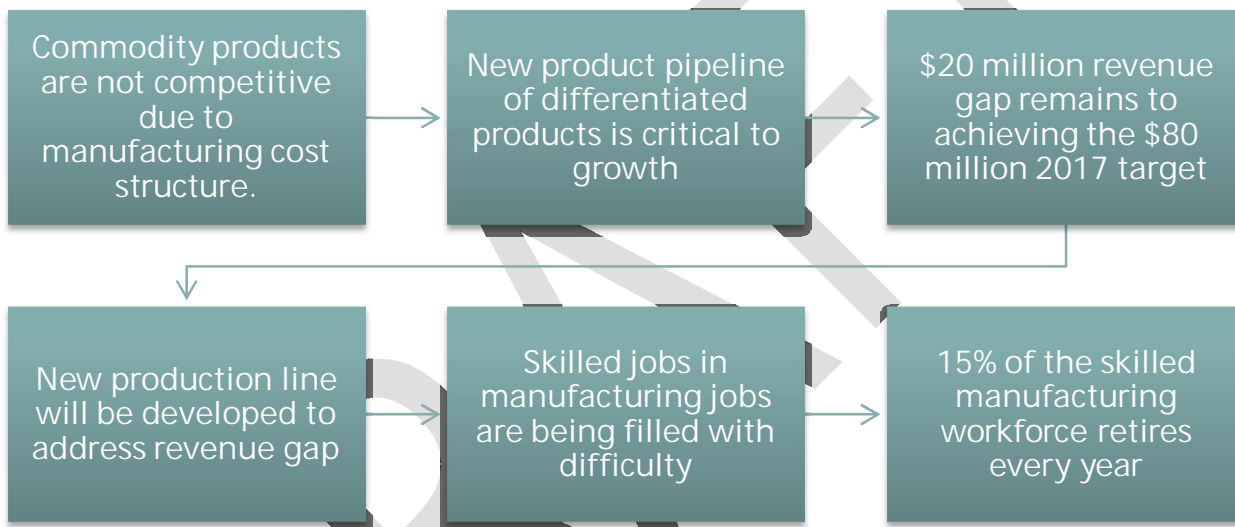
As such, the business case will need to be written in a format that business leaders can easily understand and which will resonate well with them. You also need to provide the business leaders with information that they can easily translate upwards and also into the financial planning process. Typically, at a plant level the business case audience will be the plant lead team, but it may vary by location or organization. It is also important that you do not develop the business case in a vacuum; it is recommended that you include support from the finance organization in building the financial portion of the business case.

The following format contains the relevant components of a business case with a further description below:



Background:

In this section you want to be brief and focus on the general background of the issue. Specifically, you should be focused on making sure the problem is clear and the gap is identified. You should connect the workforce gap to the business need and articulate the business value of solving the problem. You should leverage the key issues identified in the workforce plan. This will be used to frame the issue and capture the attention of your audience. Typically, this is 3-5 sentences or bullet points capturing the essence of why the issue is relevant and why it is being discussed. You should link this to business impact, financial results and strategy. A sample background statement mind map is below:



Current Condition:

This section should focus on the gap you are seeking to address. Specifically, what problem is your apprenticeship targeted to resolve? Be specific on the issues in this section including the projected shortage, operational impacts, potential financial impacts and overall operating risk. The workforce plan will be helpful in outlining the key issues, you will need help from the operational leaders and financial leaders to translate the gaps into operating and financial impact. Much of this would have been captured during your stakeholder discussions, but you will certainly have to finalize several items as you prepare the business case. Make sure to describe the problem and any sub-problems that contribute to the business case. An example of how to link the skills gap to business impact is below:

Skills gap defined by the workforce planning.

Loss of business opportunity due to operating limitations

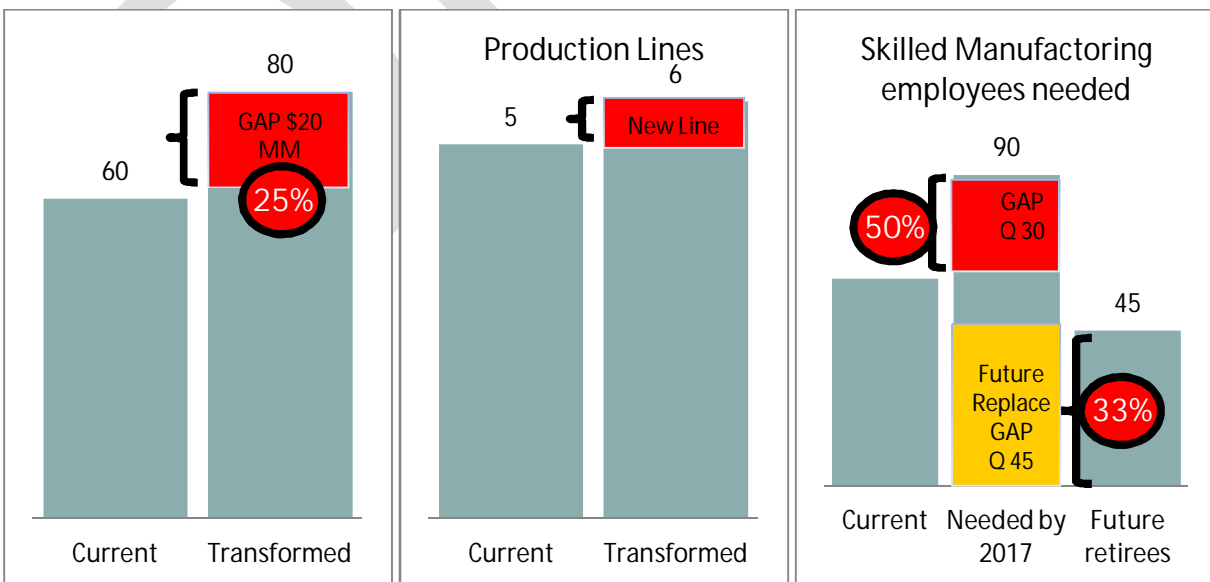
Risk of customers loss due to limited capacity

Poor delivery and quality issues

Cost of doing nothing: Poor business performance

Target Condition:

In this section you need to outline where you would like to be at the end of your program relative to your workforce capability. Similar to the current condition, you need to link the workforce target to the business impacts, financial impacts and operational risk. In this section you should also clearly link the target condition to the needs of your stakeholders as identified in the stakeholder discussions. In addition, this section should directly address the gaps outlined in the current condition section of the business case. A sample depicting the current versus target condition is below:



Financial Impact:

In this section of the business case you will need to show the financial impact of the program including run rate impact and one-time costs. There will also be several intangibles which should have been addressed in the current and target conditions, which you may or may not decide to include in this section. As mentioned earlier, you should have support from your finance department in developing this section of the business case. You want to make sure that you are capturing the costs and benefits appropriately and that they are linked to your financial planning standards. Examples are below:

Summary of RUN-RATE Costs:

Tuition fees and classroom material	\$0.90
Trainers hours "out of their jobs" lost of production	\$0.45
Travel/Sundry	\$0.35
Recruiting	\$1.40
Total RUN-RATE Costs	\$3.10

Summary of One Time Costs:

Curriculum Development	\$2.20
Incremental Technology Enhancements	\$1.70
Instructor Training	\$0.45
Branding and Advertising	\$0.80

Total One Time Costs	\$5.15
-----------------------------	---------------

Summary of Savings:

Grants	(\$0.90)
Tax Credits	(\$0.45)
Total Savings	(\$1.35)

\$ in millions

Apprenticeship Program Impact on Business: Benefits and ROI Analysis

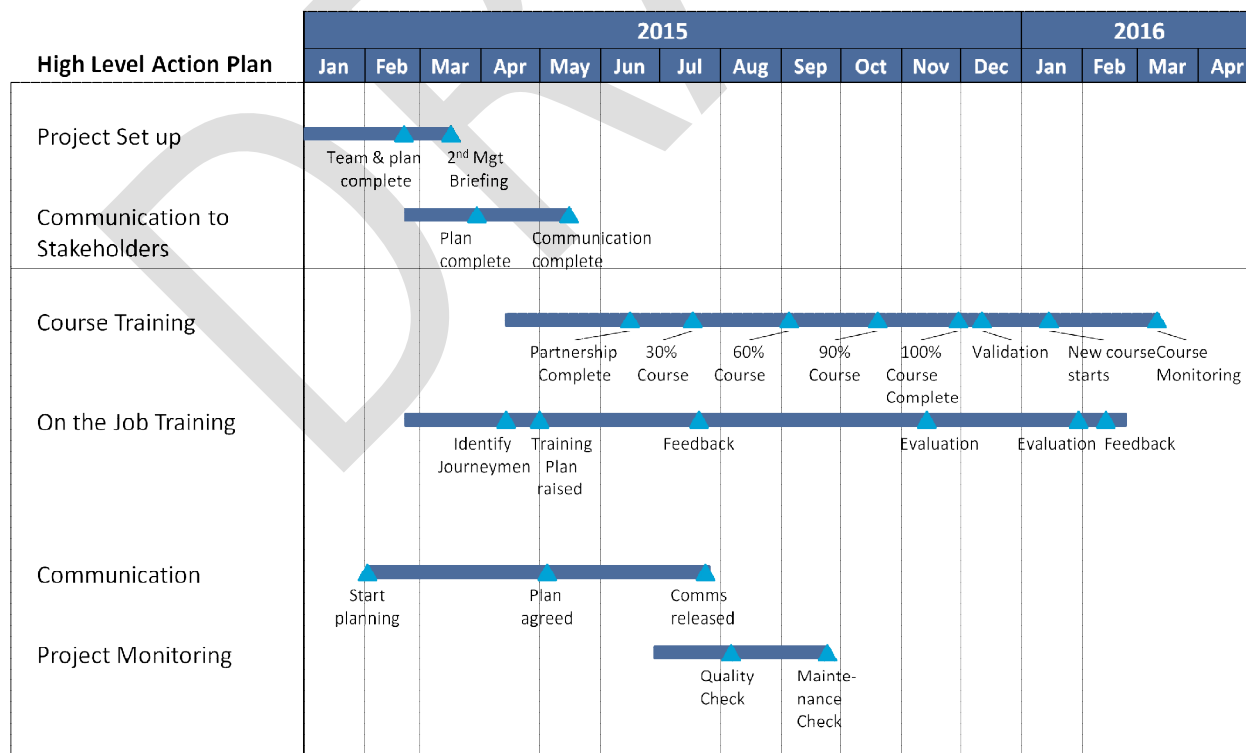
	Year 0	Year 1	Year 2	Year 3	Year 4
Annual Savings	\$0.00	\$1.35	\$1.35	\$1.35	\$1.35
One-time Cost	(\$5.15)	\$0.00	\$0.00	\$0.00	\$0.00
RUN-RATE Cost	\$0.00	(\$3.10)	(\$3.10)	(\$3.10)	(\$3.10)
Revenue New production Line	\$0.00	\$6.15	\$8.00	\$9.00	\$9.00
Return of Investment (ROI)	(\$5.15)	\$4.40	\$6.25	\$7.25	\$7.25
Payout Period = 4 Years	}				

\$ in millions

Revenue increased by \$20 MM

Action Plan and Measures:

For a successful implementation, you have to put together an action plan where a clear calendar of activities with clear milestones and expected outcomes, followed in a timely manner, will guide the expected implementation of the program. In addition, you will need to think through the success measures for your program. Though they may not be comprehensive at this time you should establish base measures such as % successfully completing the programs, delivering the program at or under budget and adherence to key timeline needs. Below, please find examples of a high level action plan and milestones for your review.

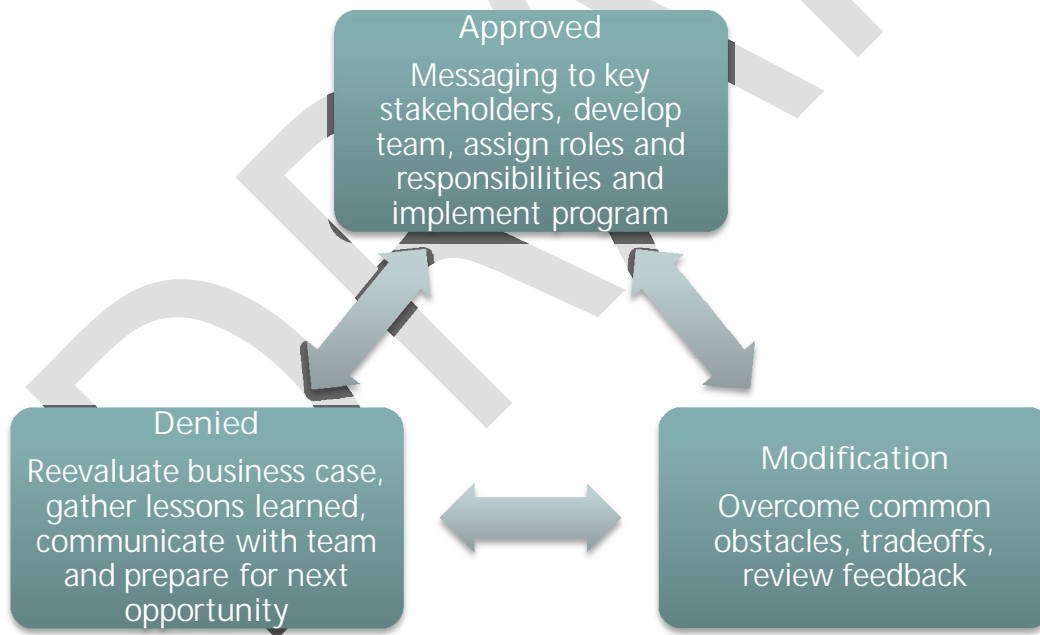


Milestones:

	Milestone Description	End date	Responsibility
1	Securing of approvals and buy-in	1 st Quarter , 2015	Implementation Team and Senior Management
2	Creation of a joint committee of engaged employees and management to begin assessment and planning.	1 st Quarter , 2015	Implementation Team
3	Communicate project implementation to management	February 12 th , 2015	Implementation Team
4	Prepare project scorecard for tracking financial measures and outcomes	2 nd Quarter , 2015	Implementation Team
5	Project implementation	2 nd Quarter , 2015	Implementation Team

Potential Outcomes

After you present your business case to your leadership team the possible outcomes you are facing are:



If for some reason your proposal is not approved, carefully consider the feedback you receive on the business case and discuss next steps with your key stakeholders. Some key considerations to overcome pushback are listed below:

Keep an open mind, adapting to the changing environment. Go back to your stakeholders, get feedback and support, re-evaluate your business case

You will succeed if you tend to your network: continually building and rebuilding connections, partnerships, relationships. Update the relevant pieces of the business case, adjust to the changes in the business and the workforce

Primarily focus on prevention, not the treatment: this is the art of anticipating the obvious and doing something positive to stop it from happening. Focus on getting additional funding, get more buy-in

Timing and patience is everything, but never stop pushing. Delay the timing, wait for the right moment to present your case.

Source: <http://blog.wardclapham.com/125/>

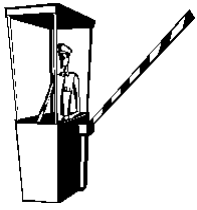
Do's and Don'ts for Building the Business Case

Do!

- Do understand your stakeholders.
What are their issues and how do you overcome them
- Do address key issues
Work the issues in advance and make sure you address the items which are most important.
- Do demonstrate how skilled workforce aligns to your business strategy
Emphasise how the business strategy is aligned and can be leverage by your talent pipeline
- Do be business relevant
Make sure your business case is presented in a business based manner.
- Do listen to the feedback and adjust accordingly.
Make sure you hear the leaders feedback from your business case.

Don't!

- Don't assume that everyone will understand the need for the program.
Provide context and details for your proposal to build understanding of the approach.
- Don't leave room for surprises.
Meet with your stakeholders and understand their issues
- Don't create the financials alone
Leverage appropriate financial resources to develop this section
- Don't give up
If the answer is no, understand the rationale, make adjustments and try again



Check Point:

Review the tollgate checklist to evaluate your understanding of Building the Business Case fundamentals. Only when you successfully completed the checklist items, you can pass the tollgate and move to the next chapter.

- Identify who will be critical for launching your Apprenticeship Program through a stakeholder map.
- Work toward the creation of a joint ownership model with your stakeholders.
- Build a business relevant business case.
- Be prepared for the potential outcomes and to deal with pushback or concerns

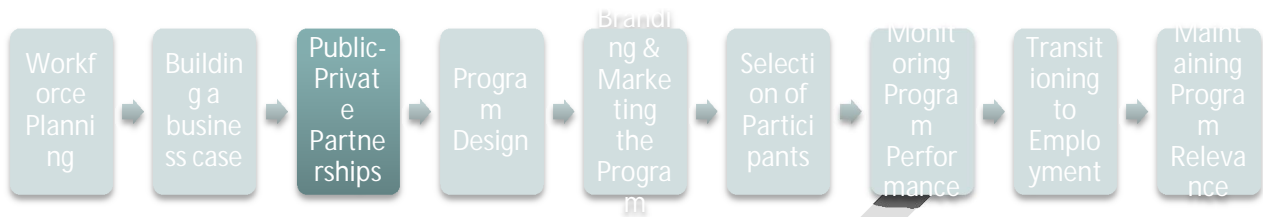
Toolbox:



Business Case blank
templates.pptx




Business Case
Outline Template.ppt:



Building an Apprenticeship Program requires a significant amount of commitment on the part of the organization; however you do not have to do this on your own. With the right partners not only will you be in a mutually beneficial relationship, you will get additional support for your initiative and the chance to build the reputation of the program outside your organization.

“Success or failure is contingent upon having a good working partner... Make sure that whatever activity you do is a positive image builder for both you and the other party.”
Alcoa, Pt. Comfort, TX



- Understand your partnership options

- Pick your partners

- Build the partnerships

The Value of Partnerships

Partnerships can be a valuable part of your apprenticeship program as they can offer many benefits to employers. They can accelerate program development, increase the number of program participants or reduce cost through grants and leveraging of resources. Potential benefit areas include:

- The ability to leverage untapped networks and affiliations of partners for economies of scale
- Broader access to funding opportunities, typically through community colleges/educational institutions and company coalitions
- Gaining insights into expertise and best practices of other partners

Common Partnership Types


Partnership models can be broad or narrow and there are many types of partnership opportunities available. Although different types of partnerships and partners exist, there are typically three main partners that employers need to take into consideration:

- 1) Academic Institutions: These can be Community Colleges, High Schools, Vocational Schools and Universities. For the purpose of this playbook we will focus on Community Colleges as they typically provide relevant classroom material for an apprenticeship program.
- 2) Company Coalitions: This is typically a group of companies that have common workforce development needs and are looking to build similar pipelines for skilled trades. They could also be companies within the same region or town that have the need for broader workforce development. The companies do not have to be the same size or even the same industry, they simply need to have the same need for building a strong local or regional workforce.
- 3) Public Entities & Labor Market Intermediaries: Public entities are government institutions at the state, federal and local level. Labor Market Intermediaries typically are not for profit groups. These include Chamber of Commerce, professional organizations, or company sponsored foundations. Workforce development boards and Manufacturing Extension Partnerships (government agency to promote and assist small and medium sized manufacturers) can also make for strong partners.

The table below provides an overview of the three types of partnerships and the opportunities that each partnership could hold:

Community Colleges/ Academic Institutions	Company Coalitions	Public Entities and Labor Market Intermediaries
<ul style="list-style-type: none"> • Already developed curriculum - reducing cost • Access to grants - reducing cost and increasing access to untapped pools of talent • Availability to a pool of program participants - reducing launch time • Introductions to other companies - access to best practices and economies of scale • Opportunity to develop customized apprenticeship programs - combine classroom with on-the-job training 	<ul style="list-style-type: none"> • Access to best practices and economies of scale - reducing cost • Potential access to developed curriculum - reducing cost • Opportunity for joint recruiting - enabling stronger candidate pools • A broader network and opportunity to build positive reputation - extending assistance to small and medium sized manufacturing companies • Varying business cycles across the coalition leads to greater sustainability of the program 	<ul style="list-style-type: none"> • Access to best practices - reducing cost and cycle time • Introductions to other companies - economies of scale • Availability to funding opportunities, government grants and programs • Access to candidate pools and national resources

In support of your program it is recommended that you spend time identifying the potential partners from the categories listed above. This can be accomplished by simply listing the potential partners by category and prioritizing them to define an order of contact. As you connect with each potential partner, be sure to ask questions, listen to their comments and recommendations as they will lead you to other contacts and ultimately help you establish your programs partnership model or build on an existing program.



- Understand your partnership options

- Pick your partners

- Build the partnerships

Establish Your Partnerships

As mentioned above, the form an effective partnership takes depends on many factors. Most importantly, the type of program and the needs of the business. In addition, partnerships depend on the local labor market, regional markets, presence of other businesses and local economic conditions. Clearly, we cannot be prescriptive as to what your partnership model should look like, but we can provide you key considerations by partnership category which may be helpful as you work to build your approach.

Academic Partnership Considerations

The academic institution that you select to work with will depend on the type of skill you are looking to build, proximity to your location and overall track record relative to supporting similar programs. For example, a large university which is 100 miles away would not be an ideal partner if your company has a need for local welders. A community college or high school that offers vocational training 10 miles down the road would be a more logical partnership candidate. As you think through the potential educational partners for your program you should consider the following factors:

- Do they align well with the skills we are trying to develop?
- Do they have curriculum that is similar to the needs of the business?
- Do the teachers have the requisite skills to teach the required content?
- Are their teachers certified instructors?
- Do they understand the latest manufacturing technology?
- Do they have the latest equipment or does it need to be updated?
- Do they partner with other companies and if so what is their track record? If not, why?
- What is the quality of their student base and ability to help recruit program participants?
- What is their knowledge of the local labor market?
- Do they have a successful track record of partnering with companies and securing funding?
- What are their graduation rates?
- How far is the Community College from your manufacturing location?
- What is their reputation in the community?
- How easy or difficult are they to work with? Are they business and job oriented?

Company Coalitions Considerations

Someone once said, there is strength in numbers. This is the relevant context behind building partnerships with other companies in an effort to improve the local or regional labor market and talent pools. Though businesses experience many similar things, based on specific business cultures, products and leadership models they also have many differences. This means they have different best practices related to developing, sourcing and hiring employees. There are also differences in business footprints, profitability, funding capability and brand equity. Your goal in building partnerships with other companies is simply to capture the value of the differences and business diversity to advance your program. For example, if you are a smaller manufacturer, partnering with a well known manufacturer will provide you access to many resources you wouldn't be able to capture by going it alone. Conversely, as a large manufacturer, partnering with a smaller manufacturer may provide you very valuable insights into the community and the local labor market. The key, picking the right partners based on the value proposition each could bring to you. Below are some items which you should consider when determining potential company partnerships/coalitions to target:

- What companies / coalitions have a strong reputation for developing the local workforce?
- Which companies have existing partnerships with educational institutions?
- What employers have the largest hiring or retraining needs?
- Which companies are seen as employers of choice in the area?
- Which employers have values and cultures which are well aligned with yours?
- What companies have the ability to fund and provide resources for broader workforce development?
- Are any local companies members of the local manufacturers' roundtables?

ADDITIONAL EXAMPLES PENDING

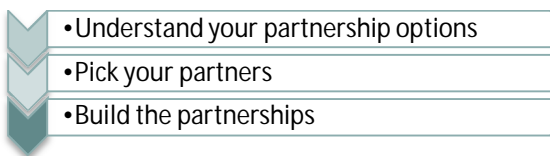
Building the right mix of diverse partnership companies (different size, markets and industries) will ensure sustainability of the program and the local labor market. This is the result of a larger hiring need, common training design, and variation in business cycles. Simply put, different business will have different workforce needs at different times allowing each to pull from the program as necessary maintaining its long term viability.

Public Entities and Labor Market Intermediary Considerations

The strategy is slightly different when determining your partnership model in this category. You need to cast a wide net to identify relevant resources and tools from the public and nonprofit sectors. There are many programs and entities which maintain a deep level of knowledge and expertise which will help you successfully launch an apprenticeship program. Types of expertise they possess includes:

- Funding opportunities, requirements and contacts
- Requirements for registering an apprenticeship program
- Access to nationwide networks or relevant expertise
- Candidate sourcing opportunities through job service boards and veterans associations

Working with government agencies and public entities can be a complicated and challenging process. Leverage your coalition, as well as your community college to understand the best contacts and resources. Below are select key contacts and listings of relevant support they can provide:



The Broader Context for Partnerships

Building partnerships is a time consuming process, but a process which is also very worthwhile. The benefits clearly outweigh the costs and as you try to get commitment from potential partners it may be important to reinforce the value proposition for everyone involved. Partnerships can decrease competition for scarce talent by extending opportunities to small and medium sized manufacturers, providing opportunities to untapped pools of talent and in underserved communities, and promoting a more accurate image of manufacturing careers in communities.

Company Coalitions: When companies, big and small, decide to create a coalition, they leverage their networks, best practices, strengths and reputation to create a better program. Successful participants help to further spread the word and build a reputation of community investment and a commitment to long term workforce development.

Academic Institutions: Partnerships enable the Community College to get access to industry standards, new manufacturing processes and technology. This allows them to develop relevant and meaningful curriculum and allows them to develop a relevant and job focused graduate.

Public Entities & Labor Market Intermediaries: Partnerships enable the government and not for profit institutions to fulfill their mission to build the nations workforce. The grant monies, funds and expertise that they provide will be utilized to help generate skills for manufacturing jobs. With each job, families are positively impacted, local economies grow and collectively we create a stronger America.

Create a win-win situation

Another way to incent partners to sign up is to create a win-win situation for everyone involved. To do this you will need to have a clear understanding of everyone's needs and make sure the partnership model helps deliver those needs. You may want to keep the following in mind when determining if the partnership model will be mutually beneficial to all parties.

Don't focus only on what is in front of you – know that there are many options out there for partnerships

Be transparent about your purpose – communicate your purpose in the partnership and know what you will be able to contribute

Understand their purpose – make sure your potential partner communicates their value and what they can bring to the table

Confirm if there is a mutual vision / benefit – ensure there is a match as it relates to needs and goals

Take your time – don't make a quick decision. Fully think through if this will be a mutually beneficial relationship

Document – write down all aspects agreed upon with the partnership and share

Source: How to Create Strategic Partnerships that are a Win-Win

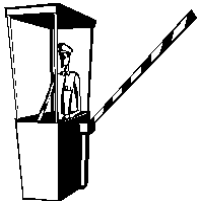
<https://smallbusiness.yahoo.com/advisor/create-strategic-partnerships-win-win-193000478.html>

Scalability

On a final note, you may want to consider replicating the program at another location following a successful implementation. To do this efficiently, you will need to make sure that the first site properly documents all aspects of the program. This should include the learnings from the program, partnership model and funding approaches. Keep in mind that you may need to modify certain program components of the program based on the geographic locations and unique needs. However, when possible, avoid reinventing the wheel – learn from the successful program and slowly expand to other sites.

Do's and Don'ts for Public & Private Partnerships

Do!	Don't!
<ul style="list-style-type: none">•Do your research. <i>Take the time to vet institutions and community colleges.</i>•Do identify the value propositions for all. <i>This includes all potential partners and be articulate about how the partnership is mutually beneficial.</i>•Do consider registering your apprenticeship program with the Department of Labor. <i>There are many benefits that you should consider before opting out.</i>•Do leverage your partners. <i>To get insight into their best practices, as well as explore and secure potential sources of funding.</i>•Do build a win-win situation for all partners. <i>This is a long-term approach and will need collective support to make the program sustainable</i>	<ul style="list-style-type: none">•Don't go alone. <i>An apprenticeship program may not be as successful without the support of partnerships.</i>•Don't take the easiest route. <i>Select partners that are the right fit for you, even if this means taking more effort in building the partnership.</i>•Don't forget the importance of trust. <i>A trusting relationship is key to a strong partnership.</i>•Don't underestimate the importance of effective communication. <i>Keep your partners updated on the progress and seek updates from them if not readily provided. Build open lines of communication as a shared platform for best practices.</i>•Don't be shortsighted. <i>Create a program that supports your future workforce needs and can be replicated at various sites.</i>



Check Point:

Review the checklist to evaluate your understanding of public and private partnership fundamentals. You should have successfully completed the checklist items and can move to the next chapter.

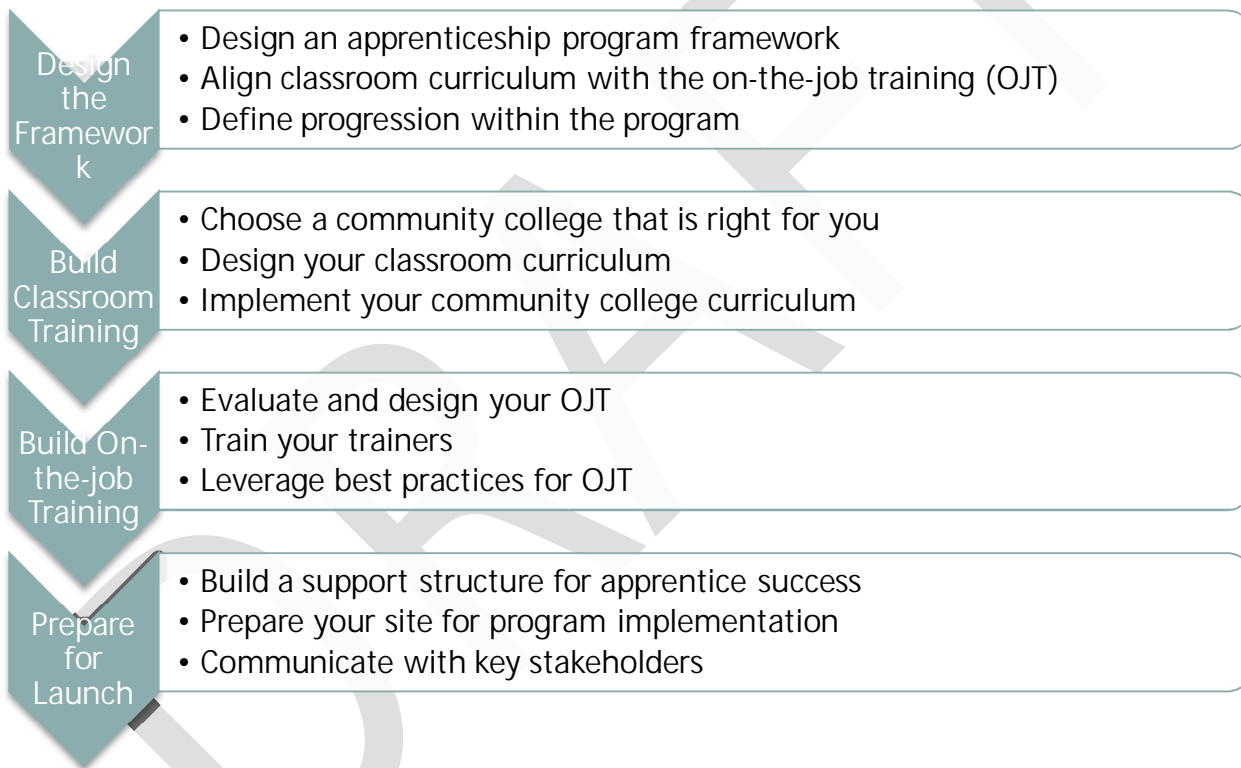
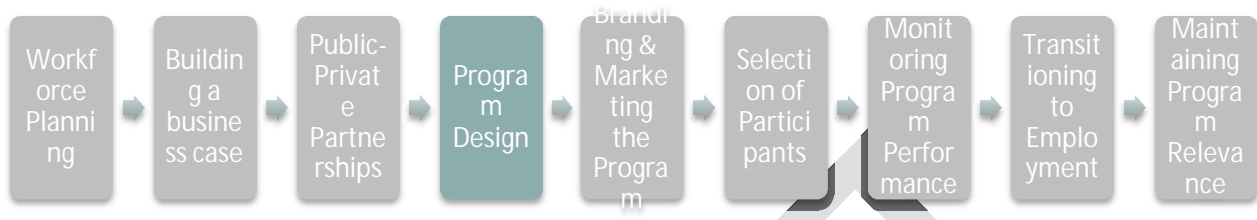
- Identify and vet potential partners, pick the best one for you
- Build commitment with selected partner and set clear expectations
- Ensure the partnerships are mutually beneficial and have longevity

Toolbox:



AMP Chapter 3
checklists.docx

Please see Appendix for other helpful partnership resources.



One thing that differentiates an Apprenticeship program from other programs is the alignment and connectivity between academic learning and hands on practical on the job training. This dual study approach is unique and results in a deeper level of knowledge, skills and ability for the participant. In this chapter you will learn how to develop an integrated program and prepare a support infrastructure for a successful launch. Remember, even a well executed poorly designed program will not produce a positive result – it is critical that your design is well thought through to be impactful.

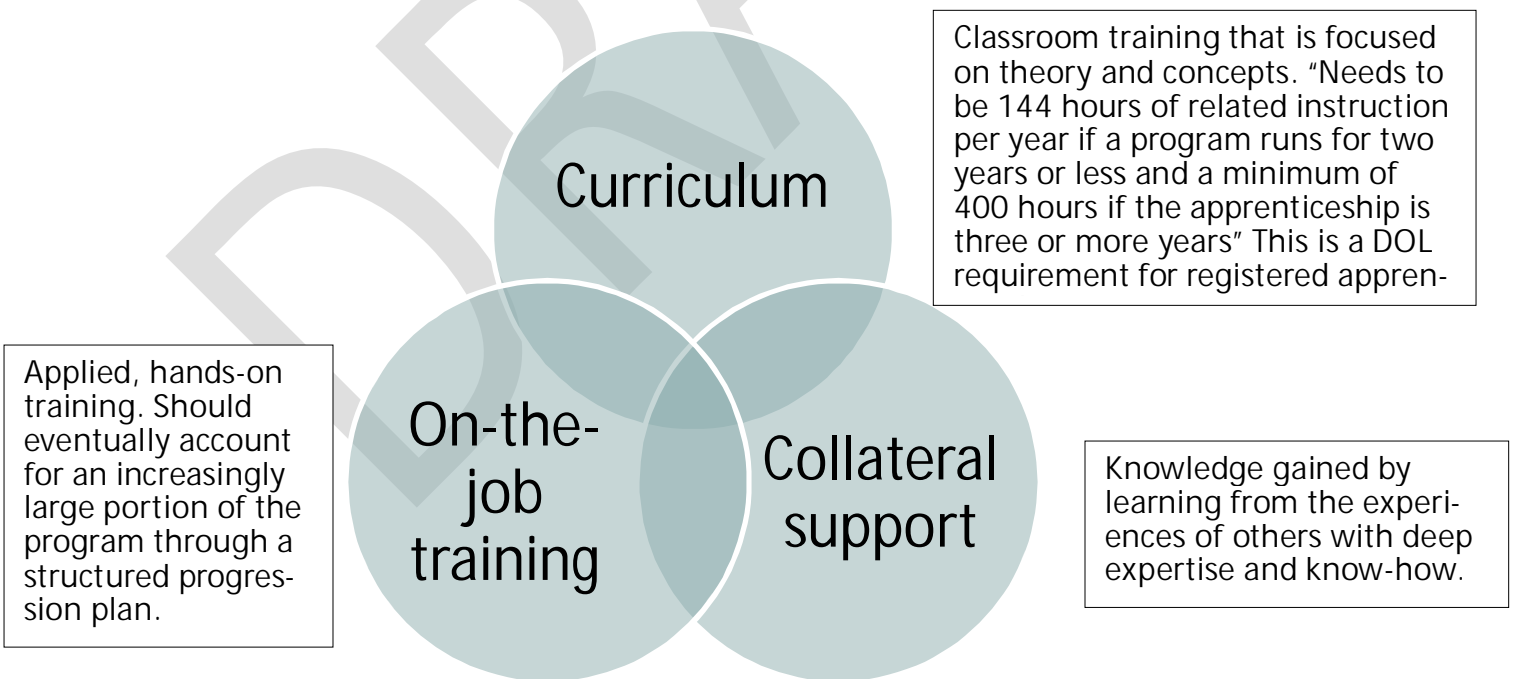
If training and credential programs are not grounded in the skills that employers require, they are not effectively preparing the next generation of employees – and that's bad for business and for all hardworking Americans.

-Eric Spiegel, President and Chief Executive of Siemens Corp., Vice Chair of the Business Roundtable's Education and Workforce Committee

- Design the framework
- Build classroom training
- Build on-the-job training
- Prepare for launch

Design the Program Framework

The program framework needs to be designed to effectively build the skills that you identified as gaps when doing your workforce plan. There are three main aspects to consider:



Source: Apprenticeship: It Makes Good Business Sense
(http://dwd.wisconsin.gov/apprenticeship/pdf/06_EmployerToolkit.pdf)

There are three ways to structure successful completion of your program:

1. Time-based requirements
 - Requires at least 2,000 hours of time/work spent by the apprentice on the skill needed for the specific job.
2. Competency/Performance Program requirements
 - Program based on specific competencies (“an observable, measurable pattern of skills, knowledge, abilities, behaviors and other characteristics that an individual needs to perform work roles or occupational functions successfully”) to be learned on the job instead of focusing on a number of hours of on-the-job learning.
3. Hybrid Program Requirements
 - A combination of time-based requirements and competency/performance program requirements

Source: Registered Apprenticeship (<http://www.doleta.gov/OA/employer.cfm>)

A detailed checklist on standards for an apprenticeship program is included in the toolbox.

Align Classroom Curriculum with OJT

It is important that the classroom learning and on the job training (OJT) is not experienced in silos. All aspects of the program structure need to be aligned to ensure the skills needed for the business are being built at the levels needed for all of the participants. Work with your community college to ensure alignment between classroom and on-the-job activities. Identify topics and ensure they are approached from a theoretical aspects in the classroom as well as from a practical aspect on the job.



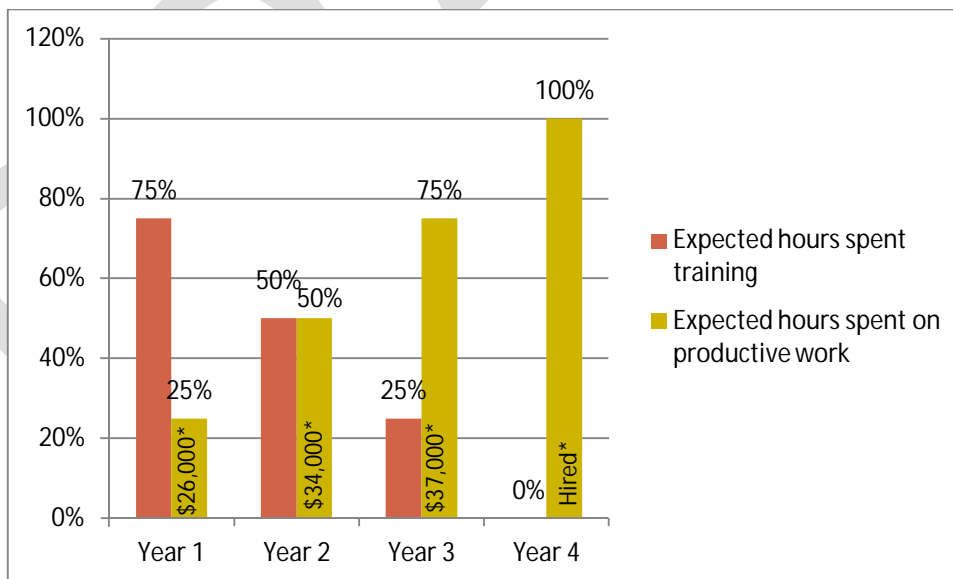
Only with both effective classroom curriculum and on-the-job training will you maximize productivity of your apprentices.

Define Program Progression

Program design should progressively lead to an increase in apprentice productivity as the program progresses. You will want to create an overall program schedule, with key milestones indicated, to ensure that it stays on track. Some key features you should see:

- Progress from understanding basic concepts to deeper theoretical knowledge Progression from simple tasks to mastering more complex tasks like troubleshooting and problem solving
- Wage progressions that are tied to meeting key program milestones, see the toolbox for additional guidance when creating the Compensation structure
- Give consideration to apprentices with previous experience in skill or job. This credit could include one or more of below options:
 - starting the program at a higher level/wage
 - progressing them through the program at a quicker rate
 - providing earlier wage increases

Source: DOL, Setting Up A Registered Apprenticeship Program: A Step-by-Step Guide for the Design and Implementation of The Registered Apprenticeship Training



*This chart represents a 3.5 year apprenticeship program that reflects wage progression with increases in productivity.

Source: Charlotte, NC Siemens facility

Performance aspects to consider include:

- How well the technical skills of prior participants progressed throughout the program
- How their progress compared against the realistic expectations and milestones for the role
- Participant ratings on validated testing which was performed during the OJT curriculum
- Whether apprentices were transitioned to full-time employees upon program completion
- Whether those graduates are currently using the skills they learned
- Performance measurements of graduates as an indication of productivity

The validation process does not stop once the program has been updated and implemented. You will want to ensure that you are monitoring the success of the classroom training and OJT during the program to identify whether the intended progress is being achieved. If not, you may need to adjust.

- Design the framework
- Build classroom training
- Build on-the-job training
- Prepare for launch

Design Your Classroom Curriculum

At this point, a community college partnership should already be established as discussed in Chapter 3. Leverage the community college partnership when designing your classroom curriculum. In addition to direct business relevance, below are the key principles that should be incorporated:

- A philosophy – the curriculum should be based on the shared belief of the community college and company for the apprenticeship program.
- Clear purpose and goals – the objectives of the curriculum and program should be clearly described.
- A theoretically sound process – ensure the experiences and lessons throughout the curriculum follow an approach geared towards the end result desired of the program.
- A rational sequence – make sure the order of the curriculum makes sense.
- Continuous assessment and improvement of quality – make sure to review the curriculum on a regular basis and make necessary updates.
- High-quality academic advising – ensure students receive the advising needed to be successful.

Source: Designing a College Curriculum
(<http://www.thenationalacademy.org/readings/designing.html>)

Remember: When looking to modify or customize an existing community college curriculum, it is important to start with reviewing what currently exists.



When evaluating a curriculum, first review the community college's current one and determine if it is a fit. Next, perform a gap analysis to see if the curriculum you choose has any course or curriculum gaps to be addressed.

The community college you decide to partner with could already have a program that fits the classroom learning needed for the apprenticeship program. However, should not all courses align, select the courses that best fit your organizations needs and create additional courses to fit the needs of the business. Never lose sight of the needs of the business and make sure closely adhere to them performed to understand the feedback from the stakeholders of the apprenticeship program.

Here are some key questions to ask when assessing the curriculum:

- Will the current curriculum fill the learning / theoretical side of the skill gaps that have been identified
- Will the theory enable the apprentice to understand the work done on the job and the work processes in place?
- Does the sequence of topics complement and align with the sequence of the on the job training?

Also, make sure to:

- Look at the community college's existing students. Which companies hire them? Conversely, look at a company's existing incumbents. Which community colleges did they attend? This is a good measure to see if the curriculum is working.
- Measure graduation rates
- Pull your own experts in to validate content and identify gaps
- Conduct a gap analysis to determine if the skills needed on the job match the theory taught in the classroom. The goal of a gap analysis is to:
 - "Determine what the desired curriculum should be"
 - "Compare the desired curriculum with the existing curriculum and determine the "gaps" between the two, and"
 - "Suggest changes that could be made to move the curriculum from its current state to the desired state"

To address the gaps, consider using the gap analysis tool below.

Topic	Targeted Skill	Curriculum Gap	Course Gap	Course / Curriculum Acceptable
Introduction to Print Reading	Print Reading	X	X	
Introduction to Welding	Welding		X	
Machine Maintenance & Installation	Machining			X
Fluid Power Basics	Fluids	X		
Basic Electricity	Electric			X

* An "X" indicates that a gap has been identified.

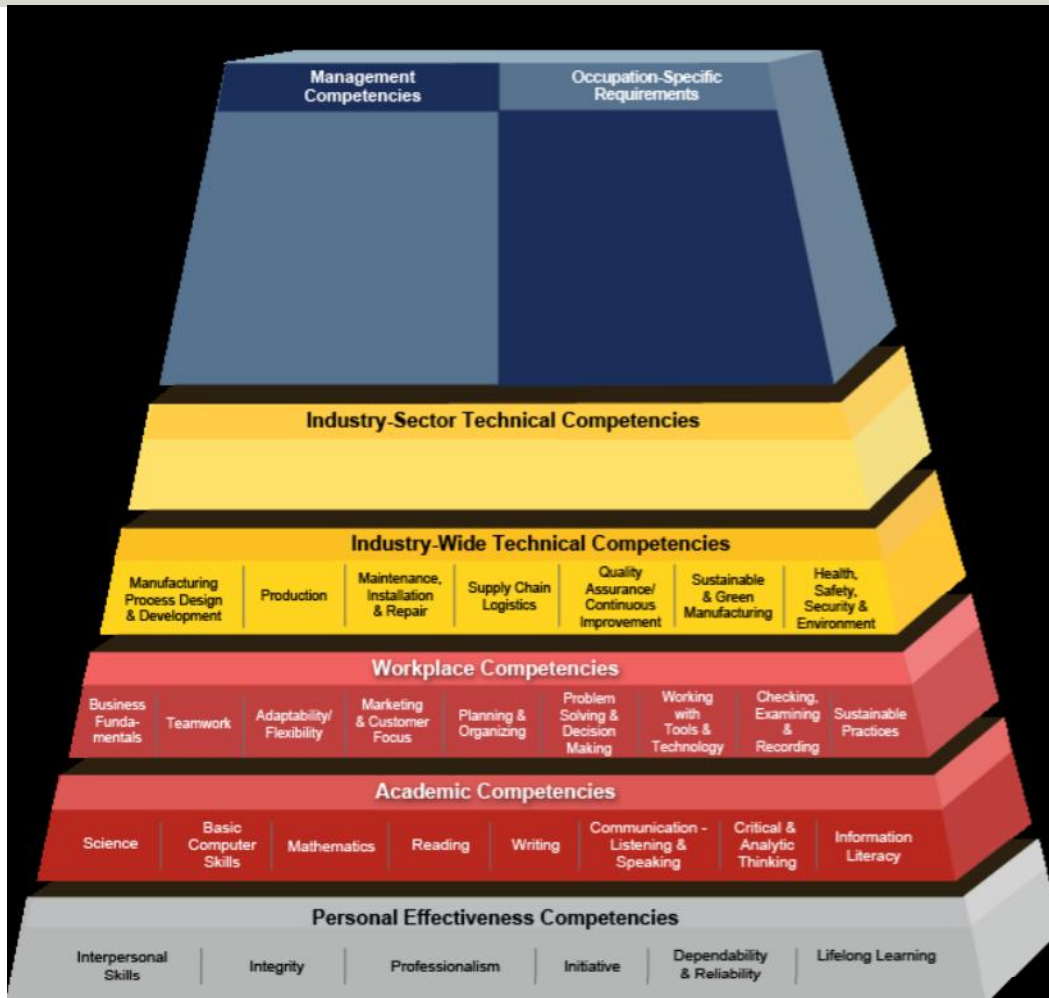
Key	
Curriculum Gap	Curriculum does not incorporate courses that develop identified skills

Course Gap	Course exists, but there are gaps in the existing content that needs to be filled to develop the skills needed to fulfill the job
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A company can gather feedback from internal experts or current journeyman to evaluate whether the courses will equip apprentices with the knowledge needed to apply to the job (course gap) and whether necessary courses are included in the curriculum (curriculum gap) by having them complete the gap analysis tool above.

Source: Course, Program, and Curriculum Gaps: Assessing Curricula for Targeted Change <http://fie-conference.org/fie2005/papers/1600.pdf>

When selecting course content that matches skill needs, identify which competencies can be covered by the curriculum. These may include Technical, Workplace, Academic and Personal Effectiveness competencies. The nine layer pyramid below “illustrates how occupational and industry competencies build on a foundation of personal effectiveness, academic, and workplace competencies. Each tier is comprised of blocks representing the skills, knowledge, and abilities essential for successful performance in the Advanced Manufacturing industry. At the base of the model, the competencies apply to a large number of industries. As a user moves up the model, the competencies become industry and occupation specific. However, the graphic is not intended to represent a sequence of competency attainment or suggest that certain competencies are of greater value than others.”



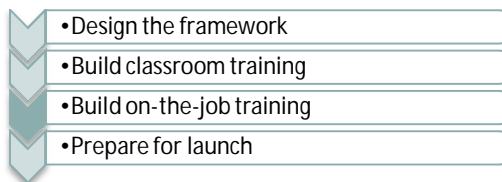
Source: Employment and Training Administration United States Department of Labor
www.doleta.gov

Implement Your Community College Curriculum

Once you have selected the curriculum that is right for you next step is to ensure there are qualified teachers to teach the Apprentices. Specific things to ensure would be their credentials, qualifications, and teacher certifications.

In addition be sure to have experts evaluate the lab facility to make sure it meets the standard you have set for the curriculum and is comparable to your manufacturing fa-

cilities. Some companies leverage current employees or those transitioning into retirement as professors to teach at the community college. Taking this approach can serve a dual purpose: the employees will be able to share knowledge, critical skills, and real-life business examples with the students as well as provide context for it is like to work at your company.

- 
- Design the framework
 - Build classroom training
 - Build on-the-job training
 - Prepare for launch

Evaluate and Design Your OJT

For simplicity purposes, we will utilize the phrase on-the-job training (OJT) for this section but that can be interchangeable with on-the-job learning (OJL).

On-the-job training (OJT) involves providing hands-on learning in real world scenarios – learning by doing gives Apprentices the practical experience under close supervision until they have enough skill and knowledge to work independently. Begin by evaluating the OJT currently being used at your facility. Likely you will already have some components, even if they are informally used. If not, you will need to create the OJT for the Apprenticeship. Rather than working from scratch, try to gather information on OJT used by other companies. This can be facilitated by leveraging your resources such as your company coalition, workforce investment board, or the Department of Labor.

Prior to evaluating the training, you should have already clearly defined your company's workforce needs and how apprentices can help meet any projected gaps. Once you have an OJT program for a starting point, you will want to review it to determine if it will meet your requirements. Tools that were utilized with the curriculum review may be helpful with this process.

(http://dwd.wisconsin.gov/apprenticeship/pdf/06_EmployerToolKit.pdf)

When reviewing OJT curriculum:

Evaluate the OJT training with your skill needs and job success profile in mind (see toolbox)

Ensure that the OJT will ultimately develop those skills and capability you need in the future

Conduct a gap assessment to identify which of your needs are not being met

Update the OJT curriculum as needed to address any additional skills not already being addressed

(http://dwd.wisconsin.gov/apprenticeship/pdf/06_EmployerToolKit.pdf)

An example of a gap analysis:

Work Process	Targeted Skill	Process Gap	OJT Gap	Process/ OJT Ac- ceptable
Motor Installation and Control	Electrical Installation		X	
Lubrication and Preventative Maintenance Inspection	Machine Maintenance	X	X	
Gas Metal Arc Welding (GMAW)	Welding			X
Polishing	Drill Press Operations	X		
Operate & Control CNC Milling Processes	CNC Machining		X	

* An "X" indicates that a gap has been identified.

Key	
Process Gap	Existing process did not train the participant in skills needed
OJT Gap	The training has components missing that are needed to build identified skills

A major component of the OJT curriculum is a schedule of work processes that includes a list of all major OJ activities necessary for the position of which the apprentice is being trained. Most occupations have standard recommended work processes and these can be obtained through your Department of Labor's Office of Apprenticeship. You could also observe your experienced workers to determine the work process schedule that

would be a good fit for you and include them into your OJT design.
 (http://dwd.wisconsin.gov/apprenticeship/pdf/06_EmployerToolKit.pdf)

An excerpt from an example work process schedule:

Schedule of work processes: Bio-Manufacturing Technician

Competencies and Tasks of Bio-MANUFACTURING TECHNICIAN (DOWNSTREAM)							
Conducts specific manufacturing operations, such as CIP/SIP of equipment, column chromatography, ultrafiltration, diafiltration, protein purification operations, monitoring control devices							
COMPETENCIES/TASKS							OJL Hours:
2. Prepare Solutions							250
Task A: Weigh raw materials	a. Obtain raw material required	b. Verify from label that material is released for use	c. Standardize balance	d. Determine amount of raw material needed from batch documentation	e. Dispense in appropriate environment	f. Formulate solution by mixing dispensed materials	
Task B: Filter solutions	a. Use appropriate filter	b. Filter into appropriate vessel					
Task C: Sample and test solution	a. Remove in-process assays	b. Ensure for passing results prior to transfer					
Task D: Transfer solution to use point	a. Identify receiving area	b. Transfer under appropriate conditions					

Source: DOL, Setting Up A Registered Apprenticeship Program: A Step-by-Step Guide for the Design and Implementation of The Registered Apprenticeship Training, PDF

Once the work processes have been finalized, allocate the training time required to reach proficiency in each of the steps in the process. Many occupations already have the minimum hours established by industry. Make sure that the appropriate proportion is spent on each process based upon the relative difficulty to master.

http://dwd.wisconsin.gov/apprenticeship/pdf/06_EmployerToolKit.pdf

Define the milestones for your OJT. By the end of the program, a successful apprentice should be spending their full day on the job, outperforming some of their entry-level peers. Their progress toward this end goal should be the main measure of success at each of the milestones. This will be covered further in Chapter 7.

<https://s3.amazonaws.com/apprentice.us/Apprenticeship-Programs.pdf>

Throughout the program, you will need to balance the lower productive time of the apprentice and individuals supporting OJT with the requirements to sustain operations. Site disruptions will be partially off-set by the increased productivity of the apprentice as they progress through the OJT program.

Once you have developed the OJT component of the Apprenticeship program, share with your Community College to ensure there is still strong alignment with the classroom training and that the two complement each other. If registering your program,

there may be OJT requirements that must be met.
(http://dwd.wisconsin.gov/apprenticeship/pdf/06_EmployerToolKit.pdf)

Train Your Trainers

Selecting the right current workers to conduct the training is critical. Not only do they need to be skilled at their job but also have good coaching abilities to teach the Apprentices. Additionally, you should take the time and effort to match the trainer with the apprentice(s) that you feel can work well together with. Reinforce the role of the trainers to be equivalent to that of a community college teacher.

Considerations for what can make an ideal apprenticeship trainer include:

- Subject matter experts on the phases of the position they are going to teach
- Understands your standards and needs for the position
- Interested in making sure the skills are taught right
- Shows an aptitude for teaching and leading others
- Willing to take ownership to ensure success of their trainees
- Able to make the large time commitment needed to lead OJT
- If they have been an apprentice in the past, they will best know how the program works and what participants will need to learn

Once you have selected the individuals, you will need to prepare them to effectively teach apprentices. This will require training on new work processes, equipment upgrades, and troubleshooting to ensure their technical skills are up-to-date. It will also involve familiarizing them with some basic steps in teaching job skills, an example of which can be found in the toolbox. This will prepare the trainer to provide quality instruction to participants throughout the program. There may be funding available to support you in this process (See Government Partnership Appendix).

Source:<https://21stcenturyapprenticeship.workforce3one.org/view/3001127137778429>

Leverage OJT Best Practices

Best practices to consider leveraging for your OJT include:

- Build OJT rotations to each area and process of the plant to provide broad exposure and develop a well-rounded employee
- Time rotations based upon how complex the function is and if it builds upon another task
- Consider rotating trainers during the program to maximize exposure to your experienced workers
- Increase the difficulty and complexity of on the job tasks as an apprentice builds their foundation skills
- Align OJT, in addition to curriculum, to competencies needed in the role (see toolbox for an example)
- Display training certificates and provide recognition to apprentices who excel expectations. http://dwd.wisconsin.gov/apprenticeship/pdf/06_EmployerToolKit.pdf

A graduate of an apprenticeship program describes how his program was designed and implemented in order to be effective, "I was able to make the connection with the theories learned in school and apply them to day to day task and activities... I realize that I need some time to learn the hands on part of the job. I wasn't expected to know exactly what to do, they understood the learning curve and there was no pressure... After being mentored for a while I was able and trusted to do routine work out in the plant." – Adam Bice, Instrument and Electrical Technician, Dow, Freeport, TX

Once you have finalized and implemented your OJT, you will want to be sure to regularly refresh the content as needed to reflect updates that may have occurred with technology or processes. This is recommended at least every couple of years. We will go further into maintaining program relevance in Chapter 9.

- Design the framework
- Build classroom training
- Build on-the-job training
- Prepare for launch

Build a Support Structure

Outside of classroom curriculum and OJT, a successful apprenticeship program will also need a broad collateral support structure. Thorough training requires that many parties other than just the trainer are utilized to support success of the apprentice and maintain program sustainability. Although their role may include supporting the OJT, they provide people experiences which facilitate the apprenticeship's learning.

It may be useful to utilize a formal process for identifying individuals to act in supporting functions as well as for enabling them to effectively perform their role. All must be sensitive to the apprenticeship requirements for the program such as the need for OJT and for them to attend classroom instruction.

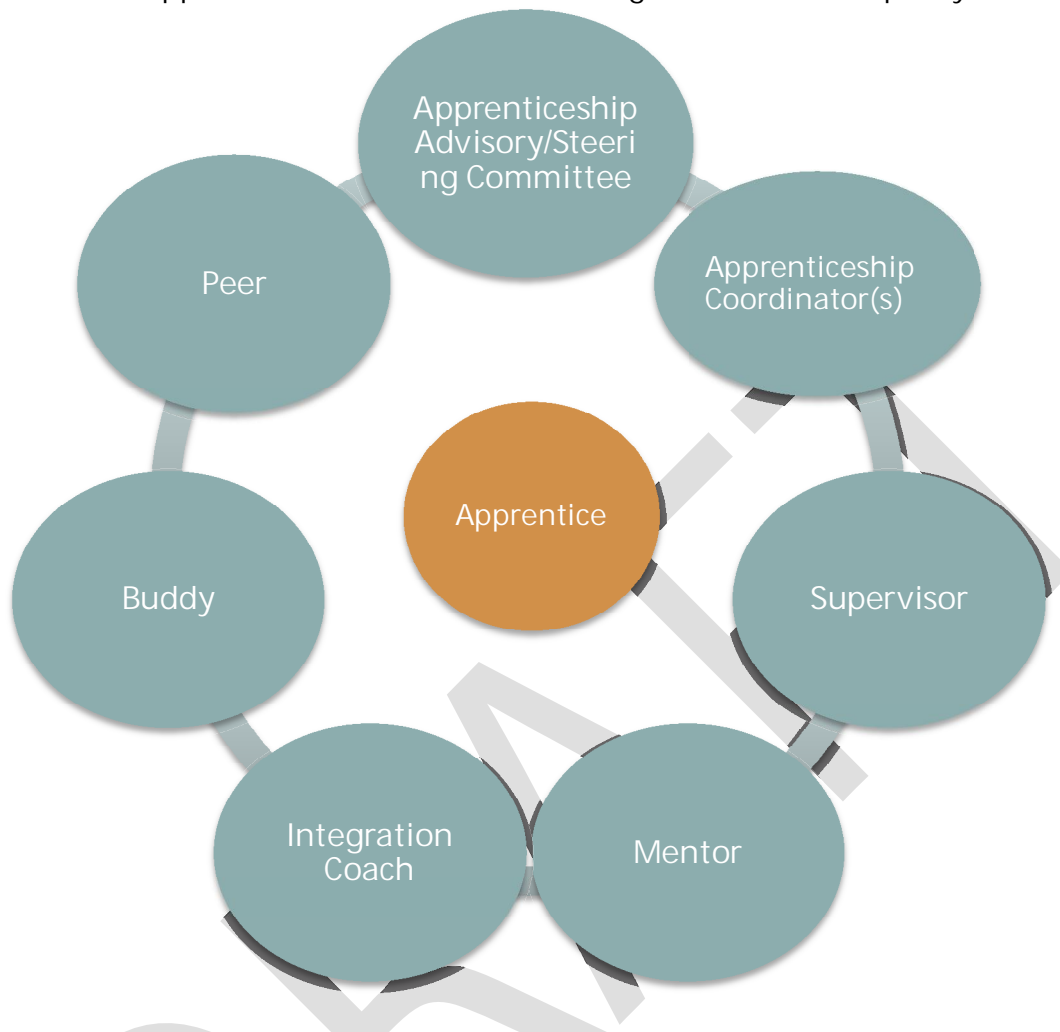
People need to see the value of the program. If you are not willing to make the overall investment in the program, which includes the non-direct parts, the trainers, etc., unless you are committed to making that investment, you should not go down this path.
-Lee Vickers, Siemens, Sr. Director, Human Resources

Depending on the size of your organization and resources that are available, one individual may take on more than one role in supporting the program. One person acting in multiple support functions will require practice, the appropriate attitude and common sense from that individual. (Source:

http://dwd.wisconsin.gov/apprenticeship/pdf/06_EmployerToolkit.pdf)

Ideally, taking on support functions will become embedded into the culture and understood to be a part of certain job responsibilities. When beginning a new program, you may want to consider whether additional actions will be needed to incent the individuals in the support structure.

A collateral support structure with the following roles in some capacity is recommended:

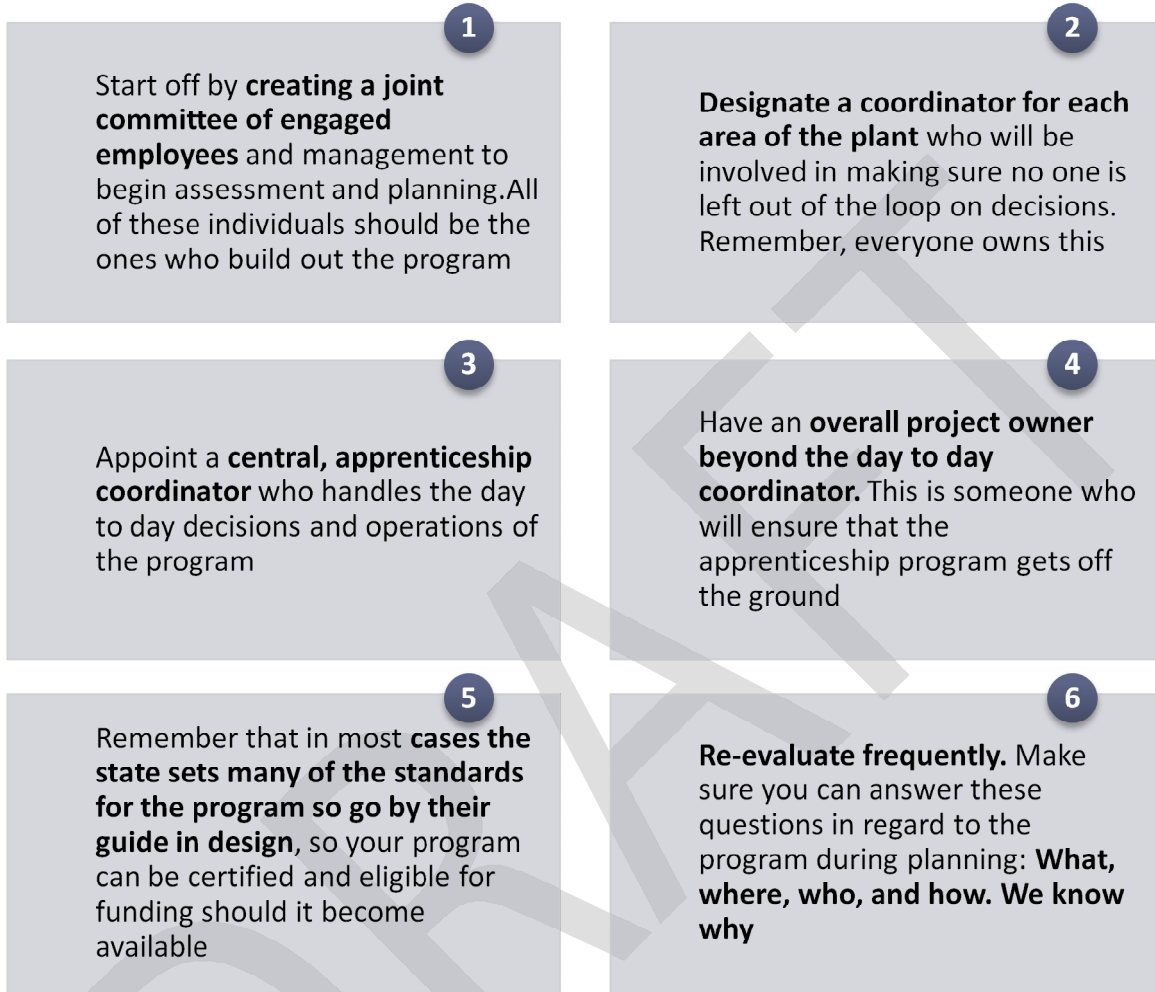


A description of the responsibilities of each of these roles can be found in the toolbox.

Large scale consensus is necessary for program successes. In order to get everyone on the same page, it is a critical that you engage employees who will be supporting the apprenticeship program. Work with leaders when you are identifying those who can teach or want to learn how to teach. There is no better way to engage someone than to make them responsible for someone else.

Prepare for Implementation

Steps for developing a program team to lead the implementation:



Manage Stakeholders

It is important to communicate to the entire organization. Message the workforce development strategy and the upcoming apprenticeship program to all employees at a town hall meeting so that employees understand what is coming. This can also help generate interest for an internal apprentice hire or taking on a support role.

Regular communication to all stakeholders, both within your organization and in the community, is critical. For effective communication, a successful strategy is to walk the talk and take the lead. Appropriate messaging allows for an open dialogue between all stakeholders. Be thoughtful in your choice of messages for both internal and external communication.

Once a program has been put in place, leverage teams to assist with the implementation. Within the various workforce development teams, hold regular standing meetings to provide status updates. Also, have quarterly meetings with your stakeholders and steering committee (at least) to keep them well informed of progress and continue to gain buy-in and direction at the leadership levels of the project.

Communication considerations:

- Use messages or themes from your executives related to talent shortfalls and planning
- Own the strategy and be honest about it
- Communicate well and often, but be flexible
- Reinforce that apprenticeships are a priority
- Identify supporters early on and leverage them once on board
- Cascade information about the program down to inform or solicit interested candidates
- Brand your communication plan

Identify common structured bonding/teambuilding experiences for participants, "class of..."

A necessary aspect to support your apprentices with developing from people experiences is facilitating positive relationships amongst participants. This can be achieved through regular and structured teambuilding activities. Peers can be critical in supporting the success of other apprentices but only when a positive relationship has been created by bonding experiences. This involves developing a cohort mentality which creates a sense of belonging for participants. Engaging in the program with a cohesive team that can act as a support system in itself will allow for participants to learn from each other as they progress through the curriculum together.

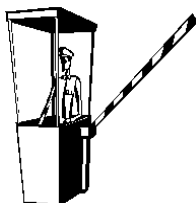
When bringing the apprentices together, it is helpful to have plant leadership involved. This helps to energize the apprentices as well as build and maintain strong relation-

ships in your plant. For additional strategies to develop a cohesive apprenticeship team please refer the toolbox.

Do's and Don'ts for Program Design

Do!	Don't!
<ul style="list-style-type: none">•Do ensure that training is aligned with your business objectives. <i>Understand what skills will be needed to meet the upcoming business goals and incorporate into the classroom and OJT curriculum.</i>•Do make sure you your training needs and funding are aligned. <i>Ensure funding is either not an issue/covered or reassess implementing the program.</i>•Do foster a positive OJT environment for the apprentices. <i>Make the apprentices feel comfortable enough to ask questions and focus on learning from others. Ensure current employees are supportive and take the time and effort to teach the apprentices.</i>•Do be committed to both types of trainings. <i>Make sure the apprentices are able to focus equally on classroom and on the job training and are able to be released from work to attend classroom instruction.</i>•Do ensure the participants are assigned to the right areas. <i>Appropriately assign OJT by business needs and skills and enable the apprentices to learn and grow both technically and professionally.</i>	<ul style="list-style-type: none">•Don't assume all apprentices are getting the training they need. <i>Everyone learns differently. Stay ahead of the curve and identify those who need help proactively.</i>•Don't let your "stretch" program "break" the apprentices. <i>You want them to succeed. Pulse the apprentices and their mentors to understand how the training / OJT is working for them.</i>•Don't introduce a lot of theory into this program. <i>This is vocational training. Emphasis should be placed on practicality.</i>•Don't be afraid to try new approaches to learning. <i>This would include online learning, or even training after hours.</i>•Don't undervalue the importance of a gap analysis. <i>Ensure the classroom material and overall community college curriculum includes the relevant information needed to gain the skills to perform the job on the floor.</i>

Check Point:



Check Point:

Review the checklist to evaluate your understanding of program design fundamentals. You should have successfully completed the checklist items and can move to the next chapter.

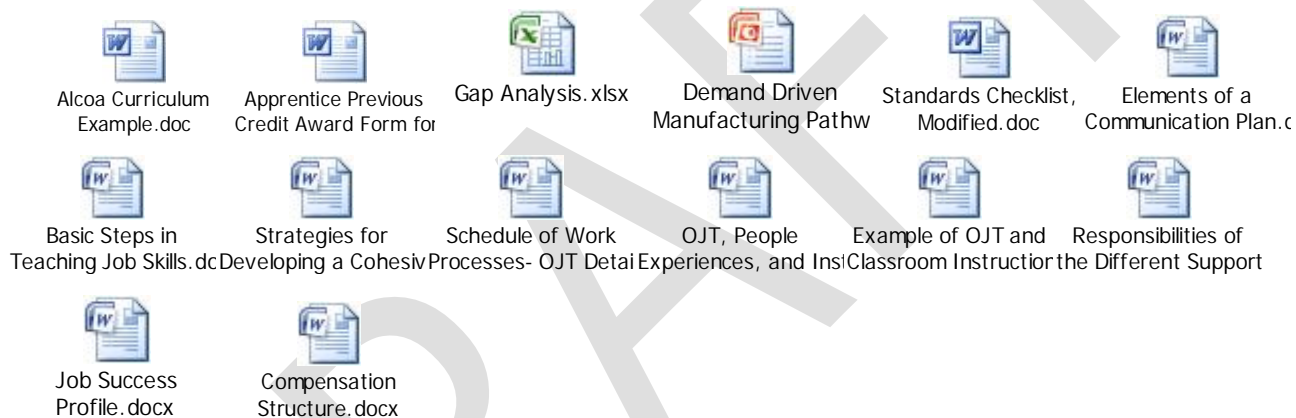
Establish a classroom curriculum that covers the necessary theoretical understanding for the apprenticeship role.

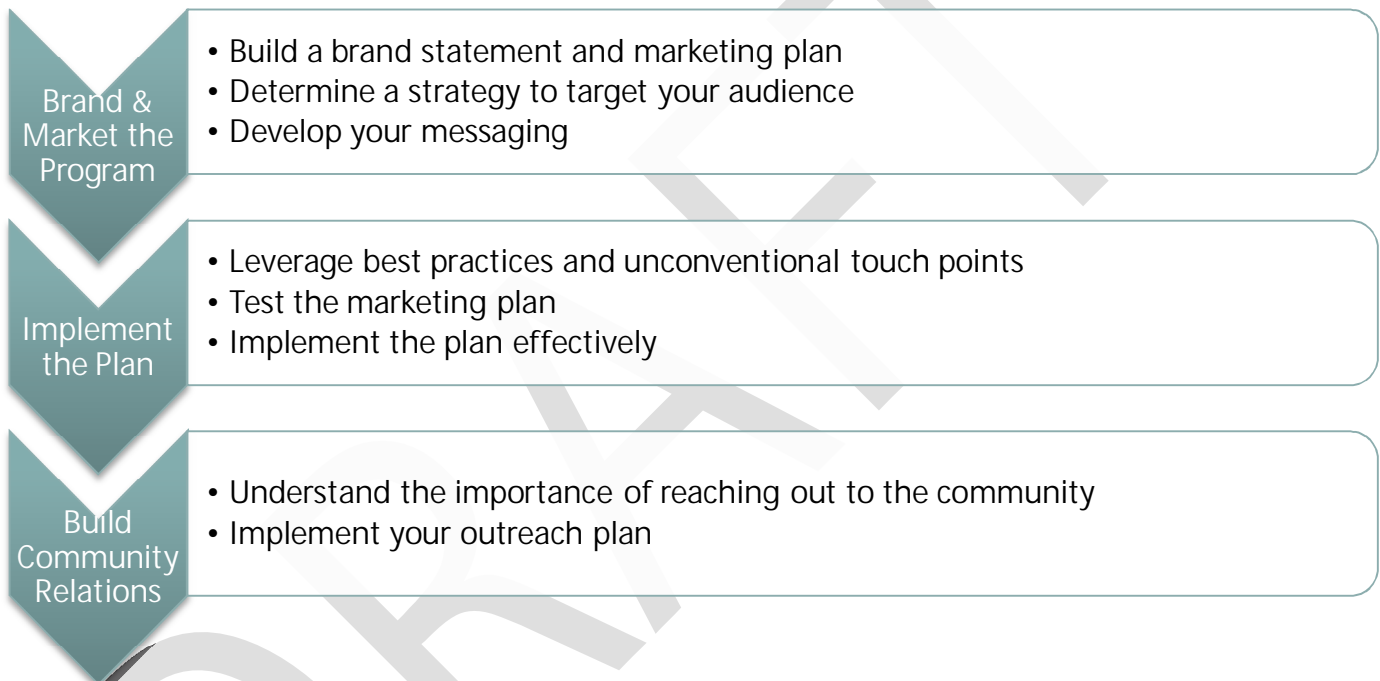
Create an on-the-job training plan that effectively develops your future workforce skill needs.

Ensure alignment between formal learning and on-the-job experiences for the program.

Make certain collateral support structures are in place to make the program successful.

Toolbox:





The quality of the candidates in your program are critical to its success. This chapter is intended to help you develop a marketing and branding plan for your program to build the image of the program to attract high quality candidates and reinforce your position in the community as an employer of choice in an industry of choice.

“The industry sure does look a lot different these days. It's typically clean and sanitary, with robots to do most of the heavy lifting and powerful machines instead of belching furnaces. But that image hasn't translated to the young people looking for jobs in a tough economy -- or perhaps more importantly, their parents.”

<http://www.washingtonpost.com/blogs/wonkblog/wp/2014/05/15/there-are-some-jobs-now-in-manufacturing-kids-just-arent-interested-in-taking-them/>

•Brand & Market the Program

•Implement the Plan

•Build Community Relations

Create a Brand for Your Organization and Program

Typically Apprenticeships and the larger field of manufacturing are still not completely understood and not always considered to be attractive propositions that candidates consider actively when planning their career. Following are some key challenges typically faced:

- Manufacturing is seen as a dying industry
- Manufacturing is low tech and boring
- Envision a poor working environment
- Apprenticeships grow to very narrow career paths
- Apprenticeships take a large investment with low return

Appropriate branding is needed in order to attract the best and brightest candidates for your apprenticeship program. Your efforts will result in attracting the more qualified candidates from your desired population. You will not only have a pool of candidates but one large enough to allow you to select the best for your program. To create that outcome, you will need to:

- Inform and educate your target audience
- Build interest and excitement around your efforts
- Engage experts to help you achieve this goal

This requires you to rebrand your Apprenticeship program as not only a viable option but a desirable one. You will need to put in effort to build understanding of the benefits of being an Apprentice and the future prospects for taking on this commitment.

Elements of employer branding includes:

Position yourself as an employer of choice with desired attributes

Communicate the value of your program

Emphasize career opportunities you can offer

Identify your companies as a strong coalition of industry leaders

www.workwonders.nl/download.asp?id=32

Keep in mind – Always be realistic in your portrayal of the Apprenticeship program. Showcase the many advantages but do not down play the commitment needed to be successful in this role. This will help ensure that you are attracting the right pool of candidates.

“[Apprenticeships offer] good, middle-class jobs with skills and benefits. We’ve got to emphasize with apprenticeship jobs that these are not (career) ceilings; these are floors.” -Randy Zwirn, Siemens Energy CEO

<http://www.charlotteobserver.com/2014/05/23/4929798/eric-cantor-joins-nc-congressional.html>

Benefits of an apprenticeship that you may want to focus on during branding efforts:

They could earn an associate’s degree, a state recognized license and a job with no debt

Compensation of this type of work is higher in comparison to other entry level positions

Participants are able to earn while they learn

Hands on training and experience in a marketable skill set which provides secure employment opportunities due to the outlook for the advanced manufacturing industry

Potential for a full-time role after project completion with advancement opportunities within the identified career path

Provides an opportunity to remain in an individual’s community

<http://centrefenterprise.com/wp-content/uploads/2013/07/Apprenticeship-plan-FINAL-25-July.pdf>

For larger organizations that may already have a national or global brand, you can leverage it to promote the Apprenticeship program locally.

Define the Foundations for your Marketing Plan

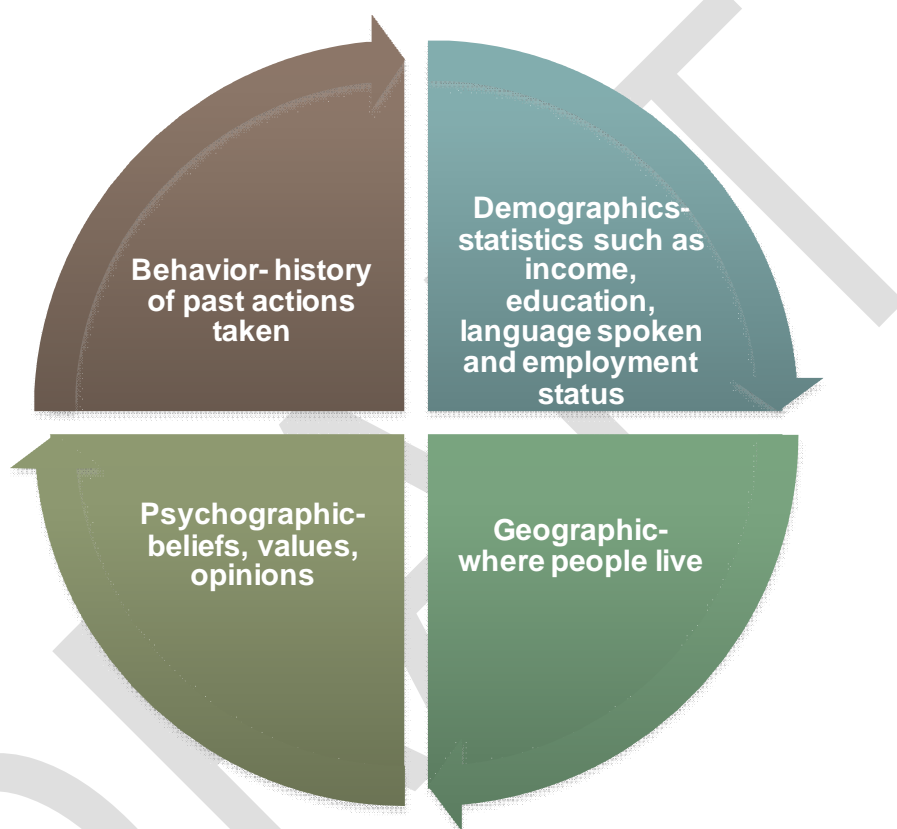
Once you begin building the foundation for your marketing plan, you will want to follow the below steps:

	1) Determine the Problem	2) Develop your Goal	3) Define your Audience	4) Decide on a Solution
Action Needed	Determine the root problem that you need to solve. Keep it broad instead of jumping to solutions.	Specifically define what you want to accomplish, so your marketing plan can get you there.	Identify what party it would be best to target your marketing efforts towards reaching.	Develop a plan which addresses the problem with your audience and obtains your goal.
Example 1	A large population of your workforce will retire in the coming years.	Develop a pipeline with the newest generation of talent.	High school students	Host facility tours where you educate students about your company and work.
Example 2	Your pool of applicants lacks diversity.	A pool of candidates which will allow for a diverse workforce.	Veterans	Place ads and job postings at military transition centers.
Example 3	You are not receiving qualified candidates from your area.	Generate interest from people outside of your area.	Those located in the surrounding areas	Place a radio or TV ad at local stations in the defined areas.
Example 4	There is a lack of interest in manufacturing as a career.	Generate interest in participating in an apprenticeship program.	Entry level workers looking for a career path	Create a social media campaign emphasizing the benefits of being an apprentice.
Example 5	Misconceptions are held about your company.	Create greater awareness and build a positive image of your organization.	Your community and job seekers	Create a marketing campaign showing your company as socially responsible.

How to Segment and Target your Audience

If you have identified multiple groups to target, approach them in different ways. This will require market segmentation to break your entire audience into separate subgroups and consider each of their characteristics to understand how each of them will respond to your message. Ensure that you are maintaining a focus on the recruitment goals for your program.

Examples of characteristics that can be used to define subgroups include:



Once you have defined market segments, evaluate each upon these four criteria to help prioritize whether it is worth dedicating resources to this group:

- **Measurability:** whether the segment is large enough and has enough influence in order to help you to achieve your goal
- **Accessibility:** whether you can reach that specific segment with marketing efforts based upon the resources you have available
- **Substantiality:** whether the segment is large enough and likely to yield sufficient progress towards your goal to be worth the cost
- **Actionability:** whether the segment has distinct enough characteristics in order to effectively tailor your marketing

<http://ctb.ku.edu/en/table-of-contents/sustain/social-marketing/reach-targeted-populations/main>

In general, a small organization shouldn't try to address more than three segments at a time. With limited resources, you may even get better overall results if you target just one.

Source: Nedra Kline Weinreich, in Hands-On Social Marketing

Marketing Strategy

Next you should pick the best type of marketing campaign to reach your target audience. Your approach will depend upon your resources as well as how similar the objectives are for each group, if targeting more than one. Leverage your company's marketing department or that of your coalition of companies to support with the strategy. Sharing resources and utilizing a common marketing campaign is just one advantage of forming a company coalition.

When developing a marketing program and strategies for attracting a diverse talent pool, consider the following approaches as they specifically relate to high schools, community colleges, veterans, the long term unemployed and existing employees and their families. Remember that each segment has their unique long-term benefits from an employment perspective. Please see the toolkit for specific examples of how you can reach each of these segments of the community.

High School	Community Colleges	Veterans	Long-Term Unemployed	Existing Employees/Families
<ul style="list-style-type: none"> Promote manufacturing and STEM career paths to the next generation of the workforce. 	<ul style="list-style-type: none"> Build a strong partnership which provides a long term talent pipeline for the program. 	<ul style="list-style-type: none"> Recruit candidates for the program who have developed skills such as discipline that match the workforce needs. 	<ul style="list-style-type: none"> Provide opportunities for qualified and underutilized members of society. 	<ul style="list-style-type: none"> Create a committed and engaged workforce while at the same time leveraging this internal network to identify future program participants.

Possible types of strategies are detailed in the toolbox.

“Diversity is key to survival in the biological world, and we, as community organizers, would do well to learn a lesson from the natural scientists. The more times a message is given, and the more ways in which it is told, the more likely people are to really hear it-- and finally, to follow it.”

<http://ctb.ku.edu/en/table-of-contents/sustain/social-marketing/conduct-campaign/main>

Although less can usually be more when it comes to marketing, it is really about finding the right balance of the resources you have. Even with a simple campaign, introducing some diversity can ensure that your message reaches the most parties.

Messaging

No matter which strategic approach you decide to take, make sure you clearly define what you want to say and how. When developing a message and medium, choose the ones that would be most effective on your target audience.

When crafting your message, things to consider:

Appropriateness	Levels of Affluence	Language	Level of Awareness	Culture
<ul style="list-style-type: none">• What would be appropriate for the identified group	<ul style="list-style-type: none">• What their ability and role towards contributing to your goal may be	<ul style="list-style-type: none">• What language the audience speaks and whether they may utilize slang	<ul style="list-style-type: none">• How aware they are of any applicable issues your marketing may address	<ul style="list-style-type: none">• Expectations of your segment on how they are marketed to due to their culture

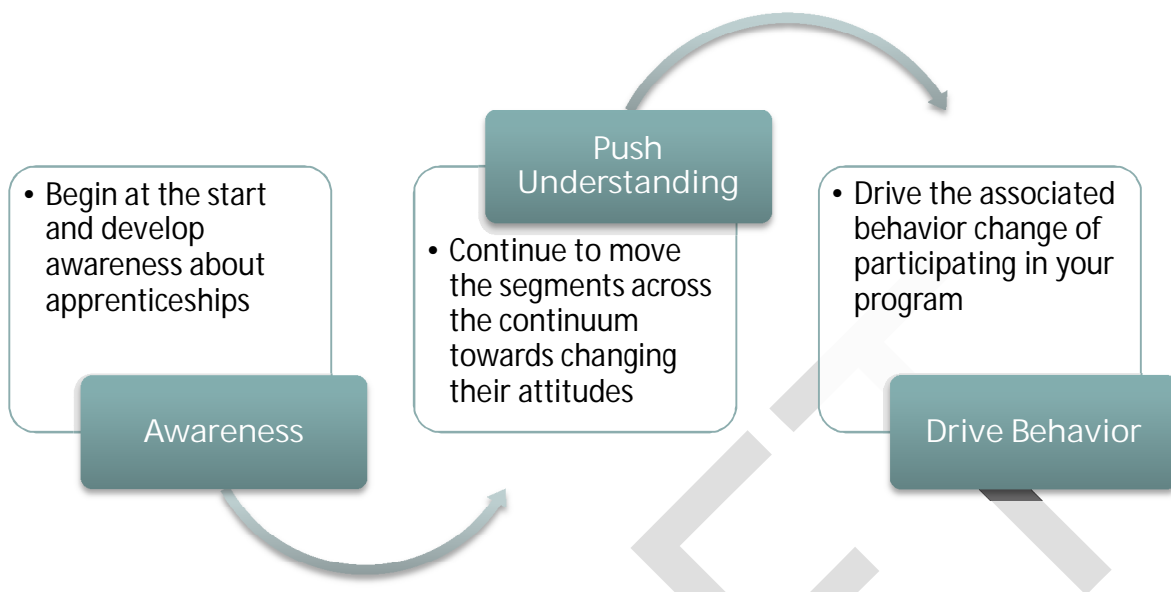
When selecting the channel of communication consider the following:

- Be aware of your budget constraints but do not be limited by them. Be creative....
- Utilize multiple modes of communication to increase the visibility of your message
- If your target audience is comfortable with the channel of communication, especially if it involves new technologies like social media
- How often will your target audience be exposed to that channel, seldom or often?

<http://ctb.ku.edu/en/table-of-contents/sustain/social-marketing/conduct-campaign/main>

Timing of your Messaging

When sequencing your marketing efforts, you may want to use a “panel design”. This is an approach in which messaging builds upon itself. Tailoring the message to the appropriate stage of change is important regardless of whether it is towards understanding the issue, identifying the relevance, or realizing the benefits to participating.



Also consider whether there will be a “domino effect” when sequencing your marketing efforts. Is there a particular group that would lead the way for others to change their thoughts or behavior if you can convince them to join an apprenticeship program? If so, you will want to prioritize efforts on that segment first.

<http://ctb.ku.edu/en/table-of-contents/sustain/social-marketing/conduct-campaign/main>

- Brand & Market the Program
- Implement the Plan
- Build Community Relations

Leverage Best Practices

There are many best practices that can be leveraged to promote your company and program brand which are more traditional. They include:

- Advertisements through print, TV and radio
- Communications directed to the media such as press releases
- Internal and external job postings, both electronic and paper, and job fairs
- Seminars at business events for the industry
- Presentations at targeted community locations such as high schools or colleges
- Word of mouth in your plant as well as in the community
- Host family day and plant tours to demonstrate your plant and technology
- Online tools and technology, including social media
- Relationships with career planning centers that can advertise your openings
- Transition centers for military personnel as a source for diverse candidates
- Job postings through the Department of Labor offices and job services board

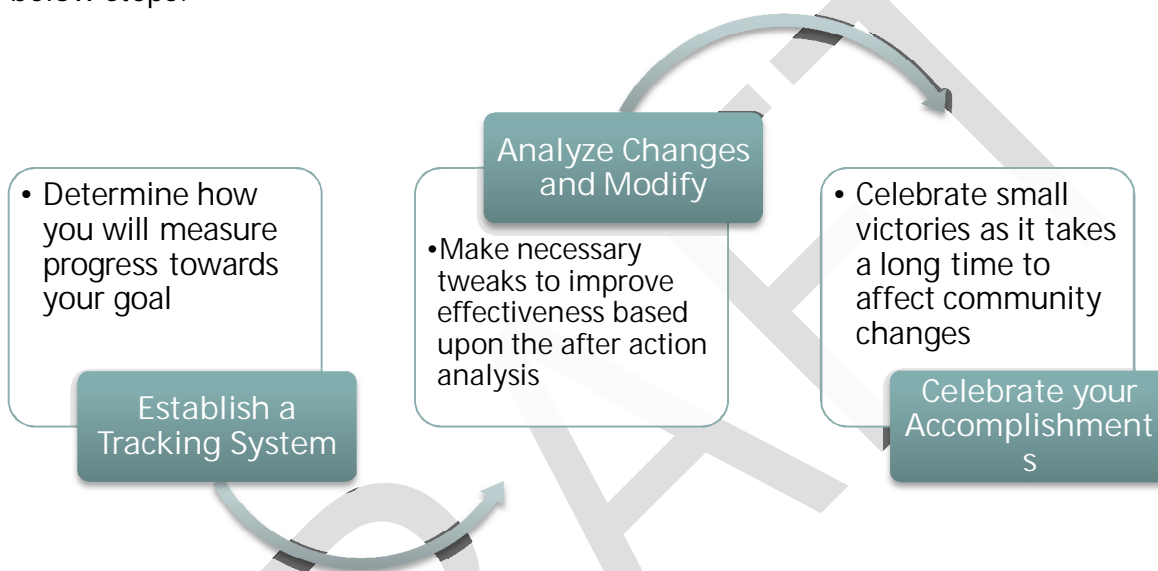
Use unconventional approaches to complement or supplement traditional branding and marketing efforts to reach your target audience. Often these unconventional touch points can also be more cost effective (Ex: free services, minimal costs, etc.) in comparison to other traditional methods. Examples of marketing materials used for an Apprenticeship program as well as additional information on leveraging unconventional touch points are provided in the toolbox.

Test the Marketing Plan

Prior to launching a marketing program, it is important that you anticipate how your audience might respond to your planned campaign. A simple approach would be to have

various internal and external stakeholders review your marketing communications and integrate their input. If you would like to conduct extensive market testing, additional information can be found in the toolbox.

While your marketing campaign is running, constantly and consistently take note of successes and opportunities for improvement. Building and maintaining your brand image is a continuous process. It will require that you review your efforts and ensure it is effective in generating interest in your apprenticeship program. That involves the below steps:



<http://ctb.ku.edu/en/table-of-contents/sustain/social-marketing/conduct-campaign/main>

Key Considerations and Guidelines for Implementation

In order to ensure successful implementation of your marketing plan, consider doing the following:

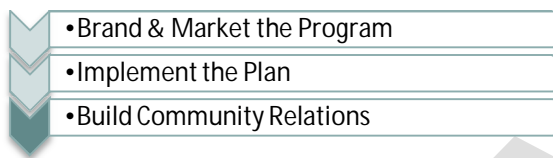
- Coordinate activities effectively and efficiently by clearly defining responsibilities.
- Determine where your time is best spent, not allowing distractions.
- Maintain close attention to detail and thoroughness.
- Instill accountability with those supporting implementation activities but communicate with them regularly, manage the progress and intervene when needed to ensure implementation stays on track.
- Under-promise to the audience to manage expectations but then over-deliver to exceed them and make a strong impact.
- Internally manage those activities your organization does well and outsource or delegate the rest.

<http://www.entrepreneur.com/article/193460>

- Ensure that those on the implementation team understand how the marketing plan and implementation efforts align to and help contribute to the business goals.
- Develop contingency plans to mitigate risk for if your marketing plan does not have the intended effect.

<http://www.business.qld.gov.au/business/running/marketing/write-implement-marketing-plan/implement-marketing-plan>

Ultimately the implementation process will require a balance of maintaining flexibility to adjust your plan to meet the needs for your Apprenticeship program while still aligning appropriately with your internal resources and subject matter experts such as your marketing and communications department(s).



Develop a Community Relations Plan

In addition to having a marketing plan, consider secondary efforts by implementing touch points in the community. Before developing a community relations plan you must first be a great community partner. At the core, this means spending time, money and resources on partnerships that are mutually beneficial. It is important to develop long-term relationships but to be selective to not over commit yourself.

Consider first the public and private partnerships you have developed (Chapter 3) when beginning the development of a community relations plan. Leverage your network to develop your employer brand and attract high quality candidates into your apprenticeship program.

Companies should consider their Corporate Social Responsibility (CSR) programs, including educational and volunteer initiatives. Showing a strong interest and commitment to the local community will help build a positive employer brand while also advertising the apprenticeship program. These CSR activities can help expand current networks, identify potential partners and source candidates for future programs. Additionally, if you are a good community steward then the public, especially those in power who have major influence, will listen to your point of view. Leverage your Public Relations department and tap into both print and online media to promote the company and the program. You can also use this as an opportunity to promote community part-

ners. Also consider setting up an internal community advisory panel which could allow members of the community to meet with the company on a regular basis.

Strong community relations will positively impact your Apprenticeship program:

- Provide a platform for showcasing the long-term workforce investment you are making in the community through the program
- Build a reputation as an employer of choice, attracting the best and brightest for the program
- Improve the image of Apprenticeship as a desirable career attracting more people

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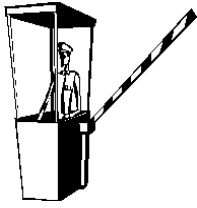
Do's and Don'ts for Branding & Marketing

Do!

- Do change mindsets.
Challenge preconceived notions of what an advanced manufacturing career really means in order to prompt behavior change.
- Do consider working with your partners.
You could partner with the such as the community college to develop and execute a promotional campaign together. Tap into your community relationships as a source of research for understanding your target labor market.
- Do leverage internal subject matter experts and resources.
This includes your communications, marketing and public-relations team(s) to ensure you implement the most effective plan. Even the best-planned marketing plan cannot be completed without the necessary resources of people, time and money.
- Do tailor your marketing and community relations approach.
Keep in mind the specific population you are targeting (Ex: Veterans) customize your campaign accordingly.
- Do leverage unconventional touch points.
This will help you reach a broader audience to market the program and build your company's reputation.

Don't!

- Don't be afraid to try something different.
Embrace the opportunity to try something new to make a positive impression while still being straightforward and clear.
- Don't engage in false or misleading marketing.
This will ultimately tarnish the reputation of your company and the program. Always remain factual in your messaging.
- Don't tap every community or special interest group out there.
Be selective about how you market the program and brand your company. Make sure there is real value in targeting this population and the group aligns with your workforce and program needs.
- Don't start from scratch.
Leverage the news and media coverage that other companies and the government has spurred as a result of their own efforts.
- Don't overlook the obvious.
Traditional methods and small efforts such as word of mouth or a simple job posting can go a long way.

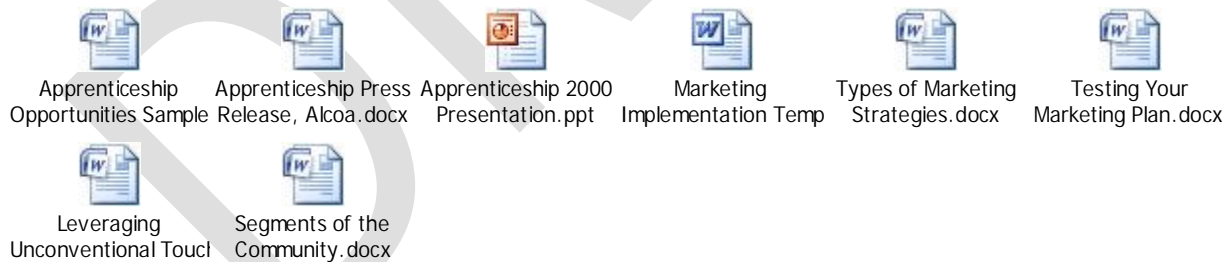


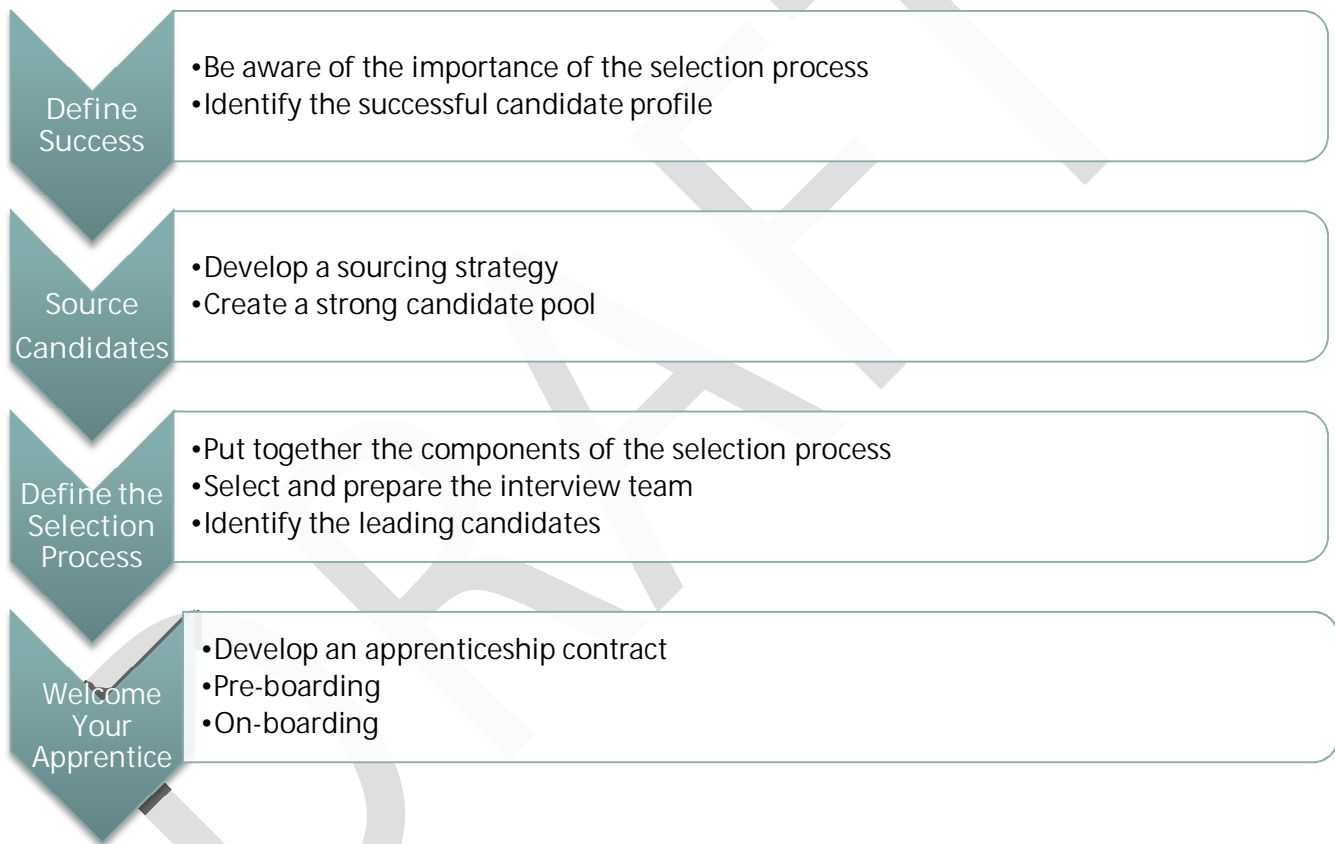
Check Point:

Review the checklist to evaluate your understanding of branding and marketing fundamentals. You should have successfully completed the checklist items and can move to the next chapter.

- Understand unique challenges associated with manufacturing and an apprenticeship program that you must overcome
- Define your target audience and segment it accordingly
- Determine your marketing strategy for reaching your priority segment(s)
- Develop your branding and marketing plan, detailing the timing, messaging and medium
- Conduct pre-testing of your marketing plan and make adjustments to your plan based upon feedback obtained
- Determine your community relations plan, detailing the target populations, benefits of this population and company actions
- Select relevant nonconventional touch points to reach a broader audience

Toolbox:



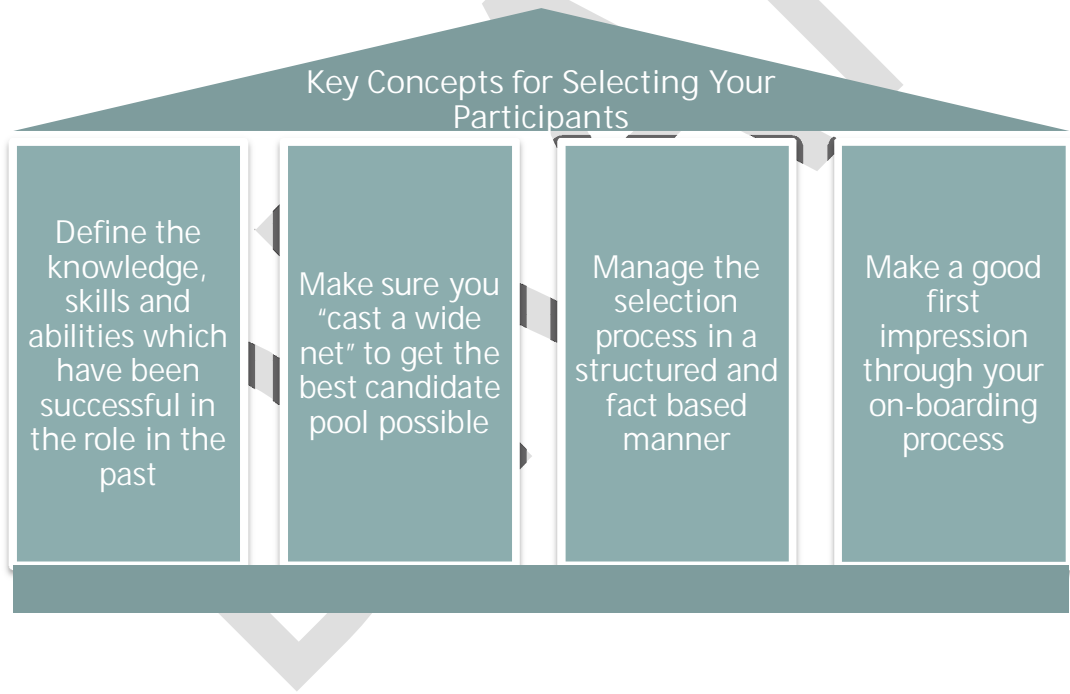


Even with a large pool of high quality candidates it is important to have a good selection process. A good process will ensure the right people are placed into the program and also that your selections are legally defensible. This requests a fact based, multi step, structured process which gathers information from many sources and summarizes the results to determine the final candidate selections.

- Define Success
- Source Candidates
- Define the Selection Process
- Welcome Your Apprentice

The Importance of the Selection Process

Selecting the right candidates is critical to the overall success of the program. This is part of the process which if completed appropriately will have a direct impact on the long term return of your program. The right candidates will fill the needed skill gaps and avoid the costly burden of poor performance or unexpected turnover. There are four key concepts in the selection process, each is very important to understand and each concept should have the right level of resources and attention. The four concepts are as follows:



Define the Successful Candidate Profile

Identify current high performers: The easiest way to determine the attributes you are looking for is to assess what is already working well. The best way to do this is to assess your current workforce and identify the individuals who have demonstrated strong performance and contribution over a longer period of time. Maybe they have become

technical experts, been promoted into management roles or are simply someone who is very knowledgeable and considered a key contributor to the organization. When you identify the sample of strong employees, please make sure to speak with the appropriate leaders in the organization to get a well rounded pool.

Define the attributes that contribute to their success: Once the pool has been defined, you should interview the individuals to identify what they believe has been the key to their success. What knowledge, skills and abilities were critical for them to succeed in the first and subsequent roles? These may be personal attributes, hard skills or previous experiences which contributed to their success. Also make sure to identify any gaps which were critical for them to close during their early assignments. This may lead to additional skills which are critical to long term success.

Build a competency profile: Once the interviews are completed, group the feedback into relevant competency categories specifically targeting a manageable number of areas. For each competency, create a competency definition and potential ways the competency can be demonstrated. Once this competency profile is complete, you should seek validation through a review round with key leaders in the organization, as well as, the pool of successful talent that you previously interviewed.

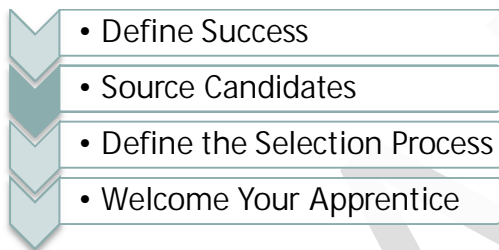
Once validated, you have created the knowledge, skills and abilities profile for which you want to recruit. This coupled with an appropriate job description will create the foundation of your selection process.

When building a candidate success profile, please consider the following:



Source: The Manufacturing Institute Concept Overview - *Developing a Nationally Sponsored 21st Century Entry-level Manufacturing Apprenticeship Program*

Please refer to Chapter 4 for an example of a success profile



Develop a Sourcing Strategy

Once you understand what you are looking for you need to determine a sourcing strategy in an effort to get the best candidate pool possible. The better the candidate pool, the stronger the talent from which you can select your program participants. You need to spend the requisite time defining your sourcing strategy to ensure that other parts of the selection process are executed at a much faster pace. A poor sourcing strategy will result in frustration, poor talent pools and skill set gaps.

The sourcing strategy should focus on

- both internal and external candidates and should be targeted on the attributes you identified in the success profile.
- include a conscious decision on whether the sourcing will be conducted locally or outside of the immediate area. In circumstances where the local labor market is tight, it may make sense to target distant areas to secure the talent you need.
- sourcing the best and the brightest talent including ensuring a diverse talent pool is created. Depending on your location, you may need specific strategies to reach out to minority groups, returning veterans and the long term unemployed.

This type of thorough sourcing will make sure you have the best candidate pool possible. An example of potential candidate sources is below:

Internal Recruiting Sources

Recruit talent internally with employees already with the company that may be interested in the apprenticeship program and the positions offered as a result of completing the program. This is a faster process and you already know your talent .

Employee referral programs. The current employees in your organization can recruit family and friends as potential candidates for your company in exchange for a small referral bonus should they be hired. While you don't the candidate they come with reliable references.

External Recruiting Sources

Career counselors within high schools and community colleges serve as a method of sourcing potential candidates for your company. Ensure career counselors understand the skills needed for your apprenticeship program so they can identify students with the right fit.

The state employment bureau, including the division of employment and unemployment office, as this agency directs unemployed talent to available employment opportunities.

You may engage sources of diverse talent through various avenues. In the past and still somewhat today, companies have gone to communities that have employment groups to attract individuals for various jobs, including

- High schools and community colleges where there is a presence or population of diverse candidates.

- Local groups, community associations, religious organizations.

- Professional organizations.

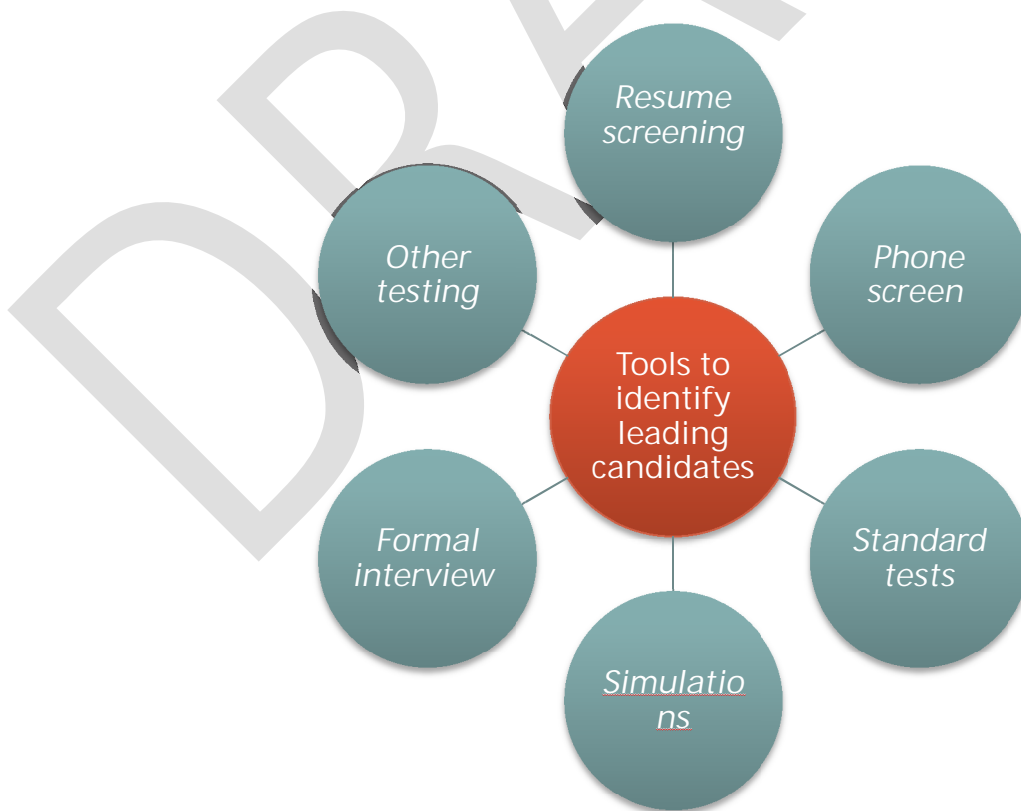
- Veteran organizations

- Define Success
- Source Candidates
- Define the Selection Process
- Welcome Your Apprentice

Components of the Selection Process

Once your candidate pool has been established, you will need to select the talent from the candidate pool which is the best suited for your program. This will require you to “down select” the candidate pool to reach the top candidates for which you will make an offer.

There are several tools which can help you identify the leading candidates for your roles. This includes the following elements. Those identified in yellow are typically part of the standard selection process:



Resume screening

- Once a candidate has submitted a resume or application the first step in the selection process is screening the resumes to identify candidates which you would like to move further in the process. The initial screening should be focused on matching the candidate's knowledge, skills and abilities to the job description and the candidate success profile. Those meeting the majority of the requirements should be identified for the next step in the process.

Phone screen

- The second step in the process is typically conducting a phone screen with the candidates whose resumes were selected in the resume screening step. During the phone interview, the interviewer is focused on identifying personal attributes and interpersonal skills critical to the job. Following the phone screens, the interviewer will again segment the candidates into those that would move forward in the process and those which would not.

Standard tests

- When selecting candidates you can choose to use a standard test to help identify the top candidates and move them forward in the process. These can focus on the candidate's knowledge, aptitude, personality and physical abilities. If you choose to use a standard test, you will need to ensure the test process is valid and reliable. Validity ensures the degree to which a test is effectively measures what the candidate needs to be successful in the specific role. Reliability means that a test produces consistent results over time. Strong validity and reliability results ensure the selection process is non-discriminatory in nature. Companies may hire external consultants or companies to help develop, validate, and sometimes even conduct some sections of the tests, especially the pre-employment tests. Testing has evolved from pencil / paper to virtual test taken on the web. It is cost efficient and convenient for candidates to test at home when possible. There are nationally recognized businesses, such as WorkKeys®, that provides standardized tests that are a legally defensible cognitive assessment as it is based on job profiling to truly evaluate job relevant competencies.

Simulations

- Some companies use simulation tests to identify how the candidates will react in the day to day environment. Typically, simulations try to mimic a specific event which is required

on the job like a routine task with fellow employees. The goal, to get a real life perspective of how the employee will react with his/her peers in a production setting.

Formal interview

- The face to face interview remains the primary tool used to select the leading candidates from the candidate pool. The formal interview process typically requires an interviewing team and structured behavioral based interview questions. This process is described in more detail in the next section of this chapter.

Other testing

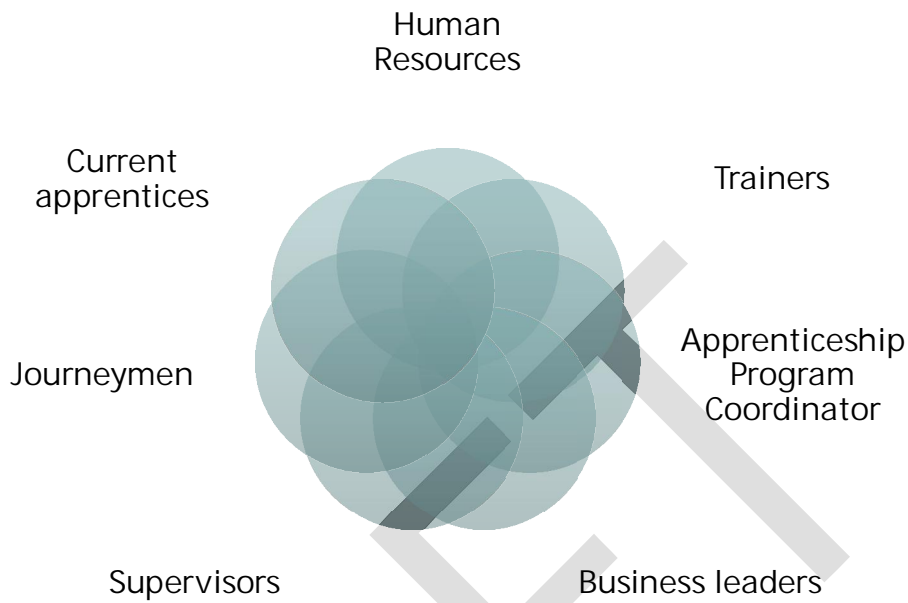
- The majority of other testing is focused on after the leading candidates have been identified and prior to on boarding the candidate into the company. The tests tend to be focused on basic requirements such as adherence to the company's drug use policy or basic medical evaluations to ensure the minimum job requirements can be successfully met. Any offer should be contingent on the successful completion of any minimum requirements. Another usual way of shortlist the candidates is through a six week internship process, before selecting the final apprenticeship candidates.

Whatever you choose for your selection process you should make sure that the order makes sense and that you are down selecting the best candidates in the most efficient way possible. In addition, you must make sure that each step provides you key information which is relevant to making your hiring decision.

Prepare for Formal Interviews

Since the formal interviews are a component of any selection process we will focus on this process in slightly more detail. First off, the interviews should be conducted by more than one person. This ensures you capture different perspectives of the candidates resulting in a higher degree of confidence in your selection. This will mean that you need to develop an interview team. When developing an interview team you must have the right people on the team. The selection team should be diverse, cross-functional and individuals which are strong interviewers and good judges of talent.

A potential list of interviewers is listed below:



Keep in Mind: Your interview process is only as good as your interview team.

The interview team should include those that understand the business strategy and the mission of the program and the role that you are interviewing for. Their ability to see the long term benefit should make them champions of the program with an understanding of the knowledge, skills, and abilities needed for the apprentice role to be successful.

It is critical that the interview team receives training on the process to ensure consistency across all participants. This will result in a stronger interview process, a positive candidate experience and minimized legal risk to the company. Training could include:

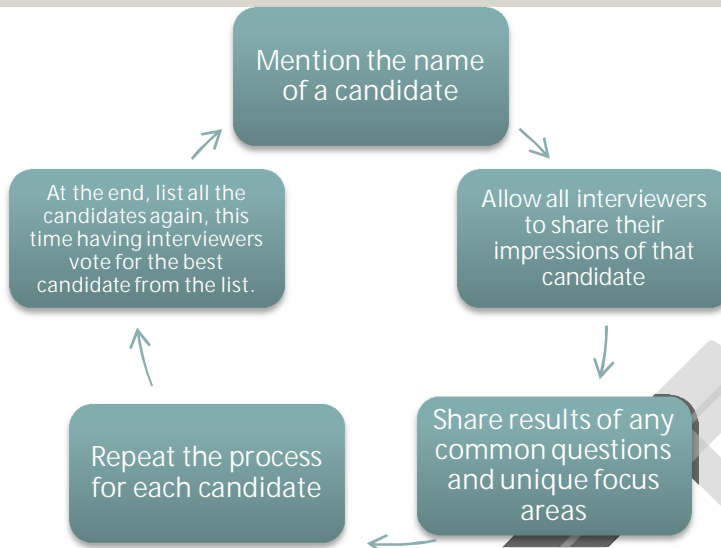
- Purpose of the Interview
- Role of the Interviewer / interviewee
- Interview structure and tools
- Interviewing techniques such as behavioral interviewing
- Legal boundries to comply with
- Do's and don'ts of interview etiquette
- Intrviewing mistakes / what to avoid
- How to answer questions from candidates

Schedule and Conduct the Interviews:

The interview process itself should be conducted in a very organized way. It is important for the process to be efficient, well planned and well timed to ensure each interviewer can assess the candidate pool in fairly quick manner. The best practice is to schedule all interviews within the same week and for each interviewer to cover some common topics, as well as, focus on specific areas to ensure deeper discussion across key skill needs. A standard interview guide should be created and following the interview the interviewer should make his or her comments on the guide for future reference.

Conduct a Post Interview Consensus Meeting:

Following the individual interviews, the interviewing team will need to make a decision on who will move forward in the process. To make this decision in an efficient manner, a post interview consensus meeting is recommended. During this meeting, all interviewers are brought together to discuss the results of the interviews and rank the candidates. The interview guide is very helpful during this process and the meeting will need to be facilitated by the Human Resources department. A sample meeting approach is outlined below:



Identify the Leading Candidates

Once the final components of the selection process are completed, the leading candidates will be selected and offers will be prepared. The final selection needs to be well documented and facilitated by someone with experience in the hiring process. A consensus meeting should be scheduled and key selection team members should be invited. At this time all of the information for the leading candidates should be reviewed. This includes testing results, simulation results, interview results and resumes. It is ideal to consolidate this feedback in advance of the meeting so the discussion can be focused on the candidates in a complete and holistic way.

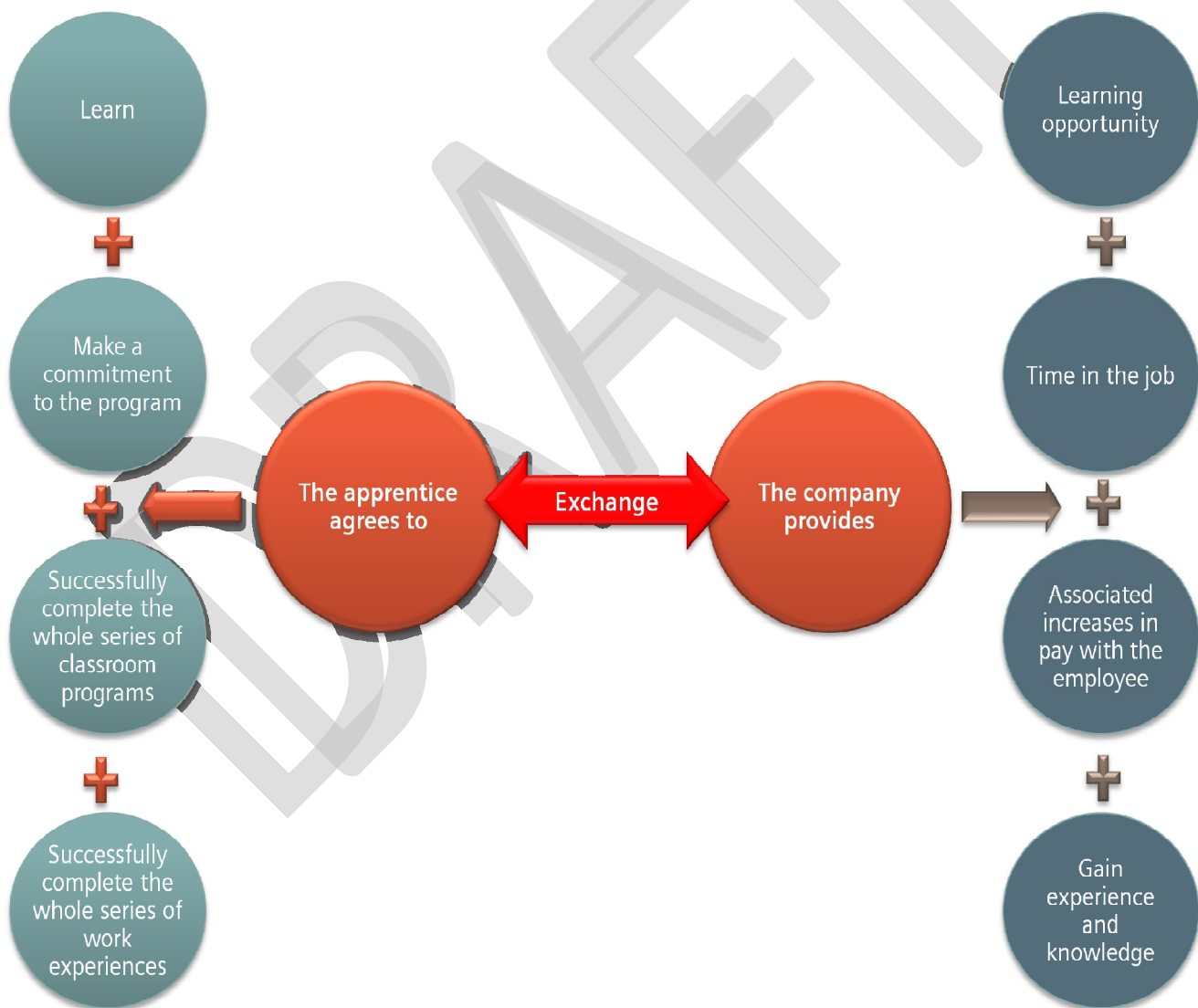
For the selection process itself, even though there may be candidates who clearly stand out as the most qualified for the job, it is surprising how interviewers' impressions can change once they all have an opportunity to carefully discuss and consider all of the candidates. Be sure your approach to selecting the best candidate is a comprehensive and consistent approach.

- Define Success
- Source Candidates
- Define the Selection Process
- Welcome Your Apprentice

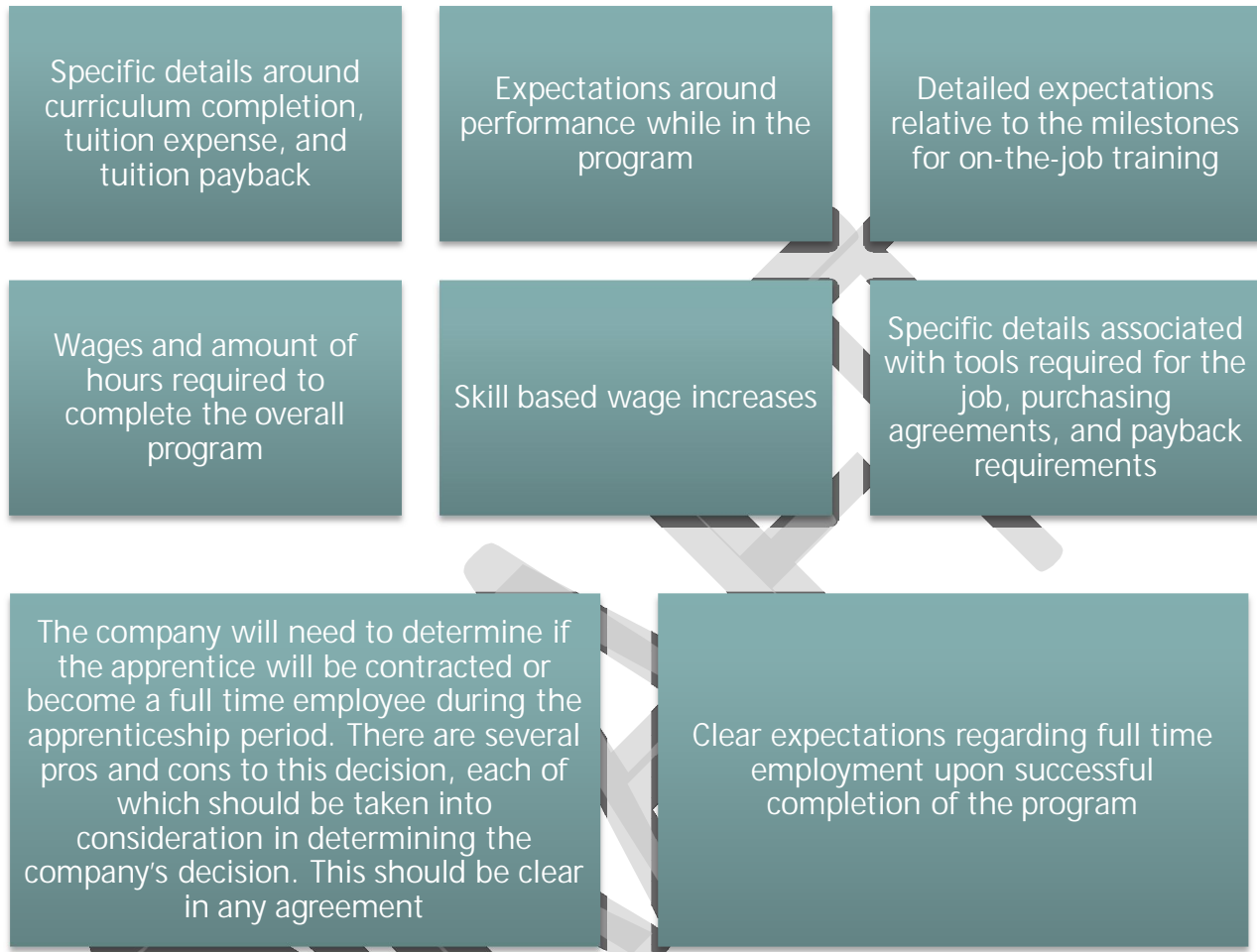
Develop an Apprenticeship Relationship

Once you have identified the candidates to which you would like to make an offer, you need to begin thinking developing an apprenticeship agreement. The apprenticeship agreement starts with an understanding of what the apprenticeship program is, what the apprentice is accountable for and what the company is accountable for. This links to the program design, including the specific job, program duration, on-the-job training, and community college based training. The goal is to make the relationship and accountabilities very clear and entirely understood. This should include any repercussions for not successfully completing the program.

A diagram outlining many components of the relationship is listed below.



In addition to the relationship, below please find some key considerations which are typically found in an agreement.



You can find an agreement example in the toolbox

Welcome your Apprentice

This is an important step because it creates a first impression of your company. As with any first impression, you want it to be the best it can be. The on boarding process is typically broken into two distinct components.

- Focused on welcoming the new apprentice to the company and providing instructions for their first day. Remember, this is the first impression the apprentice gets of your company prior to coming onsite to your company.

The pre-boarding process

1

- Focused on welcoming the apprentice to the facility, completing any necessary administrivia, and connecting them to the items which are critical for their success. This includes team members, help chains, program overviews, company culture, company history, and business leaders.

The on-boarding process

2

Pre-boarding

An example of a pre-boarding outreach program is below.

1. Send new hires a welcome letter and/or package before they start. Do not underestimate the power of making a good first impression.
2. Announce your new hire to your team. Celebrate what your new hire brings to your company to make sure they will feel immediately welcomed and valued on their first day in the program.
3. Assign a Buddy. Nothing helps more in the early days than having a friend, especially on the first day.
4. Make sure to outline the formal onboarding process and ensure everyone knows their part.
5. Schedule one-on-one time with appropriate peers and leaders.
6. Begin to reinforce the company culture wherever you can and specifically in the welcome package.
7. Ensure the managers will be accountable for the success of the new hire assimilation.

Source

<http://www.phccweb.org/NewsPublication/ebulletinDetail.cfm?ItemNumber=12223&navItemNumber=5>

PHCC - Personnel e-bulletin – April 2013. This content was developed for the PHCC Educational Foundation by TPO, Inc. (<http://www.tpo-inc.com>)

On-boarding

This is the most important part of the welcoming process for your employee. It is important that your administrative processes are efficient and organized, that any connection with peers and leaders are structured and focused, and any job related requirements are clear and easily understood. Consider the first week to be similar to the first day of school where the apprentice is unsure of the environment and trying to get their bearings. As we mentioned above, the on boarding process should be planned, organized, and extended for at least a 90 day period. It is highly recommended to connect the new apprentice with their buddy on the first day.

An example of a two day on boarding schedule is below.

Monday, January 18th

- 8:00 a.m. – Arrive at facility and meet your buddy
- 9:00 a.m. – Attend new hire orientation with other apprentices
- 10:00 a.m. – Plant manager welcome and company overview
- 11:30 a.m. – Lunch with manager and/or buddy
- 2:00 p.m. – HR On boarding including all administrivia
- 3:30 p.m. – Plant tour
- 4:30 p.m. – First day closeout with the plant manager

Tuesday, January 19th

- 8:00 a.m. – Apprenticeship overview
- 9:30 a.m. – Community college onsite presentations
- 11:00 a.m. – Tools and books overview
- 12:00 p.m. –Lunch
- 1:00 p.m. – Department assignments and department manager introductions
- 2:00 p.m. – Department visits with buddy
- 4:30 p.m. – Second day wrap-up

NEED SUMMARY PARAGRAPH

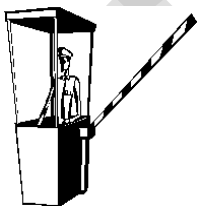
Do's and Don'ts for selection of participants

Do!

- Do seek input from existing employees.
They do this job everyday and know what is needed to be successful at it.
- Do utilize referrals.
Having internal referrals will result in closer alignment with your organization's culture.
- Do clearly define the criteria to participate in the program.
This would include job description and job requirements. Make sure everyone is aware what it takes to apply for the apprenticeship and give people a chance to meet the qualifications.
- Do ensure you have standard, defined selection process and an interview team.
And make sure it is implemented consistently.
- Do engage the applicants on their level.
Talk to the candidates about their interests and activities. Offer guidance, proactively communicate and actively select people looking to learn.

Don't!

- Don't show favoritism.
Be objective in your selection process, else the credibility program and the company is otherwise credibility goes down the drain
- Don't assess only on one dimension.
Place equal importance on their test scores, technical abilities and interpersonal effectiveness
- Don't ignore legal requirements
If you buy a standardized test, the company guarantees and is liable for legal compliance.
- Don't include those without knowledge of the job on the interview team
You should only include panel members with knowledge in order to make the best selections.
- Don't underestimate the importance of welcoming the employee
You can never redo a first impression.



Check Point:

Review the check point checklist to evaluate your understanding of selection of participants fundamentals. Only when you successfully completed the checklist items, you can pass the check point and move to the next chapter.

- Build your candidate success profile
- Develop your sourcing strategy
- Create a strong candidate pool
- Develop your selection process including selecting and preparing your interview team, identifying leading candidates, and creating an apprenticeship contract if needed

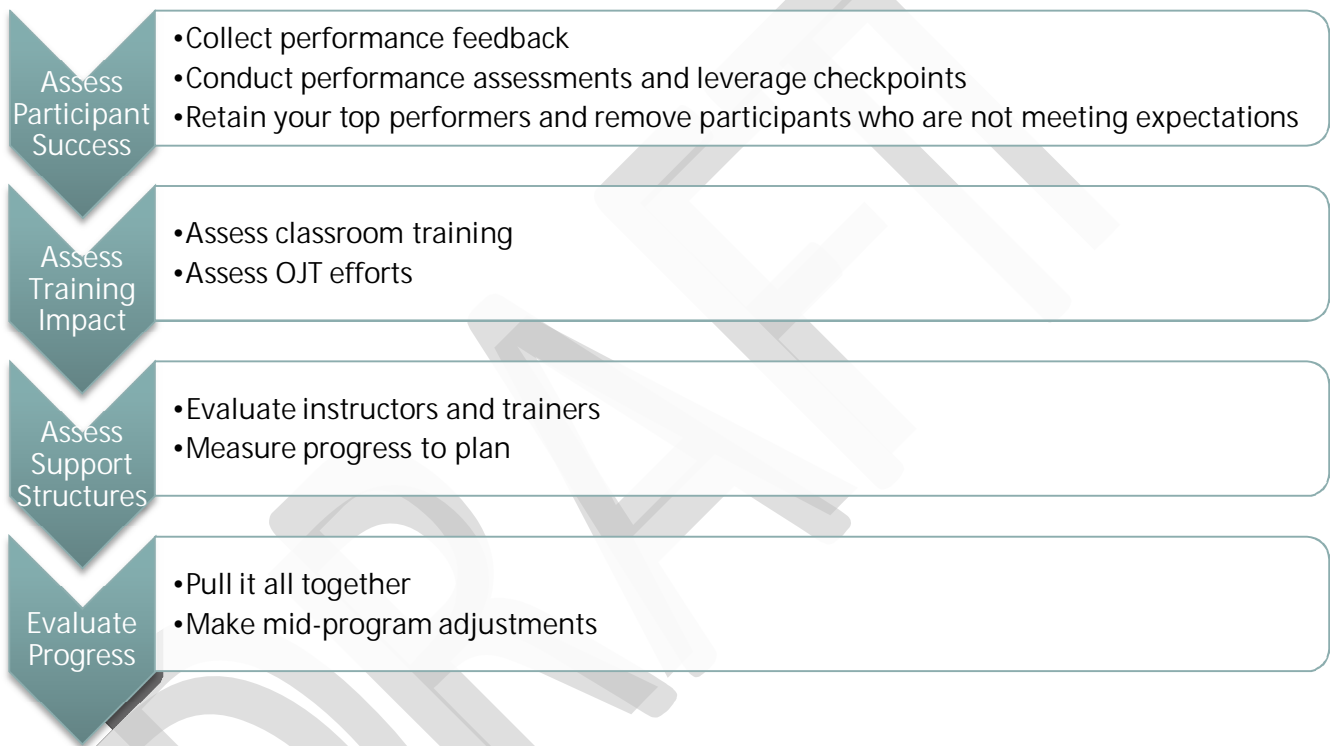
Build your pre-boarding and on boarding process

Toolbox:



On-boarding Checklist
for Managers.xlsx

DRAFT



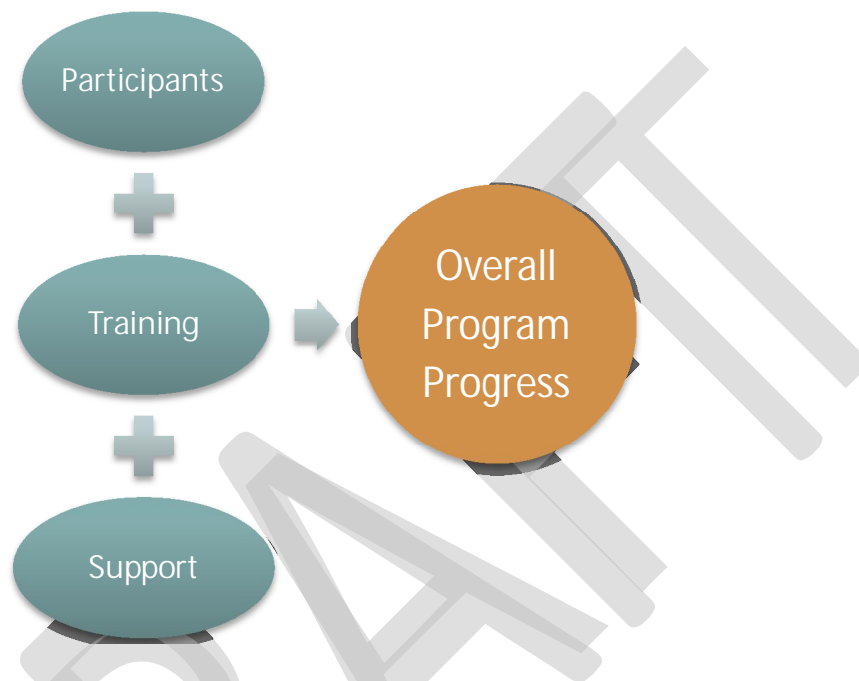
Once you launch the program you will need to make sure that the program is working well and will deliver the outcomes that you and the business leaders are expecting per the schedule and milestones you established in Chapter 4. The best way to ensure your program will be successful is to:

- periodically assess the components of the program
- conduct a fact based assessment, and if needed
- adjust the program to make sure you capture the value for your business

Course corrections occur all the time and you should be very comfortable in conducting a thorough assessment and reporting out both the good and the bad. That being said, if you report out improvement opportunities you must be prepared to recommend solu-

tions to get the program back on track. Focus on the solution as much as you focus on identifying the problem.

Typically, there are three components that you can assess as indicated in the graphic below:



The hard reality is whether it's 2 years from now or 3 years from now, when we look at the return on our investment, that will determine whether it was a good investment or not. That means, did we get the quality of people, the output, can we retain the people? Did we get what we aspired to get? Did we get a return on our investment?

-Lee Vickers, Siemens, Sr. Director, Human Resources

- Assess Participant Success
- Assess Training Impact
- Assess Support Structure
- Evaluate Progress

Assess Participant Success

The best way to assess your participants' success is exactly how you would assess an employee's success – through fact based feedback and performance assessments. With ap-

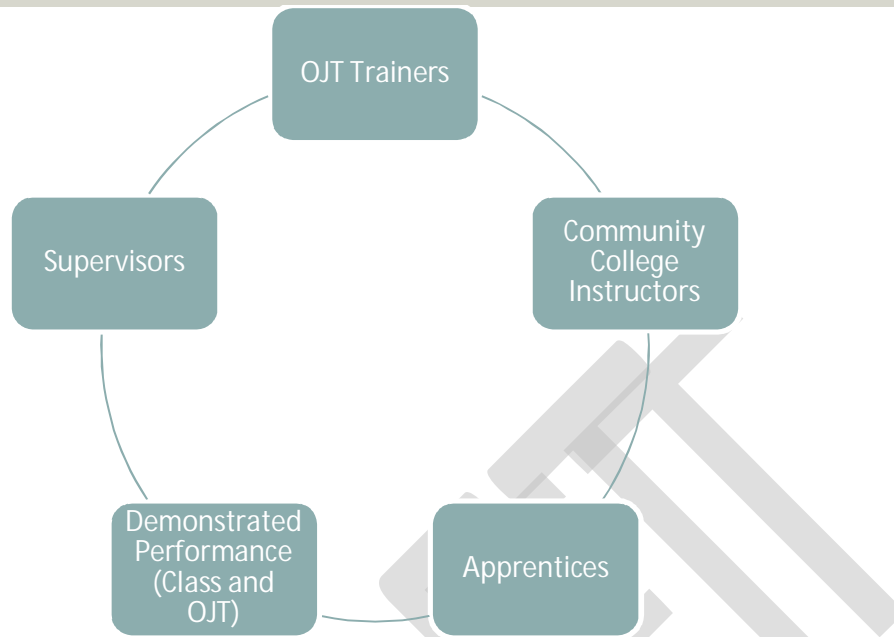
prentices, it is essential to regularly monitor performance during the program. Typically, the assessments should be:

- built into logical milestones of the program
- provide a holistic view of their performance (including academic performance, on-the-job training performance and 360 feedback from those close to the apprentice)

It is important that you design a structured process to collect performance feedback for your apprentice. As with any apprenticeship program, there are several opportunities to gather the information and you should use every meaningful opportunity to gather relevant information on how an apprentice is performing. In the short-term, the feedback will rely heavily on information from the trainers and instructors with a focus on how the apprentice's development is progressing against expectations and where there may be gaps.

Schedule regular discussions to review an apprentice's overall performance. To gain insights from the apprentice, you can also use a self-assessment tool, but this is not a common practice. Once the apprentice advances through the program, you can begin utilizing more tangible performance measures such as quality of their output or course grades. Remember, you want to focus on gathering feedback that identifies what the person does well and potential gaps for improvement. Focusing on just one or the other is detrimental to the process.

Potential sources of performance feedback include:



Conduct Performance Discussions and Leverage Checkpoints

Gathering performance data and conducting a good performance related discussions are linked, however, the discussion is the most critical part. The performance discussion can either motivate the employee to stronger performance or potentially lead to disengagement if handled poorly.

It is important that you engage in a fact based, open and honest discussion which accurately captures the employee's overall performance. The apprentice cannot be expected to improve or continue their positive performance if they are not fully aware of how they are or are not meeting expectations. It is your responsibility to not only provide the feedback but also to offer additional support as needed.

Although it is important that you monitor course grades, measurable learning goals should also be established which reflect improvements in overall skill level as a result of the collective training efforts. Routine evaluations can be conducted during the program to ensure that the participant has achieved the expected outcomes. These "checkpoint evaluations" measure certain skills that must be demonstrated by a specific point in the program in order to ensure full proficiency by program end. Follow any DOL standards around performance milestones if your program is registered. Once you determine what the key milestones should be, you will need to establish how you will implement the checkpoints. When a majority of curriculum is completed or at the end of the program, you may want to consider using a formal test or instructor led evaluation.

It is important to select the appropriate timing for the type of evaluation being completed and adhere to the predefined schedule. Below is a guide with recommendations on the appropriate frequency for the different methods:

	Formal Review	Progression Discussion	Program Start Evaluation (First three months)	Support Structure Feedback	OJT Check-points
Quarterly		X			
Every six months	X				
Ongoing				X	
Monthly			X		
Per defined milestone					X

These various methods can assist you with assessing participant success by giving an opportunity for:

- Evaluation of if the apprentice is able to perform against expectations
- Demonstration of apprentice’s understanding of certain skills and tasks
- Measurement of whether specific learning objectives have been met
- Review of the behavior and performance progress the apprentice has made since last checkpoint through measured criteria
- Indication of how well the participant may be able to perform when on their own

Increase and Maintain Engagement Amongst Participants and Address Underperformers

Your apprenticeship program will not be successful without retaining your top performers. Once your top performers have been identified, you will want to make sure they successfully complete the program and transition into full time roles. Though the decision to stay or leave a program/company is a personal one, there are several areas you can focus on to engage and retain participants, especially top performers. This includes:

- Provide externally competitive compensation
- Foster a positive and respectful work environment, reinforced through your interactions with them
- Create a sense of employment stability during the program
- Explain that if successful, they will be well suited for a full time position when available (do not guarantee employment)
- Ensure that the apprentice feels the work is meaningful, effectively engage them
- Develop well-rounded and marketable skills
- Provide appropriate recognition

A specific way of collecting feedback that connects to your retention strategy is through stay interviews. They help you

understand why employees stay, so that those important factors can be reinforced. It involves a periodic one-on-one

structured retention interview which identifies and then reinforces the factors that drive an employee to stay. It also identifies and minimizes any “triggers” that might cause them to consider exiting the program. In addition to gaining an understanding of the issues, it also creates a positive impact on the employee by reinforcing their importance to the organization. The stay interviews are simple and should be used as part of a broader retention assessment process. They should be conducted by someone who has very strong interpersonal skills and is respected in the organization.

Let the apprentices tell you their story.

I have been at Siemens for three years now ready to start my fourth and final year of the Apprenticeship. I have been through so much that most kids my age could never imagine. Siemens has allowed me to grow into a strong Machinist and even more important into a strong young woman. I never knew such a big company could be so employee oriented. They have made me and my fellow apprentices feel like we have been here for far longer than we have. This opportunity has allowed me to find a passion in machining and engineering that I never knew I had'

-Hope Johnson, Siemens Apprentice



A sample of a simple stay interview guide is below for your reference:

- 1) Are you building academic and OJT skills per your expectations? Explain your response.
- 2) Do you get the support from subject matter experts on site and in the classroom? Explain your response.
- 3) What would be the biggest reason for your staying in the program?
- 4) Is there any reason that you would leave?
- 5) What would you change about the program if you could?

If you complete your assessments and determine that an individual's performance is not meeting expectations you will need to address the gap immediately. Your goal is first to improve the performance or second, to exit the apprentice and invest in someone else. You will need to be transparent with the apprentice, share specific examples of the gaps and provide support to encourage improvement. It is highly recommended that you put in place a performance improvement plan with defined timelines and milestones. Reasons to consider removing an apprentice from the program includes, but are not limited to:

- Poor job performance or classroom grades, even after additional support was provided
- Demonstration of an unwillingness to study, learn, or participate in OJT or classroom activities
- Repeated absence from scheduled class sessions as an indication that they are unable or unwilling to attend regularly
- Becoming a safety risk for their self or others
- Violation of site policy or professional expectations
- Conduct which violates the apprenticeship program guidelines

Consult with your Human Resources and/or Legal department and follow the applicable corrective action process when considering removing an apprentice from the program. As mentioned in Chapter 6, in some cases when developing your agreement, you could consider including a repayment clause that either stipulates that the participant must repay training cost or not be reimbursed if they leave the program early. This can help protect your investment and can be an effort towards retention. If you choose to use a repayment agreement this needs to be very clearly documented and communicated in the on boarding process.

- Assess Participant Success
- Assess Training Impact
- Assess Support Structure
- Evaluate Progress

Assess Classroom Training

As a part of the program checkpoints, you will want to make sure you review and determine the effectiveness of your classroom training. This is a major component of the program and you will need to make sure that it is fully functioning and delivering the learnings originally planned. You will want to become knowledgeable about how your community college measures success and leverage their data.

You should make sure that the community college understands what you will measure to assess their performance and how frequently you will be measuring them. In addition, the community college should help define some of the key measures as they have a vested interest to ensure the overall success of the program. It may be helpful to conduct a gap analysis similar to when originally assessing the curriculum or utilize the below measurements (See Chapter 4). Additional measurements to utilize include:

- ✓ Periodic course evaluations completed by participants
- ✓ Pass/fail rates of participants
- ✓ Actual vs. planned delivery of the curriculum
- ✓ Supervisor and OJT trainer feedback on whether the classroom training is translating to OTJ understanding
- ✓ Course graduation rates and grades
- ✓ Any course evaluation or performance reporting conducted by the community college
- ✓ Scores and/or feedback on teacher evaluations completed by students

You may want to consider evaluating each of these measurements by scoring each topic from a scale of 1; Does Not Meet Expectations, through 5; Exceeds Expectations. By assessing the cumulative score, you can identify whether the classroom training is effective.

Remember, there are varying success rates to classroom training and you want to make sure that this portion of your program is progressing as planned.

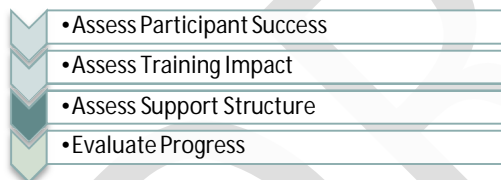
Assess OJT Efforts

In alignment with assessing your classroom training, you will need to assess your OJT efforts as well. Depending on your milestones, you may complete the assessment in parallel with your classroom assessment or you may evaluate the OJT efforts separately. You will want to focus on evaluating its overall effectiveness from several perspectives and then combine the individual assessments to create a holistic view of perfor-

mance to date. Similar to assessing your classroom training, you have several tools to help you evaluate your efforts. Again, you should make sure those involved in the OJT portions of your program understand what you will measure to assess their performance and how frequently you will be measuring them. A list of potential focus areas is below for your reference and it may be helpful to conduct a gap analysis similar to when originally assessing the curriculum (See Chapter 4):

- ✓ Periodic evaluations completed by participants
- ✓ Pass/fail rates of participants
- ✓ Actual vs. planned delivery of the OJT
- ✓ Feedback or ratings given to apprentices during performance checkpoints and/or evaluations
- ✓ Productivity measurements of participants
- ✓ Quality of apprentice output once transitioned to productive work
- ✓ Whether the participants are achieving performance milestones according to progress requirements(see the below examples)

Similar to assessing classroom training, you may want to evaluate each measurement using the same scale and utilize the cumulative score to monitor your OJT efforts from several aspects. Please see the toolbox for an example of a form which measures an apprentice's progress against OJT schedule requirements.



Evaluate Instructors and Trainers

It is important to make sure that your classroom instructors and OJT trainers are meeting program expectations as well. They play a critical role to the success of the overall program and as such your expectations for their performance should be high.

- Evaluate your instructors and trainers to review the rate of success or failure with the subjects they are teaching. Identify and compare the top and bottom quartiles of instructors and trainers can provide you with a basis for intervention.
- Rate them on key requirements such as curriculum completed relative to plan or percent of apprenticeships passing relevant tests or demonstrating relevant skills.

- Assess your instructors and trainers through qualitative feedback from the participants. Do this through instructor and trainer evaluations and/or interviews or focus groups with participants to determine their perspective and gather their feedback.

One outcome from the instructor and trainer evaluations which you should carefully manage is the sharing of best practices from the top performers to other instructors or trainers. This represents a key leverage point which will help your program deliver a high quality output and will demonstrate your desire to consistently improve the program.

Please see the toolbox for a sample apprenticeship evaluation form.

Measure Progress to Plan

In alignment with the development of your business case, you should review several aspects of your original business plan and determine if you are on track to meet the promised deliverables. Though the specific needs will be different for each business case, there are common components which should be reviewed:

- Actual vs. planned comparison of the program timeline.
- Actual vs. planned comparison of the program budget.
- Actual vs. planned comparison of the program's ability to deliver the number of apprentices required.
- Turnover rate of the program vs. normal attrition.
- An overall assessment of whether or not the program will address the specific business benefits outlined in the business case



Pull it All Together

With all of your assessments complete you should prepare a program overview to discuss with your key stakeholders. This should be a simple and easy to understand format which identifies the status of the program and clearly conveys your key messages. An outline of a program update is listed below:

Progress as compared to the original business case

- Focused on the project management components, simply outline your status to the original schedule and budget.

Introduction to the timeline and key checkpoints

- In this section you would like to focus on where you are in the process and provide context on the rationale for the recent checkpoint and what you were assessing.

Single page overview of the status at the current checkpoint

- Contains all components of the program and typically would include stop light logic to depict each components status.

An overview of the lagging components

- Where you must focus not only on the issues driving the delays, but also on your solutions to get them back on track, highlighting any needed support.

Time to have an open discussion (at the end of your presentation)

- Addressing questions and ensuring each key stakeholder has the opportunity to share their concerns and revalidate their commitment.

Remember, you must have regular and standard communications to inform your key stakeholders on the progress of the program and leverage their support.

In addition, if your program is registered, you will need to inform the DOL of updates to the program due to certification requirements. Assuming you have secured outside funding, make sure you understand if there are follow-up obligations to provide updates on program success or metrics to maintain the funding.

Making Mid Program Adjustments

It is important to maintain flexibility with your program. Especially in the start-up year for the program, it may need to be tweaked to ensure long-term success. Any changes should be based upon business related changes, checkpoint assessments, or any other relevant input received.

The main goal of the program is to develop the skills that your business requires. If you determine that sufficient progress is not being made even though the apprentices demonstrate capability, you will need to adjust the curriculum or OJT. On the other hand, if participants appear to be progressing quicker than expected, you may want to accelerate or increase the complexity to ensure they are being challenged.

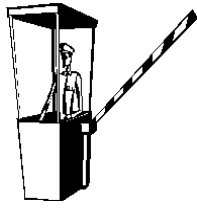
Not only must the training effectively develop the skills initially identified, but it may need to be refreshed to reflect the current needs of your business as well as the mar-

ket. The ability to modify the work processes that are relevant to your industry is key to meeting the businesses needs.

Do's and Don'ts for Monitoring Program Performance

Do!	Don't!
<ul style="list-style-type: none">• Do conduct a thorough assessment. <i>Conduct a fact based assessment aligned to checkpoints of all components and make necessary adjustments.</i>• Do keep alignment with your stakeholders. <i>Engage in regular communications to key stakeholders, informing them of program progress and asking for feedback.</i>• Do measure the effectiveness of all components of the program. <i>Assess classroom training, OJT efforts and evaluate instructors and trainers as well as the performance of your participants.</i>• Do put in every effort to engage and retain your top performers. <i>Identify your top performers and make sure they successfully complete the program by utilizing retention techniques.</i>• Do be aware of changes in the business on a regular and ongoing basis. <i>Determine progress of program and any changes needed to ensure it remains relevant to your business needs.</i>	<ul style="list-style-type: none">• Don't take for granted that performance monitoring happens without oversight and accountability. <i>Apprenticeships' leaders needs to keep the lead team up to date about performance, and make updates as necessary.</i>• Don't rush into removing participants from the program. <i>Clearly document the issues and address them with the participant in a timely manner</i>• Don't be distracted by other events <i>Stick to the program. If you are going down this path, you have to commit buget-wise, etc and allow the people to be focused on this program.</i>• Don't be inflexible in the start-up year of the program. <i>Recognize that program may need to be revisited and tweaked to ensure long-term success</i>• Don't evaluate your program in silos. <i>Put all evaluation aspects together and prepare a program overview for the stakeholders.</i>

Check Point:



Check Point:

Review the checklist to evaluate your understanding of monitoring program performance fundamentals. You should have successfully completed the checklist items and can move to the next chapter.

- Assess the overall success of the program
- Generate multiple feedback checkpoints to monitor apprentice performance
- Deploy retention mechanisms to engage and retain your top performers
- Evaluate the alignment of the program to the business need and the success of the courses, training, trainers and overall progress
- Make all the necessary mid-program adjustments in order to keep your program on track and responsive to business changes
- Ensure there is clarity of roles and responsibilities for all the program owners

Toolbox:

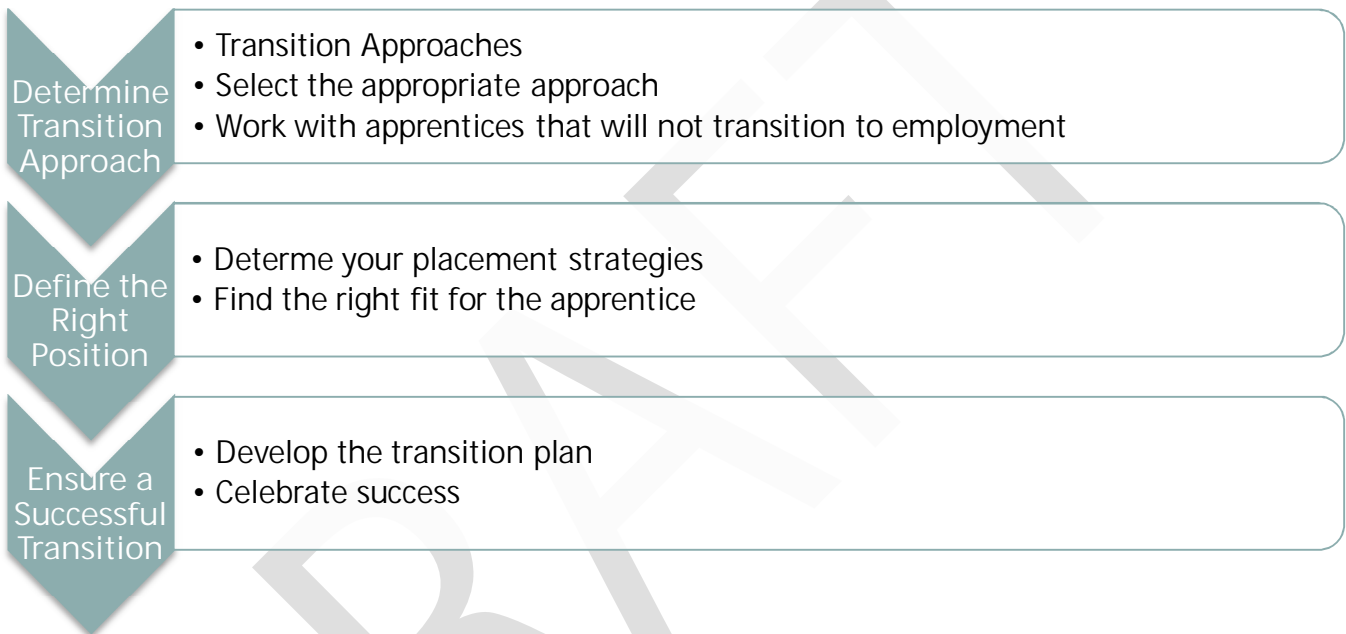
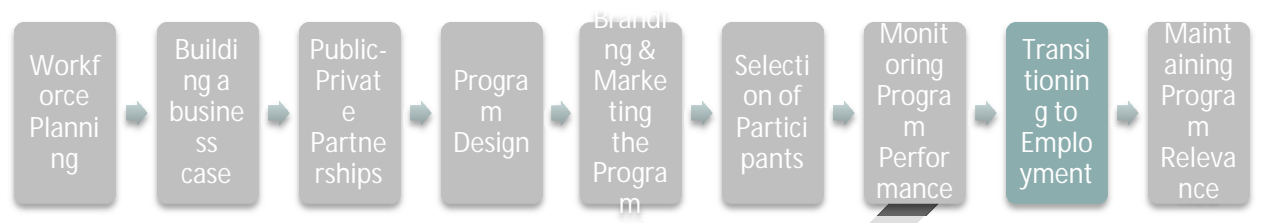


Apprentice
Evaluation form.xlsx



Apprentice OJT
Progress Requiremen

Chapter 8 – Transitioning to Employment



A critical opportunity to impact your new employee is the time at which they transition into the organization. This is true for Apprentices as well, even though they have been part of your organization for a couple of years or more. Though the process seems straightforward, there are several underlying issues which may arise during the transition process. You should be aware of the components related to apprenticeship transitions and how to ensure your apprentices become productive employees.

- Determine transition approach
- Define the right position
- Ensure a successful transition

Transitioning Approaches

When an apprentice is nearing the successful completion of the apprenticeship program you will need to determine the next step for the apprentice as it relates to transitioning out of the program. There are three possible transition alternatives:

- Option 1: The employee is transferred to a full time permanent position
- Option 2: The employee is transferred to a contractor position
- Option 3: The employee is not offered a position and therefore must pursue employment elsewhere

With a good workforce plan and active management of your program the supply that you graduate should be close to the demand for your business. Assuming this is true, the number of apprentices that you do not offer employment to should be fairly low if any. If you find yourself with a surplus of talent, please consider the following strategies to keep the apprentices in your company until such time a position becomes available:

- Create a temporary "holding pool" where the apprentices work assignments are in areas that you expect upcoming vacancies.
- Place apprentices in another plant at your company and possibly relocating them back once a position becomes available
- Absorb the apprentice into headcount and not replacing attrition

Though most companies hire apprentices as full time employees upon completion of the program some companies prefer their apprentice to remain contractors for a period of time. Below is a table indicating the pro's and con's related to each alternative:

	Employee	Contractor
Pros	<ul style="list-style-type: none"> • Stronger ties to the company will lead to higher engagement and retention • Can be a role model and strong motivator to succeed for other participants still in the program • Longer term solution leads to less training on company policies and procedures and continuous direction • May perform several roles and provides continuity to projects 	<ul style="list-style-type: none"> • More flexibility in managing headcount • Could be a lower cost option based on the fee charged by the contractor's agency • Ability to end the contract if the individual is not performing • Responsible for their own education and certifications • Less potential for legal actions
Cons	<ul style="list-style-type: none"> • Could be more expensive if benefits are part of the compensation • Required to complete legal payroll items including taxes • Responsible for training employees and ensure for proper credentials of employees • Potential for legal actions from employees 	<ul style="list-style-type: none"> • Harder to retain and engage • Might not integrate into the company culture and be disruptive to other team members • Shorter term hires due to potential co-employment issues • May not have company rights to products produced unless in the contract

Source: The Pros and Cons of Hiring: Employee vs. Independent Contractor

<https://smallbusiness.yahoo.com/advisor/the-pros-and-cons-of-hiring--employee-vs-independent-contractor-203736904.html>

Source: Pros and Cons of Hiring Independent Contractors <http://www.nolo.com/legal-encyclopedia/pros-cons-hiring-independent-contractors-30053.html>

Source: The Great Debate: Employee vs Independent Contractor <http://sbinformation.about.com/cs/laborlaws/a/contractor.htm>

Select the Approach that is Right for Your Company

Align your decision with the needs of your business and the type of organizational culture you are looking to build. Make sure you document the rationale for choosing one option over another and directly link to the workforce plan you put in place. Consider

the pros and cons of each option and the inherent risks for the direction you chose to take.

Work with Apprentices Who Will Not Transition to Employment

Given all the effort, time, and money that go into an apprenticeship program, you should have openings for all apprentices in the program, however, even with a plan, there may be cases where positions are not available as originally planned as a result of downturns or changes in the business. This becomes a difficult situation for graduating apprentices as they have successfully completed all aspects of the program. However, in the event that you encounter this issue, below are tips for transitioning graduating apprentices to other opportunities:

- Utilize your partnerships with your company coalition and education partners to find alternative positions in the local area
- Furlough employees until a position becomes available or give recall rights to go back to the company if positions become available
- Offer outplacement services to help find a new job

With any of the above mentioned options, it is recommended that you stay in contact with the individual. The person has been trained and has a strong knowledge base as it relates to your business and your location. If a position becomes available, this represents an opportunity to quickly fill the gap with a highly qualified resource.

Determine Your Placement Strategies

A participant is typically trained for a specific area of work and a plan should be in place at the onset of the program for the placement of apprentices into the pre-determined positions. However, as you think about final placement it is recommended that you


consider the following items as part of your decision making process:



- Determine transition approach
- Define the right position
- Ensure a successful transition

Determine the Right Fit for the Apprentice

In addition to the items outlined above, a key component of the placement will be the apprentices "fit" into the available positions. This reaches beyond the typical skill assessments and is more focused on the individual's personal interests and his or her ability to fit within the working team, department culture and any specialized department needs. When placing them, consider not just the technical skills they have built during the Apprenticeship but also the expectations (yours and the Apprentice's) of their career progression in the near and long term.



- Determine transition approach

- Define the right position

- Ensure a successful transition

Developing the Transition Plan

Once the destination position is determined you will need to focus on outlining the plan for transitioning the apprentice to his or her new role. This cannot be completed in a vacuum and must include the supervisor's leadership and commitment to be successful. In addition, you should make sure that you leverage this process to help the apprentice feel welcome, feel a sense of accomplishment and understand what the future will hold. In this step, though the apprentice has already been a part of the company in the apprenticeship program, they now will be "on-boarded" to a full time employee status. Key considerations when developing this transition plan include:

- Ensure coursework and OJT are preparing the apprentices throughout the program for the transition needed to hit the ground running based on the targeted role
- Plan transition in advanced to make it as smooth as possible
- Hold a celebration for recognition
- Guide apprentices through the transition period with coaching and change management
 - Be patient and let them grow. Keep in mind that apprentices are worried about putting it all together and delivering on the floor
 - Allow apprentices to continue working with their assigned mentor
 - Partner with the HR community in the on-boarding process and have apprentices attend the regular new hire orientation. Include a new hire checklist
 - Make certain they gain familiarity with the company procedures, policies, expectations, and culture to make the integration easier as well

	30 Day	60 Day	90 Day
Intent			
	Create positive first impression	Broaden operational knowledge	Assess performance levels
	Finalize all administrivia	Integrate with broader team	Demonstrate team integration skills
	Build initial relationships	Deeper plant knowledge	Demonstrate leadership skills
	Understand company context	Understand practical application of skills	Demonstrate program commitment
	Transition into the program		Reinforce support for program
Activities			
	Pre-boarding plan	Supervisor production walkthroughs	Classroom assessment and supv discussion
	On-boarding plan	Mentor lunch meetings	OJT assessment and supv discussion
	HR paperwork	Operation manager plant flow reviews	Mentor connection regarding team and program
	Mentor connections	Department level lunch and learns	Soft skill observations and feedback
	Supervisor connections	Master crafts lunch and learns	Plant operating performance lunch and learn
	Plant tour	Commercial customer overview presentation	
	Company overviews		
	Leadership presentations		
	Program overviews		
Checkpoints			
	Week 1 - Mentor One on One	Week 5 - Supervisor One on One	Week 9 - Operations Mgr One on One
	Week 2 - Supervisor One on One	Week 6 - Mentor One on One	Week 6 - Mentor One on One
	Week 3 - HR Follow-up	Week 7 - Supervisor One on One	Week 7 - Plant Manager Lunch Session
	Week 4 - Mentor One on One	Week 8 - Mentor One on One	Week 8 - Mentor One on One
Follow-up			
	30 Day Review - HR / Ops	60 Day Review - HR / Ops	90 Day Review - HR / Ops
			First performance assessment

A collateral support structure similar to the one you established for the Apprentice in Chapter 4 (Supervisor, Mentor, Coach, and Buddy) should be put in place to help the transition whether it is an employee or a contractor. Since the Apprentice has been working at the organization for a few years they will be familiar with the overall company culture and expectations. The big difference when they graduate from the program is that the spotlight is likely no longer on them as much as it was when they were an Apprentice. Now they are expected to perform and deliver with a lower level of support than they were used to. Keep this in mind as you transition them into their new role.

If transitioning to an employee, a certain degree of on-boarding will be needed, including offer letter, systems and security access, orientation towards company policies and programs, etc. For both contractors and employees, consider changing their job titles, base compensation, bonus structure and other benefits to align with their new role.

Celebrate Successes

Graduating the apprenticeship program is a great accomplishment that deserves recognition. It is the culmination of many years of effort made by many people including the Apprentice, the company's in-house trainers and program managers, the community college staff, as well as the multiple stakeholders vested in the success of the program.

Plan to celebrate their achievement both internally within your company as well as externally with external stakeholders, including the local community.

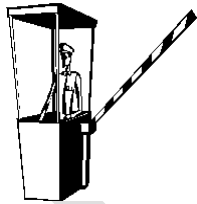
Ways to celebrate include:

- Publish updates in network communications, publications, newsletters, e-mail communications, electronic bulletins, and social media
- Hold Town Hall meeting to announce successful completion of program and provide certificate / award
- Plan small celebration including breakfast or lunch or formal dinner with family and provide certificate / award
- Provide opportunity for apprentices to walk at the community college graduation
- Provide monetary award or bonus

Publicize your apprenticeship program's success to the external community. This will help give kudos to the company for creating and maintaining a successful program and also recruit new potential talent. Continue to build and maintain your community college partnership and publicize the success of the program to gain positive press for continuous or future funding efforts. Also, promote the program at job fairs and community outreach programs highlighting the apprenticeship opportunities to the community and the potential end result of a successful apprenticeship.

Do's and Don'ts for Transitioning to Employment

Do!	Don't!
<ul style="list-style-type: none">• Do create a network <i>Be prepared with a company coalition network if positions are not available at your company upon program completion</i>• Do have a plan <i>Have a transitional plan for apprentices to follow</i>• Do provide guidance and support <i>Continue the mentoring relationships to assist with the transition</i>• Do continue to manage performance <i>Monitor performance once transition to employment is complete</i>• Do celebrate <i>Make the apprentice feel excited about their accomplishment</i>	<ul style="list-style-type: none">• Don't forget to inform stakeholders <i>Communicate with appropriate parties the successes of the program.</i>• Don't undervalue graduates potential <i>Make sure apprentices are placed in assignments with meaningful work</i>• Don't ignore the accomplishment <i>Just because there is familiarity with the apprentice at the end of the program, don't fail to acknowledge their success</i>• Don't miss the opportunity for external recognition <i>Ensure the company publicizes the program's success to recruit new talent</i>



Check Point:

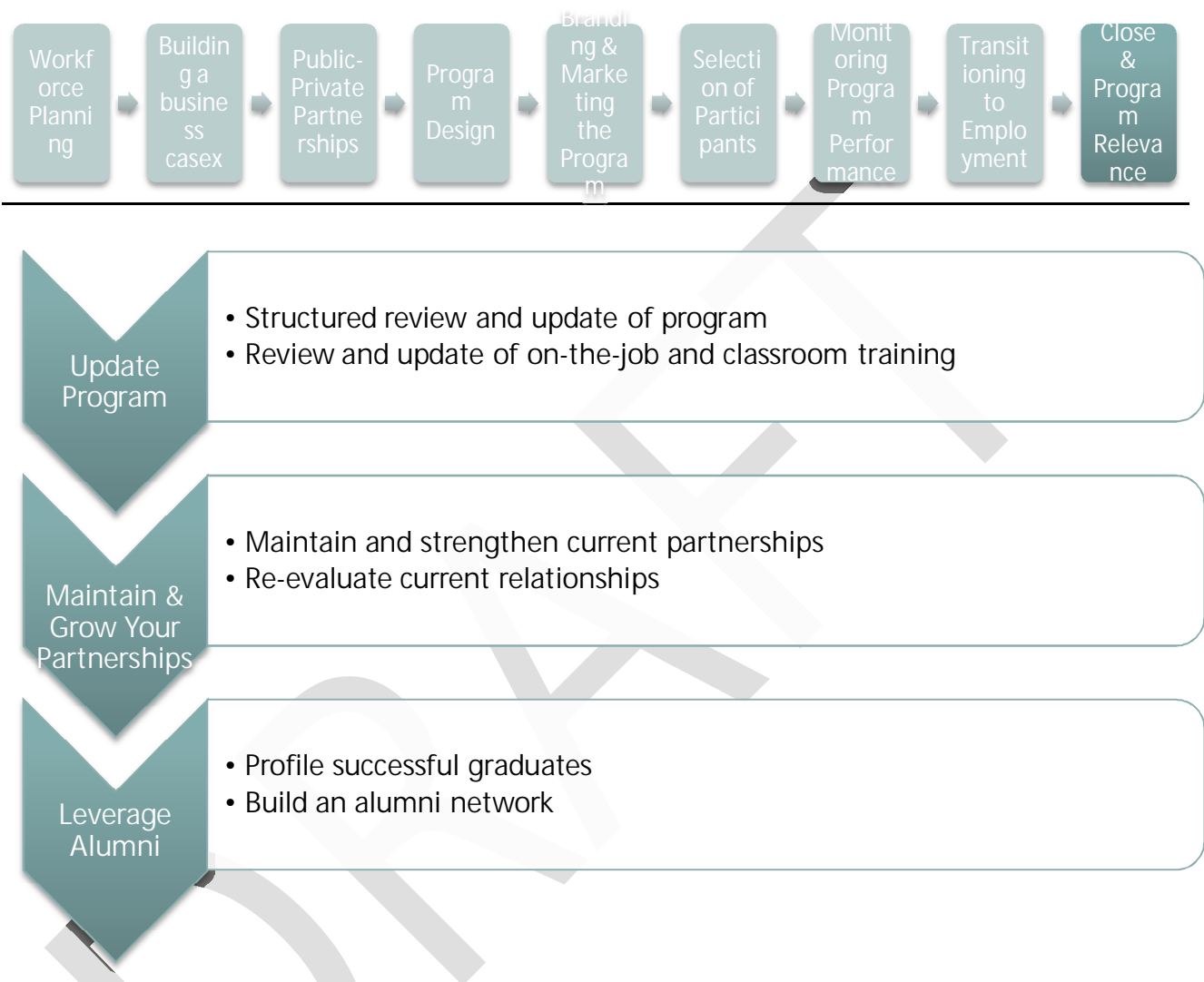
Review the check point checklist to evaluate your understanding of transitioning to employment fundamentals. Only when you successfully completed the checklist items, you can pass the check point and move to the next chapter.

- Determine your transition approach
- Define the right positions
- Ensure a successful transition plan

Toolbox:



Transition Plan
Template.xlsx



Just as up to date text books and course material is necessary for effective college courses, relevant apprenticeship programs are critical to creating productive employees. Whether you are running your program continuously or intermittently, you need to take the time to evaluate the program to ensure both relevance and effectiveness. A relevant program will lower cost, increase interest and drive real business impact.



Structured Review and Update of Program

We addressed assessing the effectiveness of the on-the-job and classroom training in Chapter 7 – that is a mid-program review. In this chapter, we revisit this topic to ensure post-program training is relevant or needs to be updated for future use. Building an apprenticeship program is not a once and done activity – it involves major investment and in order for it to continue to be relevant and applicable, it needs to be reviewed and updated on a regular basis. The time and effort that is needed to build a successful program merits setting up a review and update process to ensure the investment is still yielding returns, for example:

- Final grades of the apprentices
- On-the-job performance
- Graduation rates for apprenticeship program
- Readiness for role

It is key that you strike a balance between being open to making changes, and questioning the value add or necessity of the change. Feedback and update ideas to improve the program can come from various sources, internal and external to the company, including:

- Apprentices
- Shop floor managers
- Mentors, coaches and buddies
- Full time employees
- Leaders and department stakeholders
- Community college teachers and representatives
- Company coalition members
- Vendors
- Public entities and government contacts

Both informal and structured reviews can be used to determine areas of improvements, however, to determine what changes should actually be implemented consider using the various evaluation techniques presented below.



Have a program committee made up of key stakeholders and meet quarterly to:

- Discuss the results of the evaluations
- Approve which ones will actually be implemented
- Create a project plan for the changes

Review and Update of On-the-Job and Classroom Training

As a best practice, companies and community colleges should establish a regular business rhythm of reviewing the existing curriculum for relevancy. Technology is constantly changing and may change during the course of your program. Be flexible to change. The company needs to ensure apprentices are receiving up to date course studies. The

following are some examples of how to ensure that the training is applicable, on an ongoing basis.

- **Company Run Classroom Sessions**

Have your company's Subject Matter Experts (SMEs) run classroom sessions at the community college. This will ensure that the program participants hear from the experts in the field and have yet another opportunity to understand the practical application for their classroom learning.

- **Site Visits by the Community College Representatives**

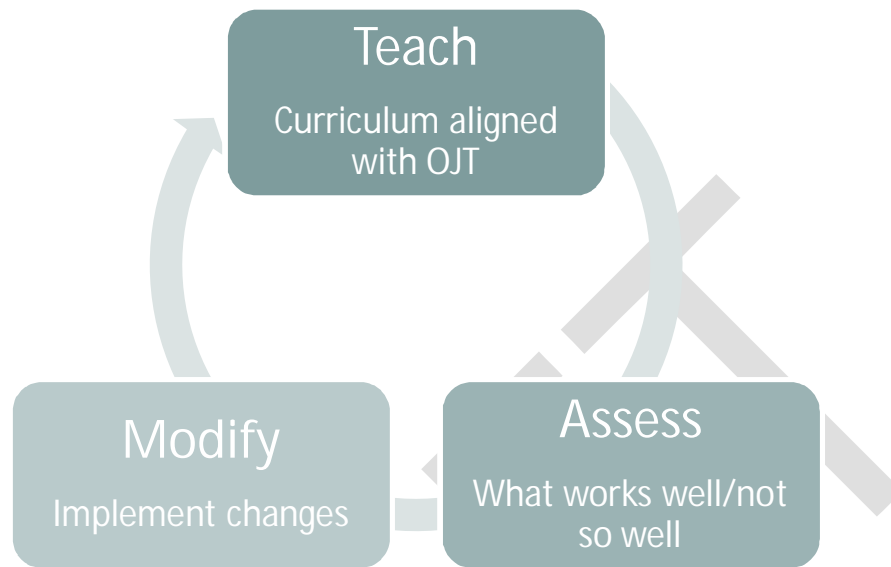
As discussed in Public and Private Partnerships (Chapter 3), building and maintaining internal and external relationships is critical to the program's success. Regarding community colleges specifically, school representatives should be actively engaged as partners. Quarterly site visits will allow them to see firsthand the technological advances that are taking place on the shop floor and identify the areas where the curriculum needs to be adapted accordingly. The following are some additional advantages:

-
- Provide insight into program design, build effective connection between OJT and curriculum
 - Collaborate with shop floor managers and trainers to teach courses
 - Provide interview criteria for hiring apprentices, support pre-assessment testing
 - Create program awareness and help source future candidates
 - Support ongoing skill evaluations as an objective party
 - Meet with leaders and discipline specialists to communicate the latest changes in equipment, technologies and work processes
 - Speak with other college representatives about the skills company would like to see in future program participants

- **Curriculum Update & Teacher Recertification**

Typically, partner companies sit on an Advisory Board that provides input to the community college or industry standards and requirements. While you may not be directly involved with the teacher recertification process, make sure you are able to provide

input and insight into the technological changes taking place that would require the curriculum to be updated and the teachers to be recertified.



- Other Components to Consider

Reevaluate the support structure of the program to ensure mentors, coaches and buddies are being utilized effectively and provide value to the apprentices. Revisit role expectations and responsibilities, clearly communicate gaps and allow the pairs to generate ideas for improvement in the relationship. Ultimately, these components are in place to help the apprentices be as successful as possible.

- Update Program
- Maintain & Grow Your Partnerships
- Leverage Alumni

Maintain and Grow Your Partnerships

With Community Colleges

The theoretical knowledge that the apprentices build in the classroom forms the foundation for their on-the-job activity. Having a strong relationship with the community college will ensure that there is alignment and seamlessness in the program that allows for a much better learning experience. The recommendations for program updates mentioned earlier will not be as effective unless you and the community college are in true partnership with one another. Community colleges have their own networks

and bring updates on best practices, funding, latest technology and more from their network that can greatly benefit your program.

With Coalition of Companies

The primary intent of the coalition of companies is to partner in the development and administration of the apprentice program. Strong relationships with this group will result in you widening your network of best practices. In addition, a coalition can better cover for the downturns in each other's business cycles (See Chapter 3). If you cannot afford to hire any apprentices one year, hires by other coalition partners will ensure the sustainability of the program. Invest time and effort in maintaining and growing this relationship. Being in the same industry could also have many advantages outside the apprentice program which can benefit your company long-term.

Labor Market Intermediaries

Partnership with labor market intermediaries can help you stay current on any legislative and grant updates that can further subsidize the cost of your program. In addition, they help support you as your talent strategy evolves and requires specific pools of talent for your workforce. As mentioned in Chapter 3, registering your program with the Department of Labor can provide you with additional access to a nationwide network of expertise and support.

Remember: Partnering with other companies, community colleges and labor market intermediaries to establish an apprenticeship program sets the groundwork for future partnerships.

Re-evaluate Current Relationships

As your program matures and evolves over time, you might find that there is a gap in your relationship landscape and your current partners cannot address some of the emerging needs of your program. As you look towards building new relationships clearly communicate your training needs and curriculum. This will help find partnerships that efficiently match.

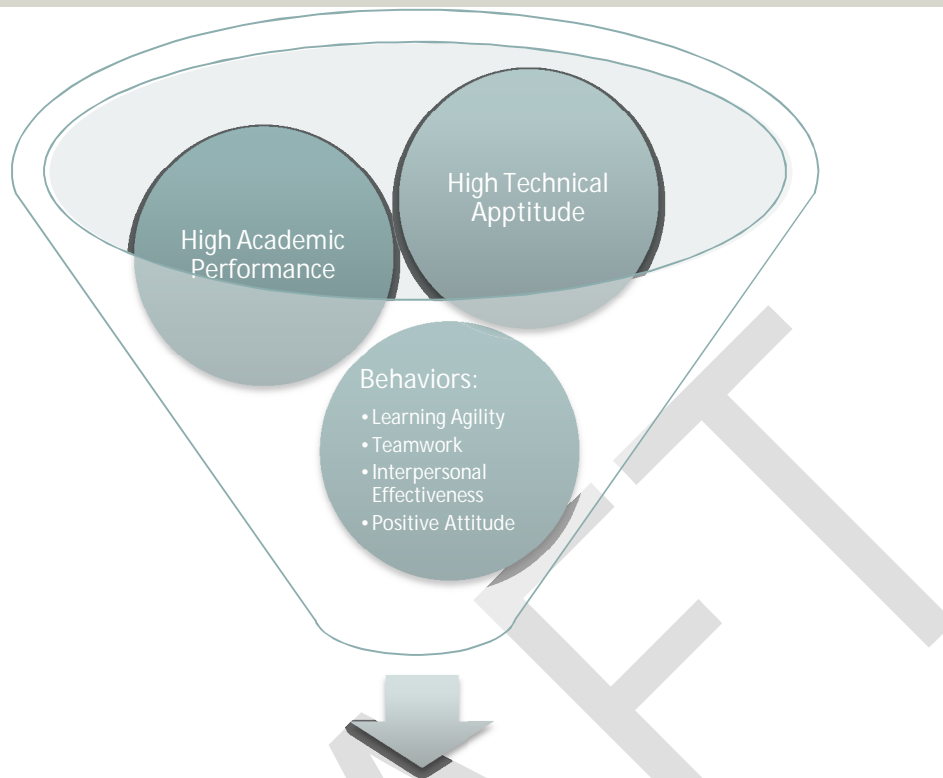
Furthermore, part of updating and maintaining program relevance is re-evaluating the current partnerships to determine if a relationship is no longer mutually beneficial. What made this partnership once a viable option may no longer make sense based on where the program is in its. If you answer "No" to most of the below questions then you may want to re-align with your partner or consider separating the relationship and building new ones elsewhere:

1. Are there still shared goals and interests?
2. Is there trust in the partnership?
3. Are all partners equitably invested in the program (money, time, resources)?
4. Is there good communication between partners?
5. Are the roles and responsibilities clearly defined?
6. Is there follow through on partner commitments?
7. Is everyone's subject matter expertise effectively leveraged?
8. Is there active engagement and sharing of networks?
9. Has the partnership resulted in a sustainable competitive advantage?



Profile Successful Graduates

Profile your successful graduates. It will enable you to define what the participant needs to bring in order to succeed in the program. Consider which apprenticeship alumni have added the most value to the organization through their high engagement, career progression and expertise. What are the characteristics of the apprentices that went above and beyond expectations? One size will not fit all however basic factors that make up a successful graduate would likely include the following:



Successful Graduate Profile

Be sure to revisit the job profile you created and used during the program design and selection process (Chapters 4 and 6). Update it where appropriate to align with the above three components and make sure it is still valid.

Also keep in mind the Alumni that missed the mark and understand why they did so. What was it about their skills, behavior, attitude or academic performance that was not a fit? By identifying trends of both the positive and negative apprentice selections, you can get a better grasp on what you need in a candidate and adapt your sourcing and selection process accordingly. It takes time to monitor and validate the process so be patient; even engage your partners so you have multiple perspectives and insights into what success should look like.

Build an Alumni Network

Going through the apprenticeship program as a cohort is a unique experience that should make graduates feel a part of a special community. Building an alumni network will reinforce this sense of connection, impacting their engagement, retention and productivity. Apprenticeship programs are a big investment for the organization as well as the apprentice and once the participant has graduated it should yield returns for

both of them. Also for the current program participants the alumni could be a great source of inspiration and guidance. Here are a few ideas on how to effectively leverage your successful alumni for future programs:

- Gain feedback from their firsthand experience on various program components including OJT and curriculum
- Mentors, coaches or buddies for future apprentices
- Journeymen/trainers of equipment, technology, processes and other site specific information
- Workshop leaders to share experiences, best practices, general counsel
- Spokes people of the program internally and in the community, create excitement about joining the program
- Support sourcing and selection process, attend job fairs

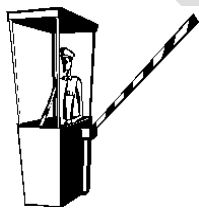
Do's and Don'ts for Close & Program Relevance

Do!

- Do evaluate program components. *Use various techniques and engage stakeholders to ensure OJT and curriculum remain relevant and aligned.*
- Do consider internal company policies and programs. *Leverage established programs, such as training and development courses, to add value to the apprentice experience.*
- Do create and utilize an alumni network. *Create graduate success profile and alumni may act as mentor/trainer/selector for future programs.*
- Do maintain a positive relationship with your community college. *Obtain information through their network, keep up to date with industry and market changes, update curriculum.*
- Do keep communication channels open. *Communicate with company coalition to ensure alignment on roles and validate relationship is still mutually beneficial.*

Don't!

- Don't make changes just for the sake of change. *Measure potential positive impact of change and why it makes good business sense first.*
- Don't wait too long to make necessary changes. *Be flexible and quick to respond to negative feedback from stakeholders.*
- Don't forget to engage community college representatives. *Site visits with these subject matter experts can support updates to program design and administration.*
- Don't avoid providing feedback to partners. *Community colleges should receive feedback on the curriculum and potential need for teacher recertification.*
- Don't keep partnerships that are no longer mutually beneficial. *If future workforce needs and goals no longer align, know when to part ways and establish new partnerships.*



Check Point:

Review the checklist to evaluate your understanding of close and program relevance fundamentals. Only when you successfully completed the checklist items, you can move to the next chapter.

- Program updates are identified and implemented, aligning with future workforce needs
- Partnerships add value by supporting program relevancy and competitiveness, are mutually beneficial

- Alumni network established and contributing to future programs

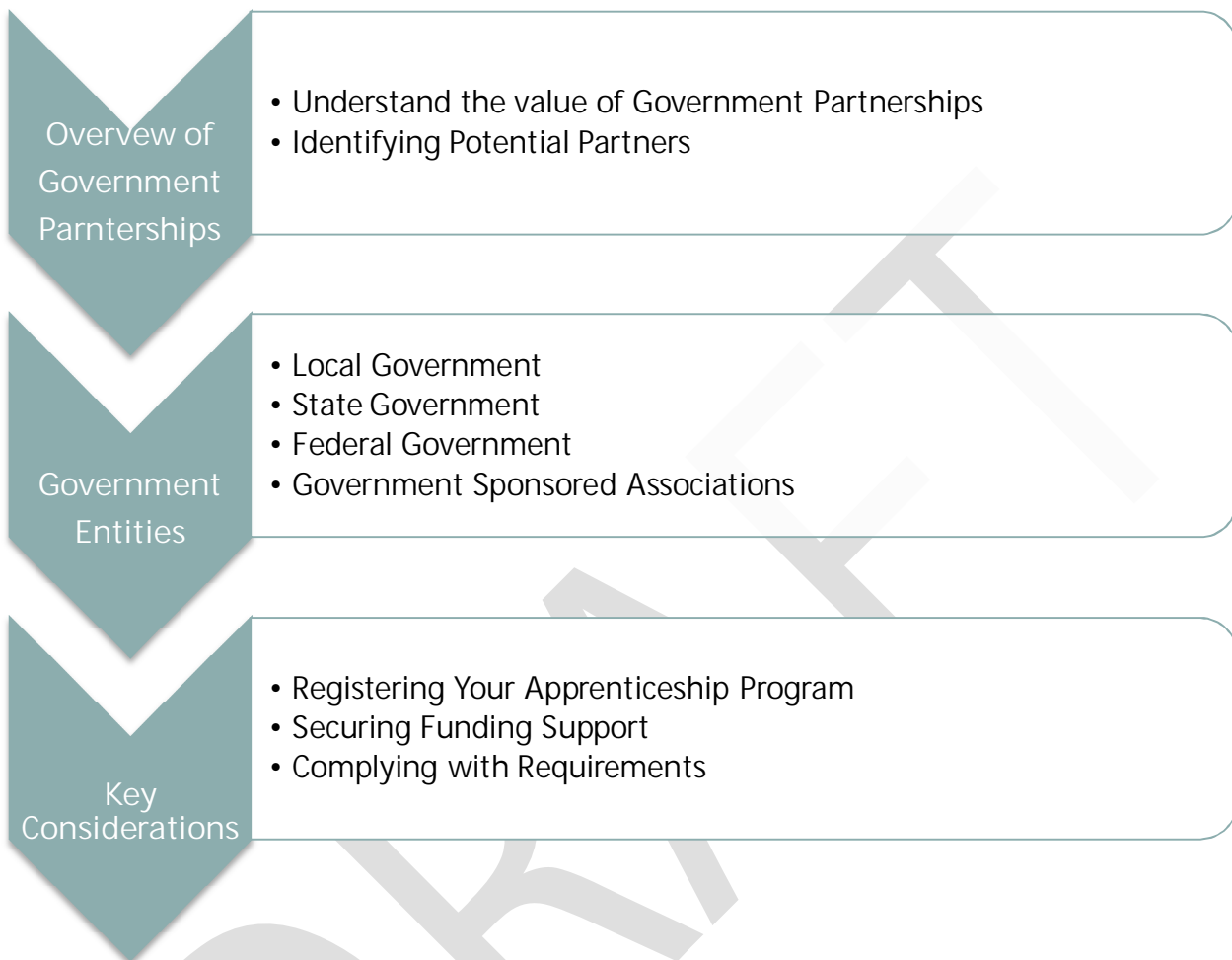
Toolbox:

Post program evaluation, questions to ask

Interview guide to use for previous and successful graduates

TOOLBOX ITEMS PENDING

DRAFT



The Value of Government Partnerships

Partnering with the government to develop, implement and fund your apprenticeship program can add value to your business in many ways. Some of the advantages include:

- Expanding your network and building new relationships
- Providing access to expertise needed to launch a new program
- Defraying program cost through access to government grants and tax benefits
- Expanding your marketing or branding efforts through state marketing campaigns
- Providing access to candidates through alternative sources such as job service boards
- Enabling broader knowledge of your local labor market through skill assessments

According to the Department of Labor Office of Apprenticeship, whether you have one employee or 10,000, the publicly funded [workforce investment system](#) can be a valua-

ble addition to your human resource capabilities and an invaluable tool to transform your workforce for the 21st-century economy.

- Increase your profitability through an analysis of available [government incentives, tax credits, and assistance](#)
- Use real-time information about [workforce and career information](#), such as local wages and economic trends, industry competencies, standardized training to inform your business decisions
- Reduce recruitment costs and increase retention through [workforce solutions](#), such as screening and referral of job-ready candidates
- Develop a more competitive workforce by connecting to [training and other “up-skilling” resources](#)

Identifying Potential Partnerships

Government partnerships can take many forms and should be tailored to meet your specific business needs. There are different types of government entities that you need to evaluate to determine your partnership opportunities and model. When working to secure government partnerships there are several areas which you should focus on to make sure that you are identifying and then targeting the appropriate partners for your program

- Leverage your local political party representatives to make sure you identify the agencies and programs which may benefit your program.
- Network with your company's public relations departments to identify relevant connections and opportunities.
- Check for apprenticeship related conferences in your area, they provide numerous contacts and relevant sources
- Visit the Department of Labor's apprenticeship site which provides access to many resources including state specific contacts: <http://www.doleta.gov>
- Connect with your local community college to gain access to potential government grant programs and contacts.

Below are some key organizations that you should be familiar with:

United States Department of Labor

Who they are

- The DOL mission is to to foster, promote, and develop the welfare of the wage earners, job seekers, and retirees of the United States; improve working conditions; advance opportunities for profitable employment; and assure work-related benefits and rights.

What they do:

- The priorities of the department include ensuring a fair day's pay for a fair day's work; connecting ready-to-work Americans with ready-to-be-filled jobs, through skills programs like Registered Apprenticeship and on-the-job training; promoting gender equality in the workplace; ensuring that people with disabilities and veterans have access to equal employment opportunity; and insisting on a safe and level playing field for all American workers.

Additional information and resources

- Federally-funded programs in your community are ready to train Americans with the skills employers need to fill jobs right now. Explore the possibilities, and find your path.
- <http://www.dol.gov/>

DOL Office of Apprenticeship – Employment and Training Administration (ETA)

Who they are

- The Employment and Training Administration (ETA) mission is to contribute to the more efficient functioning of the U.S. labor market by providing high quality job training, employment, labor market information, and income maintenance services primarily through state and local workforce development systems.

What they do:

- The ETA vision is to promote pathways to economic liberty for individuals and families working to achieve the American Dream. On behalf of American taxpayers, the Employment and Training Administration will administer effective programs that have at their core the goals of enhanced employment opportunities and business prosperity.

Additional information and resources

- Funds a variety of programs and services which are administered at the state and local level
- <http://www.doleta.gov/oa/>

Manufacturing Extension Partnership



National Association of Workforce Boards (NAWB)

Who they are

- NAWB mission is to connect workforce development professionals, Workforce Investment Board members, and policy makers with the knowledge, training and tools to help make informed, smart decisions about how to invest in workforce strategies that advance the economic health of their communities through a skilled, competitive workforce.

What they do:

- NAWB represents approximately 600 Workforce Investment Boards (WIBs) and their 12,000 business members that coordinate and leverage workforce strategies with education and economic development stakeholders within their local communities, to ensure that state and local workforce development and job training programs meet the needs of employers.

Additional information and resources

- NAWB works closely with policy makers in Washington, DC to inform national strategy as it relates to WIBs and their partners in education, economic development, labor and business.
- http://www.nawb.org/about_us.asp

Registering Your Apprenticeship Program

DOL agencies register apprenticeship programs, working with forward-looking businesses to develop the skilled workforce of the future. Training funds may be available for some programs when you register your Apprenticeship Program. You have to tailor your approach to the specific funding entity

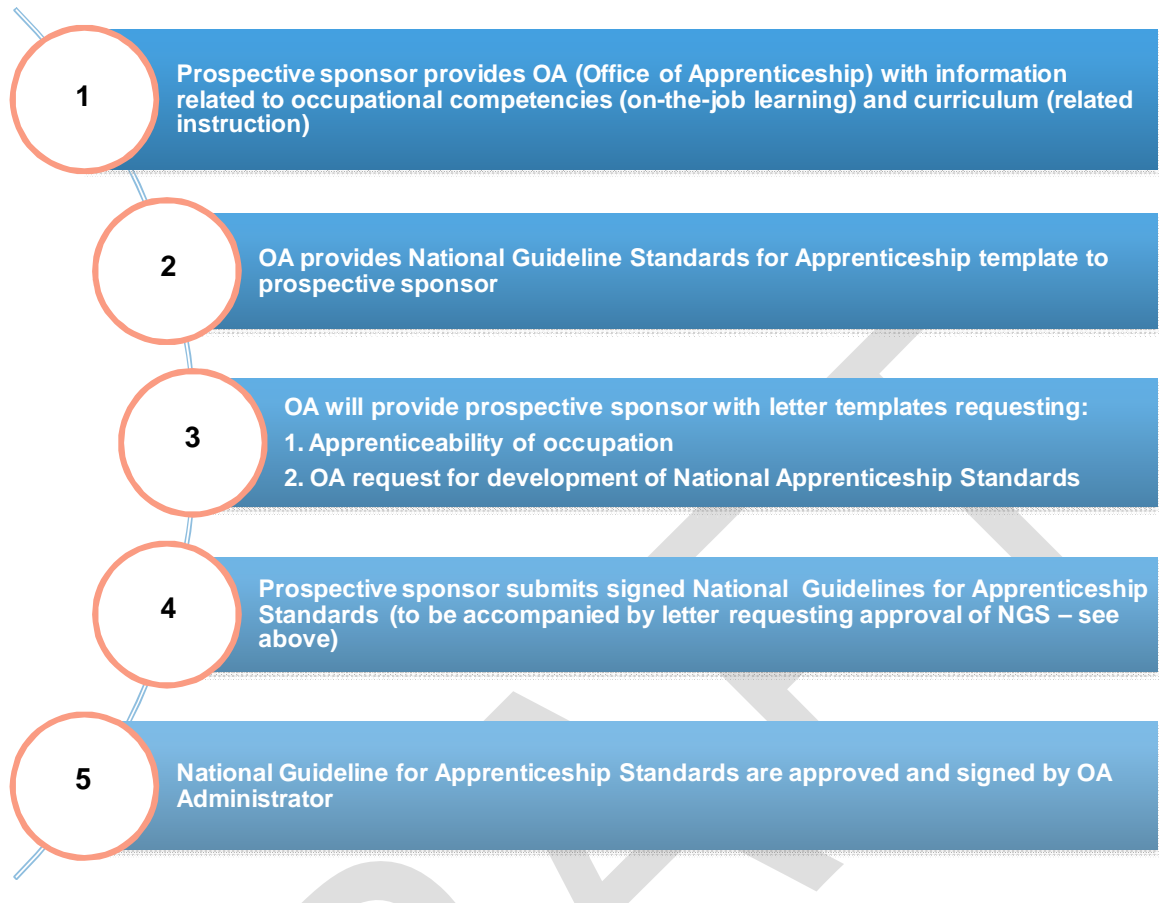
To be eligible for registration and approval by a Registration Agent, an apprenticeship program must conform to the following DOL standards:

- The starting age of an apprentice to be not less than 16.
- Equal Employment Opportunity
- Selection of apprentices on the basis of qualifications alone.
- Apprentice receives training and experience on the job.
- Organized training and learning
- A progressive wage schedule
- Assigned supervision
- Standardized evaluations
- Training records are maintained
- Mentor-Mentee relationship
- Certification

Source: Setting up a Registered Apprenticeship Program

For tips to help you get your apprenticeship program started, you may review the “How is An Apprenticeship Program Started” section of the United States Department of Labor Employment and Training Administration website at <http://www.doleta.gov/oa/employer.cfm>. This information includes how to start a program with or without a labor union.

After carefully reviewing the requested standards, it is necessary to follow the different steps of registering the Apprenticeship Program. Below you will find the Overall Process for Submission of Occupation for Determination of Apprenticeability and National Guideline Standards for Apprenticeship:



DOL Course link on how to set up an apprenticeship program from our community of practice site; it is about 20 minutes and informative.

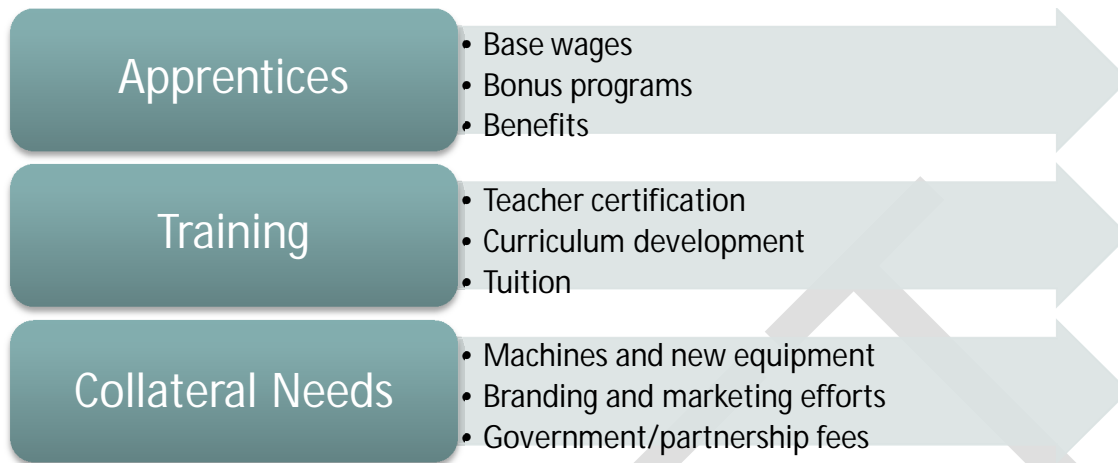
<https://21stcenturyapprenticeship.workforce3one.org/view/3001127137778429641>

Once your Apprenticeship Program is properly registered, you need to get familiar with the grant process.

Securing Funding Support

Workforce development is a key government priority and there are many incentive programs in place to encourage employers to make the investment needed to train and develop workers.

Before applying for these types of grants consider the potential areas in the program where funding could be needed:



“Funding is an important consideration for employers looking at apprenticeship. Agencies and organizations interested in working with employers to establish apprenticeship programs should therefore identify potential funding sources that can be used to defray the costs of apprenticeship. There are many other sources of grants, tax credits and training funds that can be used. These funding sources vary among states since many are state-based.” A brochure on Funding Opportunities for Apprenticeship Programs is available through the U.S. Department of Labor’s Office of Apprenticeship Web site at: www.doleta.gov/OA/pdf/funding_fact_sheet.pdf

Funding is a key aspect when developing and implementing an apprenticeship program. Many organizations rely solely on their internal budgets to support this initiative. However, external funding opportunities also exist through public and private partnerships. It is important to engage and network with individuals when building general relationships throughout this process. Although they may not necessarily contribute to your immediate funding needs, you never know when you can leverage them for this purpose in the future.

Partnering with other companies may help to defray costs for education and training. Organizations may work through their own procurement department to identify vendors who offer free or discounted training on usage of equipment and tools. Community colleges may have professional grant writers to research and secure the funding. Since community colleges are incentivized by government initiatives to support apprenticeship programs, they have a stake in the process as well. Organizations should be aware of changes in the political environment and capitalize as they can open up new avenues of funding.

Your local Workforce Investment Board (WIB) is another source of funding. In addition to overseeing American Job Centers where job seekers can get employment information and career

development training opportunity, WIBs also direct federal, state, and local funding to work-force development initiatives including Apprenticeship programs.

“On April 16, 2014, President Obama and Vice President Biden recognized industry leaders, including the Advanced Manufacturing Partnership, for expanding their own job driven training efforts and announced \$600 million in grants designed to scale best practices in industry-led job driven training. This includes:

- Nearly \$500 million for Community College Job-Driven Training Grants that will incentivize community colleges to partner with industry on a national scale to design and implement job training programs based on industry recognized credentials for the skills demanded by businesses, and replicate successful models across the country.
- \$100 million in American Apprenticeship Grants will be awarded to expand apprenticeships that have been shown to place 87 percent of apprentices into jobs after completing their programs, with an average starting wage over \$50,000. These grants will reward partnerships of employers, community colleges, unions, training organizations, and non-profits that expand apprenticeship models to new occupations or craft innovations to scale models that work.”

Tips for understanding funding options secured, consider:

Class size is key: Once the program has been running for some time organizations can determine what the sweet spot is in terms of number of participant; a suggested class size for new programs is 10-15 apprentices.

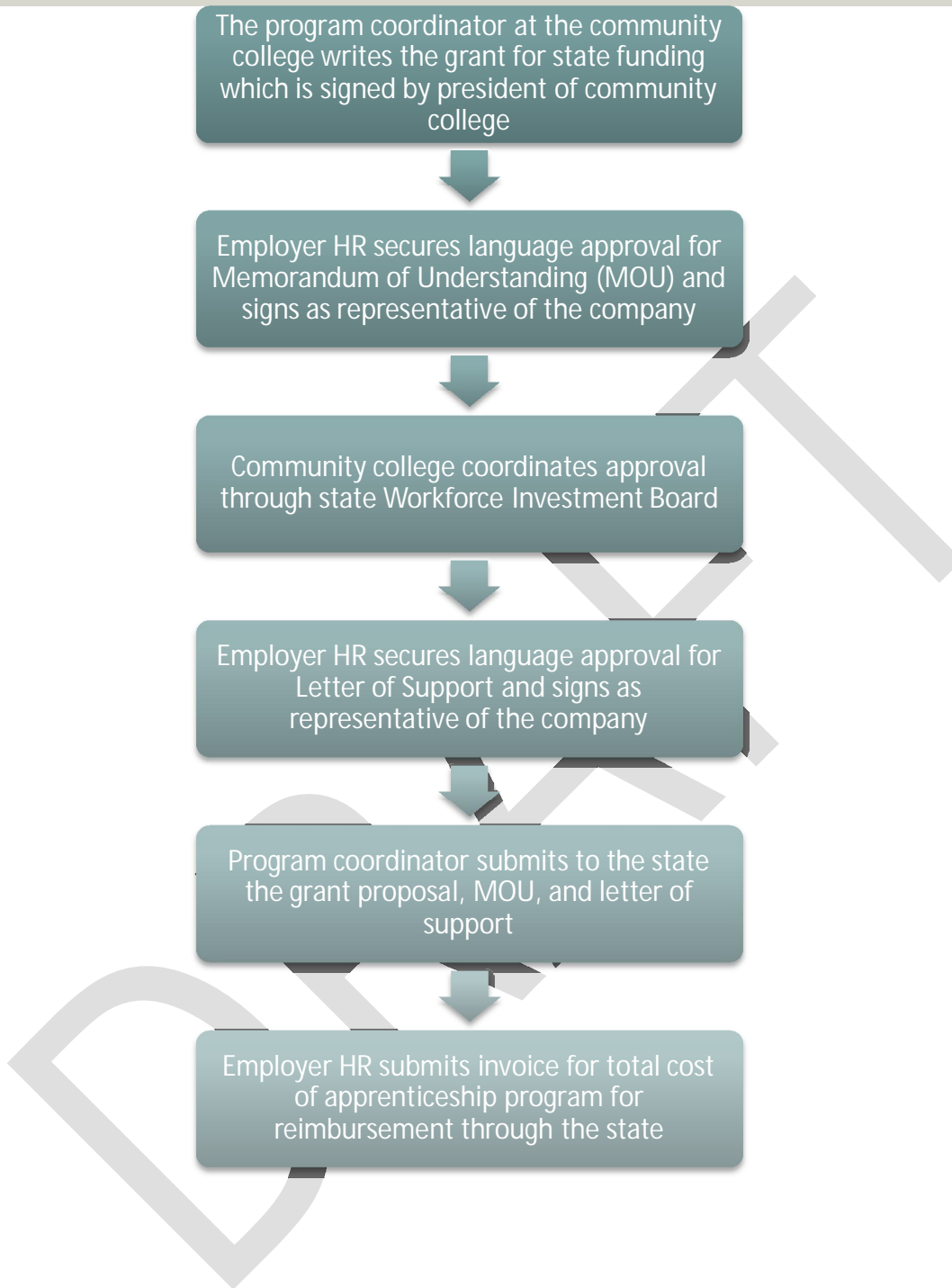
Once organizations have determined that they can launch an apprenticeship program and financially support it on their own, they can look externally for other sources of funding.

Other sources of funding may include indirect funding via government grants provided to community colleges and individuals. Tax credits or direct funding opportunities are an option that may be available through government entities.

Most organizations work through the Federal and state agencies, such as the State Economic Development Department; to learn more about what funds that are available check the resources provided in the toolbox.

Community colleges are excellent resources as well, as they usually have grant researchers and writers on staff to liaise with company coalitions and government entities in order to secure funding.

An example of how to secure grant money and who is responsible for each step of the process is as follows:



Complying with Requirements

The commitment considered for applying for funding are the requirements set forth by the state/federal that must be met and maintained for qualification of funding.

When accepting funding, you are also accepting the funding obligations: you sign an agreement. As part of the contract, there are ongoing responsibilities for the company, so you need to fully understand what you are signing up for. Moral of the story is that there are often strings attached that you have to be aware of. Many factors come into play. So you need to understand what is in the details.

Usual obligations required by the different government agencies are:

Other provision considerations for an apprenticeship program (specifically Registered Apprenticeships) design include:

- Occupations – the jobs to be included in the apprenticeship program
- Work processes – processes while learning on the job
- Allocation of work training time – time allocated / expected for an apprentice to learn the skill/process successfully
- Term of apprenticeship – length of program
- Apprentice qualifications – applicant qualifications for participants
- Related classroom instruction – recommend at least 144 hours per year of course instruction that is relevant to the job.
- Number of apprentices – based on business needs (Chapter 1)
- Apprentice wage – “There should be a progressively increasing schedule of wages with increases at least every 6 months. During the last period of the Registered Apprenticeship, the apprentice should reach 85 to 95 percent of the rate paid a skilled worker in the occupation.”
- Supervision of apprentices – overseeing the work of the apprentice
- Apprenticeship agreement – Should you choose to register your apprenticeship program, it requires a signed apprenticeship agreement

Source: Setting up a Registered Apprenticeship Program

Apprenticeship funding can be very extensive in requirements. In that sense, one option could be not to apply for the funding if meeting with the mandatory obligations would not be realistic, or if you just do not need the financial support.

Remember: Find a balance between maximizing how much support you can get with getting funding while maintaining flexibility. You want to get your money, but still be able to run your business.

When a company's apprenticeship program is worthy of receiving funding this demonstrates that the organization has a solid business plan and is operating with foresight since entities

are willing to contribute financially towards its success. This contribution toward financial success and work in this space would be held in high regard with peer organizations and other stakeholders such as suppliers and especially customers. Customers would view this very favorably as this is great public relations for the organization to demonstrate their desire to have long term operations.

Examples of:

a) Grant profile



Adobe Acrobat
Document

TAACCCT Grant Profile 1

b) Notice of availability of funds and solicitation for grant applications.



Adobe Acrobat
Document

Notice of Availability of Funds 1

ANNEX 24

EDUCATION & WORKFORCE DEVELOPMENT WORKCREEK 4

Playbook for Veterans, Educators and Manufacturers



ENGAGING VETERANS IN MANUFACTURING CAREERS

A PLAYBOOK FOR VETERANS, EDUCATORS AND MANUFACTURERS

This is a working document and the toolkit may be updated periodically.

The Advanced Manufacturing Partnership (AMP 2.0) Workforce Team focused its work on connecting veterans to high-skilled jobs in manufacturing. Many resources are available via the internet and other sources, offering a great deal of information on veteran benefits and support systems. At times, these resources can be overwhelming to navigate. This playbook condensed and organized information from these sources for the three key players critical in assisting veterans as they transition from military experience to civilian careers in manufacturing: veterans, educators and manufacturers.

Produced with support from:



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**SECTION 1:
VETERANS**

VETERANS

EXPLORING CAREERS IN MANUFACTURING

Much of today's manufacturing work is done in high-tech, temperature controlled, sterile environments. That's because manufacturing has been revitalized and revolutionized, and it's proving to be one of the United States' largest major growth industries.

Today's manufacturers, whether they are making cars, airplanes, or iPhone parts, are looking for engineers, designers, machinists and computer programmers. Manufacturing has moved from manual mills and lathes to computerized numerical control equipment and 3-D printers. Hand-held welders are being replaced with robotic welders. Industrial maintenance mechanics no longer need to know how to use a wrench, but have to be able to operate a "programmable logic control," or a digital computer, to fix the machines.

Veterans have many of the skills sets necessary to successfully navigate a career in this advanced manufacturing environment. Manufacturers across the United States are targeting colleges to let veterans know there is more to manufacturing than pulling levers on an assembly line. Many of the jobs pay well — the average manufacturing worker in the United States earned \$77,505 in 2012, including pay and benefits — but they can be hard to fill.

Nationwide, U.S. employers reported that skilled trades positions were the most difficult to fill. A 2011 industry report estimated that as many as 600,000 manufacturing jobs were vacant that year because employers couldn't find the skilled workers to fill them, including machinists, distributors, technicians and industrial engineers.

As a veteran, it's important to consider positions in manufacturing as career option. Your military experience and training may align with the needs in this important sector. This playbook is designed to help you determine if your skills are matched to these positions.

Sometimes it is helpful to secure feedback from a professional when preparing for an interview. www.jobipedia.org is a public service provided by the [HR Policy Association](#) to help new entrants into the workforce find jobs. Every answer you read on jobipedia was written by someone from a large employer who actually hires employees for a living ([see the list of contributing companies here](#)). This can be a great resource when to have targeted your career and are interested in preparing for an interview.

VETERANS

UNDERSTANDING GI TRAINING AND EDUCATION BENEFITS

Your military experience provides you with resources for training that prepares you for civilian jobs. Below is a summary of some of those benefits. Spouses and family members may also be eligible for education and training assistance. Interestingly, 25 percent of those benefiting from VA education programs are non-Veterans. For more information visit: http://www.benefits.va.gov/gibill/survivor_dependent_assistance.asp

Types of Training Offered Through GI Bill Programs (source: *Millitary.com*)

There are several types of training that can be taken using Montgomery GI Bill (MGIB)* benefits. These include college (undergraduate, graduate), certificate programs, on-the-job training, apprenticeship training, flight training, and non-college degree courses.

To be eligible for the MGIB you must meet the following two requirements:

1. **Character of discharge.** To use MGIB after you're separated from active duty, your discharge must be fully honorable. Discharges "under honorable conditions" and "general" discharges don't establish eligibility for MGIB. Important Note: If you weren't eligible previously with your first period of active duty, you may have a second chance by using a later period of active duty.
2. **Completed High School.** To use MGIB as an active duty member or after you're separated from active duty, you must obtain a high school diploma or equivalency certificate before you apply for benefits. Completing 12 hours toward a college degree before you apply for benefits also meets this requirement.

In addition to the requirements above, you must meet requirements from one of the four categories below. (If you entered active duty before July 1, 1985, you may only qualify under Categories 2, 3, or 4.)

Category 1: Entered active duty for the first time after June 30, 1985

Had military pay reduced by \$100 a month for first 12 months

Continuously served for 3 years, OR 2 years if that is what you first enlisted for, OR 2 years if you entered Selected Reserve within a year of leaving active duty and served 4 years ("2 by 4" Program)

Category 2: Entered active duty before January 1, 1977

Served at least 1 day between 10/19/84 and 6/30/85, and stayed on active duty through 6/30/88, (or 6/30/87 if you entered Selected Reserve within 1 year of leaving active duty and served 4 years)

On 12/31/89, you had entitlement left from Vietnam Era GI Bill

Category 3:

Not eligible for MGIB under Category I or II

On active duty on 9/30/90 AND separated involuntarily after 2/2/91,

OR involuntarily separated on or after 11/30/93,

OR voluntarily separated under either the Voluntary Separation Incentive (VSI) or Special Separation Benefit (SSB) program

Before separation, you had military pay reduced by \$1200

* Also known as Chapter 30

** Also known as Chapter 33

VETERANS

Category 4:

On active duty on 10/9/96 AND you had money remaining in a VEAP account on that date AND you elected MGIB by 10/9/97 OR entered full-time National Guard duty under title 32, USC, between 7/1/85, and 11/28/89 AND you elected MGIB during the period 10/9/96, through 7/8/97

Had military pay reduced by \$100 a month for 12 months or made a \$1200 lump-sum contribution

The monthly benefit paid to you is based on the type of training you take, length of your service, your category, and if Department of Defense put extra money in your MGIB Fund (called "kickers"). You usually have 10 years to use your MGIB benefits, but the time limit can be less, in some cases, and longer under certain circumstances.

You can apply by filling out [VA Form 22-1990](#), Application for Education Benefits. Call toll free 1-888-GI-BILL-1 for more information.

Eligibility Time Frame

Benefits under the MGIB generally end 10 years from the date of the veteran's last discharge or release from active duty, but some extenuating circumstances qualify for extensions. A veteran with a discharge upgraded by the military will have 10 years from the date of the upgrade.

Amount of Benefits Offered Under Each Program

The amount of benefits and the money you will receive is an important factor to consider before selecting a benefit. While you may think you will receive more money under the Post-9/11 GI Bill, it may not be the case. Under the Post-9/11 GI Bill you may receive:

A tuition & fees payment (paid directly to the school) not to exceed the tuition & fees at the most expensive state Institution of Higher Learning (IHL) [For a listing of the maximum tuition & fees for each state click here](#)

A monthly housing allowance based on the Basic Allowance for Housing (BAH) for an E-5 with dependents. This amount is based on the ZIP code of the location of the school you are attending [To determine the BAH for your ZIP code click here](#) (link goes to the DoD per diem website)

An annual book stipend of \$1,000 paid proportionately based on enrollment. The rate is \$41 per credit hour. Once you have been paid \$1,000 you are done for the school year.

A one-time rural benefit payment of \$500.00 if you reside in a county with 6 persons or less per square mile (as determined by the most recent decennial census) and:

1. either physically relocate at least 500 miles to attend an educational institution or
2. travel by air to physically attend an educational institution if no other land-based transportation exists

NOTE: Post-9/11 benefits are paid on a percentage basis, which is determined by your length of active duty service since Sept. 11, 2001. [Click here to view the table of Post-9/11 benefit tiers.](#)

VETERANS

Under all other GI Bill programs you will receive a monthly payment at a rate set by Congress that does not vary based on your expenses.

For a full-time student using the Montgomery GI Bill for Active Duty this comes to \$1,368 a month. This payment is paid to the student, making it the student's responsibility to pay the tuition and fees to school.

Other Factors to Consider

In some locations the costs of college and housing (which you would receive payment for under the Post-9/11 GI Bill) are less than the payment you would receive under the Montgomery GI Bill.

In some states veterans do not have to pay tuition at selected state colleges. The Post-9/11 GI Bill may then pay only the housing benefit and the book stipend. (Since you have no tuition costs the Post-9/11 GI Bill will not pay the college any tuition.) Your payments under other GI Bill programs such as the Active-Duty GI Bill may be higher in these cases.

[Click here to see other GI Bill rates.](#)

If you are eligible for the Navy, Army or Marine Corps College Fund (enlistment Incentive programs) under MGIB and MGIB-SR programs you may receive your college fund as before, unless you are attending classes at half-time or less.

If you participated in the \$600 buy-up under the Montgomery GI Bill or REAP you will not receive that additional benefit under the Post 9/11 GI Bill.

The Post-9/11 GI Bill payment is based on the amount of service completed after September 10, 2001. Your tuition & fees payment, housing allowance, and book stipend are all based on this percentage. You will receive a larger benefit if you served more active duty or mobilization time.

To see a breakdown of the amount payable based on service completed after September 10, 2001 [click here.](#)

For detailed information on training visit http://www.benefits.va.gov/gibill/education_programs.asp

Education Programs (source va.gov)

Many benefits are available to advance the education and skills of Veterans and Servicemembers. Spouses and family members may also be eligible for education and training assistance in fact, 25 percent of those benefitting from VAs education programs are non-Veterans. Some might find they're eligible for more than one benefit or that one program is more suited to certain education and training goals than another.

VETERANS

Learn about these and other education and training programs administered by VA or [start your application now](#):

- The [Post-9/11 GI Bill](#) offers higher education and training benefits to Veterans, Servicemembers, and their families who served after Sept. 10, 2001.
- The [Montgomery GI Bill](#) assists active duty and Reservists with the pursuit of higher education degrees, certificates, and other education and training.
- These other [VA education and training programs](#) offer various education and training benefits or increased benefits to certain Reservists and Veterans and their survivors and dependents:
 - [Reserve Educational Assistance Program](#)
 - [Veterans Educational Assistance Program](#)
 - [Survivors and Dependents Educational Assistance Program](#)
 - [Educational Assistance Pilot Program](#)
 - [National Call to Service Program](#)

Post 9/11 GI Bill

The following assistance is approved under the Post-9/11 GI Bill:

- [Accelerated payments](#)
- [Correspondence training](#)
- [Entrepreneurship training](#)
- [Flight training](#)
- [Independent and distance learning](#)
- [Institutions of higher learning undergraduate and graduate degrees](#)
- [Licensing and certification reimbursement](#)
- [Vocational/technical training, non-college degree programs](#)
- [National testing reimbursement](#)
- [On-the-job training](#)
- [Tuition Assistance top-up](#)
- [Tutorial assistance](#)
- [Vocational/technical training](#)

Montgomery GI Bill

The Montgomery GI Bill (MGIB) is available to those who enlist in the U.S. Armed Forces. There are two main programs:

- [Montgomery GI Bill Active Duty \(MGIB-AD\)](#) For active duty members who enroll and pay \$100 per month for 12 months and are then entitled to receive a monthly education benefit once they have completed a minimum service obligation.
- [Montgomery GI Bill Selected Reserve \(MGIB-SR\)](#) For Reservists with a six-year obligation in the Selected Reserve who are actively drilling.

VETERANS

Reminder: The Post-9/11 GI Bill is only payable at an Institution of Higher Learning (IHL), you are only eligible for GI Bill benefits for other types of training if you have eligibility under other GI Bill programs such as the MGIB-Active Duty GI Bill, MGIB-Reserve GI Bill, REAP, or VEAP. You should contact your Education Service Officer or the VA for more information.

	Post-9/11 GI Bill	Montgomery GI Bill-Active Duty	Montgomery GI Bill-Reserve	REAP
Tuition and Fees*	Paid directly to school. Not to exceed the highest in-state undergraduate tuition at public IHL.			
Housing Allowance (Based on ZIP Code of school)*	Paid monthly at the E-5 with dependents BAH rate. <i>Not payable for active duty recipients, those training at ½ time or less, or students enrolled entirely in distance learning programs.</i>	Paid directly to recipient	Paid directly to recipient	Paid directly to recipient.
Book Stipend*	Yearly - up to \$1,000 - Paid proportionally each term based on enrollment and as listed in the table below. <i>Not payable to individuals on active duty.</i>	Not Payable		
Rural Benefit	One time - up to \$500	Not Payable		
Time Limit to Use Benefits	15 Years	10 Years	Eligibility normally ends once you leave the service	Can be eligible for 10 years after leaving service
College Fund	Applicable percentage added to Housing Allowance	Added to monthly rate		
\$600 Buy-up	Not Paid	Paid at applicable rate	Not Payable	Paid at applicable rate

* Paid on a proportional basis. See table below for details.

VETERANS

Post-9/11 GI Bill Benefits rates are tiered based on time in active service since September 11, 2001. The following table shows the tiers for active-duty personnel:

Active Duty Completed after September 10, 2001	Percentage of Maximum Amount Payable
At least 36 months	100%
At least 30 continuous days on active duty and discharged due to service-connected disability	100%
30 months to 36 months	90%
24 months to 30 months	80%
18 months to 24 months	70%
12 months to 18 months	60%
6 months to 12 months	50%
90 days to 12 months	40%

Post-9/11 GI Bill Benefits rates are tiered based on your time on active duty since September 11, 2001. The following table shows the tiers for reserve and National Guard personnel:

Post-9/11 Service	Percentage of Maximum Amount Payable
At least 36 cumulative months (including Entry Level or Skills Training)	100%
At least 30 continuous days on active duty and discharged due to service-connected disability (including Entry Level or Skills Training)	100%
At least 30 cumulative months (including Entry Level or Skills Training)	90%
At least 24 cumulative months (not including Entry Level or Skills Training)	80%
At least 18 cumulative months (not including Entry Level or Skills Training)	70%
At least 12 cumulative months (not including Entry Level or Skills Training)	60%
At least 6 cumulative months (not including Entry Level or Skills Training)	50%
90 aggregate days (not including Entry Level or Skills Training)	40%

VETERANS

MAPPING MILITARY EXPERIENCE TO MANUFACTURING CAREERS

Your military experience provided you with training that may be applicable to civilian jobs in manufacturing. Below is information on Skill Translators and Military Badges. These tools will help you determine which skills are applicable to the high skilled jobs available to today's manufacturing sector.

Skills Translators

Skills translators convert military skills, experience and training to career opportunities that best align with your capabilities. To get started, go to one of the website that offer this tool (screenshots below are from Military.com and Feds for Vets websites). First, you define your military experience by adding your Military Job Title (for example, your MOS, MOSC, Rating, Designator). Once this information is selected, you can add your subspecialties and training to further customize the jobs available to you. The screenshots below highlight skills translators from different sources.

<https://www.ebenefits.va.gov/ebenefits/jobs>

The screenshot shows a web browser window displaying the 'Translate Your Experience' form on the VA eBenefits website. The browser's address bar shows the URL <https://www.ebenefits.va.gov/ebenefits/jobs>. The page has a light blue header and a sidebar on the left with navigation links: Job Seekers, Tools, Job Search, Skills Translator, Résumé Builder, Resources, Job Seeker Resources and Services, Employer Commitments, Interest Profiler, About the Employment Center, and For Employers. The main content area is titled 'Translate Your Experience' and contains a section '1. Enter your military background'. This section includes three input fields: 'In which branch of service do/did you serve?' with a dropdown menu labeled 'Select Branch of Service'; 'What was/is your military pay grade?' with a dropdown menu labeled 'Select Personnel Category'; and 'What was/is your military occupation code? (You can also enter a federal occupation code e.g. 301.)' with a text input field. Below these fields is a link that says '+ More than one MDG? Add another MDG Code or federal occupation code.' and a large blue 'Translate' button at the bottom.

VETERANS

Military.com

WE MAKE GETTING A VA LOAN *easy* **Quicken Loans** NMLS#1010

MILITARY EXPERIENCE

Translate your military skills, experience and training to find career opportunities that best align with your capabilities. To get started, define your military experience by adding your Military Job Title (for example, your MOS, MOSC, Rating, Designator). Once this information is selected, you can add your subspecialties and training to further customize the jobs available to you.

Search Military Job Title by Service [Browse by Military Service](#)

Select Your Service:

Select Your Pay Grade:

Enter Military Job Title:

Veterans select their military job

Select a Military Job Title

Browse: [All](#) | [Army](#) | [Marine Corps](#) | [Navy](#) | [Air Force](#) | [Coast Guard](#)

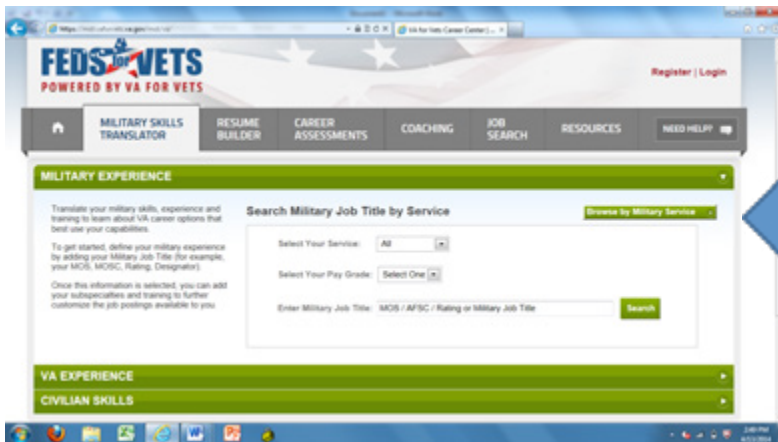
All

Code	Job Title	Show
00B	Diver (Army - Enlisted)	All
00E	Recruiter (Army - Enlisted)	All
00H	Enlisted Aide (Army - Enlisted)	All
00R	Recruiter/Retention NCO (Army - Enlisted)	All
00Z	Command Sergeant Major Nominative (Army - Enlisted)	All
0100	Basic Personnel and Administration Marine (Marine Corps - Enlisted)	All
0101	Basic Personnel and Administration Officer (Marine Corps - Warrant Officer)	All
0101	Basic Personnel and Administration Officer (Marine Corps - Officer)	All
0107	Civil Affairs Officer (Marine Corps - Officer)	All
0111	Administrative Specialist (Marine Corps - Enlisted)	All
0121	Personnel Clerk (Marine Corps - Enlisted)	All
0131	Unit Diary Clerk (Marine Corps - Enlisted)	All

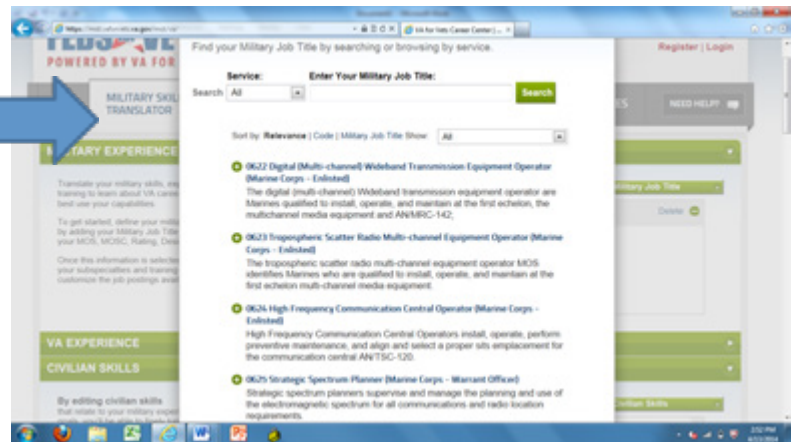
A list appears and connects the military job to similar civilian jobs

VETERANS

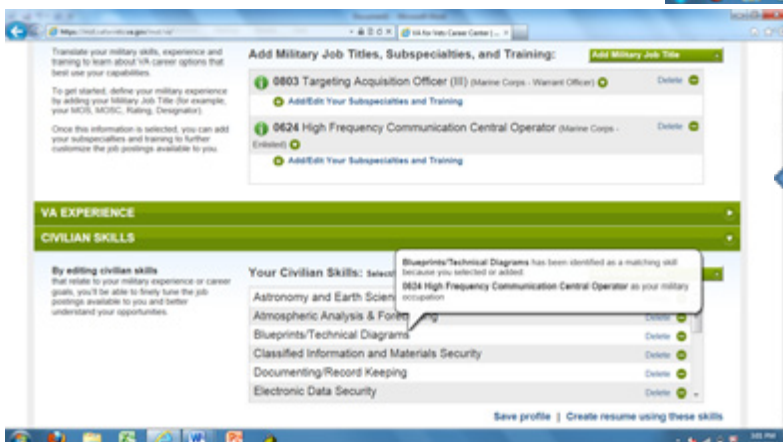
Feds for Vets Website



Veterans select their military job



Selected this position as an example



These civilian jobs are identified as a match

VETERANS

Military Skills Badges

The Manufacturing Institute worked with Futures Inc. to create a digital “badge” system, making it easier to translate Military Occupational Specialty codes (MOS) to civilian positions in advanced manufacturing. <http://www.getskillstowork.org>. Whether you're a welder or a technician, upload your resume to see if your skills match a badge.

The US Manufacturing Pipeline is providing the following digital badges:

- CNC Machine Operator
- Electronics Assembler
- Logistics Analyst
- Machinist
- Maintenance Technician
- Materials Handler
- Mechanical Engineering Technician
- Pipe Fitter
- Process Technician
- Production Technician
- Welder

Want a great career in **Manufacturing?**
Start looking for jobs today! →

Take a Quick Assessment →

Search for Jobs Now
Keywords, MOS, or Company Name
City, State, or Postal Code Search

JOB SEEKERS EMPLOYERS NEWS ROOM BADGES HIRING EVENTS

Manufacturing Badges

The National Association of Manufacturers has teamed up with GE to help connect Veterans with remaining manufacturing careers. The Get Skills to Work program will provide career resources to veterans and reserve Component personnel.

The US Manufacturing Pipeline is providing the following digital badges:

- CNC Machine Operator
- Electronics Assembler
- Logistics Analyst
- Machinist
- Maintenance Technician
- Materials Handler
- Mechanical Engineering Technician
- Pipe Fitter
- Process Technician
- Production Technician
- Welder

These badges will make it easier for employers to find job seekers based on their Military Occupation Codes. Whether you're a welder or a technician, there may be a badge for you. Sign up and enter your MOS to see if your skills match a badge!

Sign up and Upload Your Resume

MANUFACTURING Institute
GETSKILLSTOWORK
US Manufacturing Pipeline

These badges will make it easier for employers to find job seekers based on their Military Occupation Codes. Whether you're a welder or a technician, there may be a badge for you. Sign up and enter your MOC to see if your skills match a badge!

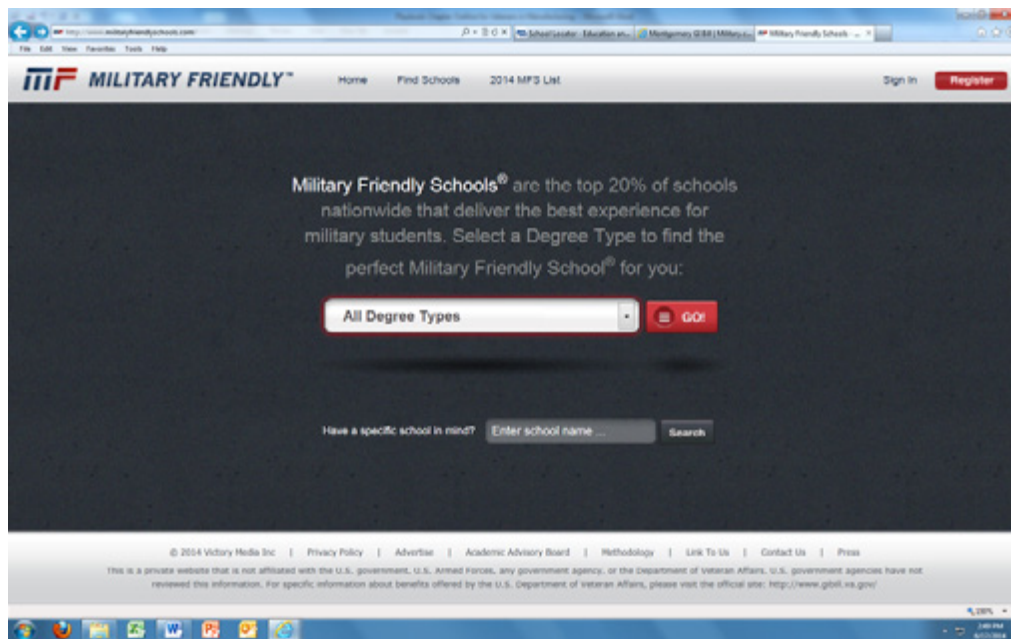
Once the skills are aligned to civilian positions, complementary tools via US Manufacturing Pipeline are available that assess your interests and provide listings of open positions in that field.

VETERANS

The Veterans' Administration has developed the [WEAMS Institution search tool](#) to locate the colleges and universities, vocational institutions, flight schools, and other educational facilities with programs that are approved for VA benefits. Enter search terms and then click on the map to generate results by state.

In addition, www.militaryfriendlyschools.com provides a tool (screen shot below) that identifies colleges and universities that are considered "military friendly." Now in its 4th year, the G.I. Jobs team approaches 12,000+ VA-approved schools, and asks them to participate in an annual survey, at no cost. The survey and resulting list are the leading resource for military personnel, veterans, spouses, and military dependents seeking schools that provide the most value for military students. The G.I. Jobs Military Friendly Schools® list is determined mathematically from data obtained via school survey submissions. Each year the top 15% of schools from our survey are selected to appear on our list and are awarded the coveted Military Friendly Schools® designation.

SELECTING AN EDUCATION PROVIDER



VETERANS

Once you are confident that you have the applicable skills, knowledge and abilities to pursue a job in manufacturing, you should prepare a compelling resume that highlights your background and experience. There are many free online tools that can assist you in creating a resume. Below are some resources that may help.

<https://www.resumes.com>

<http://www.recome-now.com>

<http://www.myperfectresume.com>

Keep in mind that most employers use online hiring sites, thus they expect you to post your resume and complete an application. If you are invited to interview with the company, do some research on their history and products. It's also important to review commonly asked questions to help prepare for the interview.

Here are some common questions and suggested answers: (source: <https://jobsearch.about.com>)

Interview questions about your abilities. - [Best Answers](#)

What applicable attributes / experience do you have? - [Best Answers](#)

What part of the job will be the least challenging for you? - [Best Answers](#)

Which parts of this job are the most challenging for you? - [Best Answers](#)

What philosophy guides your work? - [Best Answers](#)

What strength will help you the most to succeed? - [Best Answers](#)

What major challenges and problems did you face? How did you handle them? - [Best Answers](#)

What have you learned from your mistakes? - [Best Answers](#)

What did you like or dislike about your previous job? - [Best Answers](#)

Which was most / least rewarding? - [Best Answers](#)

What was the biggest accomplishment / failure in this position? - [Best Answers](#)

Where do you see yourself 5 years from now? - [Best Answers](#)

Where do you see yourself in 10 years? (for older applicants) - [Best Answers](#)

What are your goals for the next five years / ten years? - [Best Answers](#)

How do you plan to achieve those goals? - [Best Answers](#)

VETERANS

An exciting career in manufacturing is waiting for you. Below are two checklists that should help you get started! Additional links to resources are also provided.

Checklist for Connecting with Employers/Jobs

<input type="checkbox"/>	Used skills translator to see how my military experience relates to jobs
<input type="checkbox"/>	Used digital badging to understand how my military competencies relate to jobs
<input type="checkbox"/>	Developed a relevant resume that connects my experience to job requirements
<input type="checkbox"/>	Reviewed job openings that match experience
<input type="checkbox"/>	Applied for positions via employer requirements (online application, etc.)
<input type="checkbox"/>	Prepared for the interview by reviewing commonly asked questions
<input type="checkbox"/>	Prepared questions to ask employer during interview
<input type="checkbox"/>	Sent thank you letter/email after the interview
<input type="checkbox"/>	Followed up with employer after interview

Checklist of Steps to Connect to Schools/Colleges

<input type="checkbox"/>	Reviewed educational benefits offered via the VA
<input type="checkbox"/>	Completed required forms to access benefits
<input type="checkbox"/>	Applied to the school/college
<input type="checkbox"/>	Completed a Free Application for Federal Student Financial Aid (FAFSA) form
<input type="checkbox"/>	Requested an appointment with the veterans advisor to create academic plan
<input type="checkbox"/>	Enrolled in program of study and classes
<input type="checkbox"/>	Purchased books and required course materials
<input type="checkbox"/>	Attended and participated in classes
<input type="checkbox"/>	Sought help when needed

GETTING STARTED

VETERANS

Other Resources

The links below provide additional information for veterans.

- [10 Top FAQs on GI Bill Changes](#)
- [Active Duty Montgomery GI Bill User's Guide](#)
- [Tuition Assistance 'Top-Up' Program](#)
- [Post-9/11 GI Bill Overview](#)
- [Learn to Use Your GI Bill for Grad School](#)
- [Montgomery GI Bill Eligibility Details](#)
- [Veteran GI Bill User's Guide](#)
- [The GI Bill Kicker](#)
- [Montgomery GI Bill](#)
- www.ebenefits.va.gov
- <http://www.veterans.ucla.edu/undergraduatestudents/benefits.htm>
- <http://www.benefits.va.gov/BENEFITS/factsheets.asp>
- <http://www.military.com/education/gi-bill/guidance-for-choosing-between-gi-bill-programs.html>
- <http://newgibill.org/calculator/>
- <https://newgibill.zendesk.com/home>
- www.vetsuccess.va.gov
- The Get Skills to Work program will provide career resources to Veterans and Reserve Component personnel. The GSTW badges make it easier for employers to find job seekers based on their Military Occupation Codes. www.USManufacturingPipeline.com
- Get your Badge, find a manufacturing career: <https://usmanufacturingpipeline.com/#tab-4>
- Get Skills to Work Linked In Group: https://www.linkedin.com/groups?trk=groups_management_participants-h-dsc&gid=5131140
- Hiring Our Heroes and The Institute for Veterans & Military Families at Syracuse University created Fast Track to show the critical paths to meaningful careers and guide veterans and transitioning service members to make informed decisions about education and employment opportunities. <http://hiringourheroes.connectedu.net/>

**SECTION 2:
EDUCATORS**

EDUCATORS

According to the Veterans Administration, student veterans are growing in number. In 2009 there were approximately 500,000 student veterans receiving education benefits. Veterans' benefits provide financial and other forms of assistance to veterans. In 2013, over 1,000,000 student veterans are using their GI benefits to pursue advanced educational opportunities, and this number is estimated to increase by 20% in the next few years. These student veterans provide a valuable source of talent for our nation's manufacturers.

Student veteran characteristics are as follows (according to the VA):

- 73%-80% are male
- 21%-27% are female
- 15% are "traditionally aged" college students; most are between 24-40 years of age
- 47% have children
- 47.3% are married
- 62% are first-generation students
- 79.2% are enrolled in public institutions

8 Keys to Success in Serving Student Veterans

1. Developed by the Administration, the Department of Education (ED), and the Department of Veterans Affairs (VA) in conjunction with more than 100 education experts, the 8 Keys to Success on campus are eight concrete steps that institutions of higher education can take to help veterans and service members' transition into the classroom and thrive once they are there.
2. Create a culture of trust and connectedness across the campus community to promote well-being and success for veterans.
3. Ensure consistent and sustained support from campus leadership.
4. Implement an early alert system to ensure all veterans receive academic, career, and financial advice before challenges become overwhelming.
5. Coordinate and centralize campus efforts for all veterans, together with the creation of a designated space (even if limited in size).
6. Collaborate with local communities and organizations, including government agencies, to align and coordinate various services for veterans.
7. Utilize a uniform set of data tools to collect and track information on veterans, including demographics, retention and degree completion.
8. Provide comprehensive professional development for faculty and staff on issues and challenges unique to veterans.
9. Develop systems that ensure sustainability of effective practices for veterans.

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In addition, the following are offered as institutional best practices:

- Be knowledgeable about and responsive to the needs and experiences of student veterans, military service members, and their family members.
- Articulate a vision and mission for veteran programs and services that ties to the institutional mission.
- Set goals and objectives based on the needs of this population that tie into the institution's goals and objectives.
- Advocate for programs and services that address veteran needs.
- Promote campus environments that provide meaningful opportunities for student learning, integration, and success.
- Be knowledgeable about federal, state, and local laws relevant to the programs and services.
- Develop and continuously improve programs and services in response to changing needs of these students.
- Possess the knowledge and skills to assist student veterans, military service members and their family members with transition and orientation to campus and to address the needs of veterans with disabilities.

EDUCATORS

ONBOARDING VETERANS AT YOUR COLLEGE/UNIVERSITY

Attracting Veterans to Your College

It is important to reach out to various local and statewide groups to assist veterans and their families, such as:

U.S. Department of Veteran Affairs - www.va.gov

Yellow Ribbon Reintegration Program -- www.yellowribbon.mil/

Employer Support of Guard & Reserve -- www.esgr.mil/

Local Chambers of Commerce

Local Veteran Organizations e.g., VFW

Onboarding Veterans

It is important that staff and veteran students are aware of veteran benefits rules and processes to ensure proper administration of these benefits. Most schools provide intake service through their Financial Aid or Veterans' Services Offices. These support areas provide information on different veteran education programs, qualifications for each and application procedures for both federal and state programs.

Step 1: The Admissions Process

Step 2: Testing

Step 3: Certificate of Eligibility

Step 4: Choosing a Program of Study

Step 5: Academic Advising

Step 6: Degree Audit

Step 7: Academic Standing

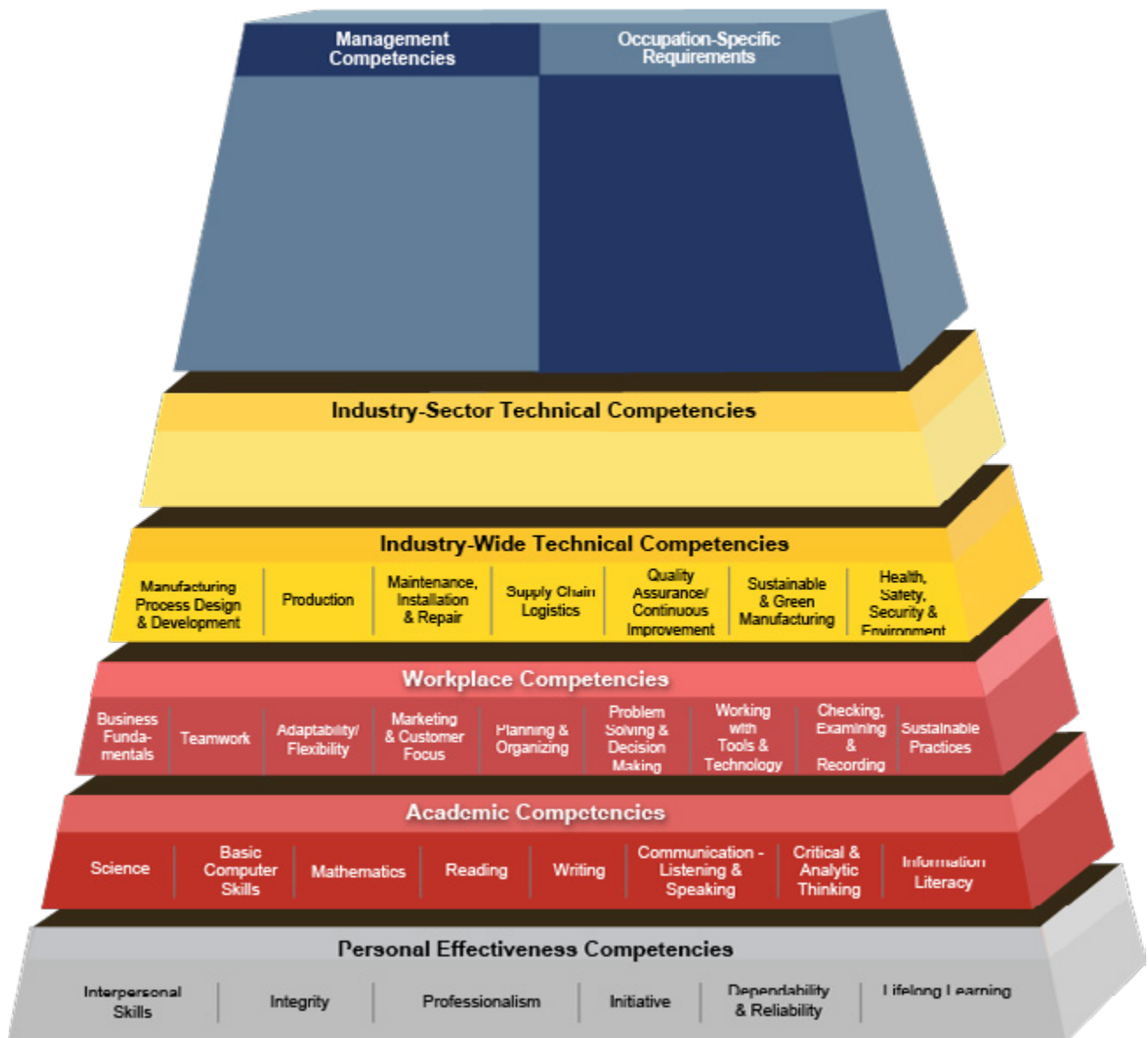
Designing a program of study

The manufacturing sector has a wide range of specialties that map to programs of study at colleges/universities. Common titles include:

- Machinist
- Maintenance Technician
- Electronics Technician
- Robotics Technician
- Quality Control Technician
- Inspector
- Welder
- Fabricator
- Process Engineer
- Machine Set-up Operator
- Assembler

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Programs of study frequently begin with basic safety and other skills critical in today's advanced manufacturing environment. The Department of Labor has created the pyramid below to depict hierarchical skill sets and competencies. This diagram can be used to develop programs of study that begin with basic skills (lower portion) to more advanced competences (higher portion).



EDUCATORS

MAPPING MILITARY EXPERIENCE TO PROGRAMS OF STUDY

Accelerating veteran student education can be facilitated by awarding credit for relevant military experience and training which may be applicable to manufacturing programs of study. Below is information on Skill Translators and Military Badges. These tools will help you determine which skills are applicable to the high skilled jobs available to today's manufacturing sector. These tools map competencies earned in the military which can be applied toward programs of study. This lessens time to completion for veterans.

Skills Translators

Skills translators are used to convert military skills, experience and training to jobs. These tools are available via Military.com and Feds for Vets websites. Veterans are using these tools to map their military experience to manufacturing positions. Colleges/universities should be aware of these tools which can also be used to map military experience to programs of study. (see Veterans section for more information on skills translators)

Military Skills Badges

Like skills translators, badging systems map military skills and experience to civilian jobs. The Manufacturing Institute worked with Futures Inc. to create a digital "badge" system, making it easier to translate Military Occupational Specialty codes (MOS) to civilian positions in advanced manufacturing. <http://www.getskillstowork.org>.

The US Manufacturing Pipeline is providing the following digital badges:

- CNC Machine Operator
- Electronics Assembler
- Logistics Analyst
- Machinist
- Maintenance Technician
- Materials Handler
- Mechanical Engineering Technician
- Pipe Fitter
- Process Technician
- Production Technician
- Welder

These badges provide insight into competencies earned in the military and thus can be used to award credit for prior learning.

Others

Expertise from the Council for Adult Learning (CAEL) and American Council on Education (ACE) is also available when designing prior learning assessment processes.

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Two effective ways of connecting with manufacturers are creating advisory groups and connecting them with job placement services at your college.

Advisory Groups

An advisory group is a formally organized committee of citizens selected from the community to provide expert advice and assistance to Lane Community College's professional- technical programs. Advisory groups serve as both the champions and gatekeepers of the broader college mission. Their main goal is to influence the quality of the workforce education programs to ensure their connection to current practices, and that the knowledge and skills students receive are current with those needed in the workforce.

Briefly, advisory group members:

Offer advice, opinions, ideas and recommendations about the educational program in a manner that attempts to reach consensus on issues.

Provide pro-active responses to issues and projects based on thorough preparation prior to meetings.

Share professional expertise, balance the goals of the educational program and the profession, and maintain confidentiality where appropriate.

Share information openly, and develop recommendations that benefit students, the program, and the college.

Develop partnerships, obtain resources and recommend new and innovative ways to increase public awareness of college training programs.

Act as role models for their profession and mentor new colleagues while building their own network of professional relationships.

Job Placement Services

Manufacturers are looking for qualified individuals to fill open positions. Many look to colleges for a pipeline of talented human capital. Offering a viable job placement service is an effective way of connecting with area manufacturers and providing work experiences for students. There are several ways this can be accomplished.

Internships

Internships normally carry college-credit and/or may be a required completion experience. Manufacturers find internships valuable because it provides them the opportunity to see if a prospective employee (student) has the necessary knowledge, skills and abilities. Internships provide students will valuable work experience that can be documented on resumes. Internship experiences require faculty involvement to ensure stated learning outcomes are met.

Apprenticeships

As defined by the Employment and Training Administration, apprenticeships provide an "earn and learn" training model with a unique combination of structured learning with on-the-job training from an assigned mentor.

Related instruction, technical training or other certified training is provided by apprenticeship training centers,

EDUCATORS

technical schools, community colleges, and/or institutions employing distance and computer-based learning approaches. The goal is to provide workers with advanced skillsets that meet the specific needs of employers. Formal registered apprenticeships provide participants with an industry issued, nationally recognized credential that certifies occupational proficiency. In many cases, these programs provide apprentices with the opportunity to simultaneously obtain secondary and post-secondary degrees.

Cooperative Work Experiences

Area manufacturers may wish to hire students on a part-time basis that are not connected to an internship or apprenticeship. These are considered cooperative work experiences because there is no formal educational component attached to the job.

Job Placement

Placing students into full-time work upon completion of a program is a valuable resource and recruiting practice. The Department of Education has become increasingly focused on gainful employment, meaning students were able to obtain a job relevant to their program of study. Thus, the college helps to connect students into employment opportunities. In addition to current and graduating students, alumni typically tap job placement centers at colleges.

Outreach efforts are needed to engage manufacturers. Taking the time to meet with them to learn about their needs and how work can be done collaboratively is highly effective. Gathering firm commitments by using response cards like the one below can also be effective.

RESPONSE CARD

Yes! We want to participate in the Advanced Manufacturing program.

Company or institution: _____

Contact Person: _____

Address: _____

City: _____ Zip code: _____

Telephone: _____ email: _____

We will provide the following assistance:

- Serve on task team or subcommittee
- Participate in High school and college events to promote careers in manufacturing
- Provide paid internships for (how many) _____ students per year
- Other (Please specify) _____

Signature: _____ Date: _____

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Attaching programs of study to industry-recognized credentials strengthens a student's resume and ability to land a job. The term "industry-recognized," means a credential that it is accepted by employers within the industry or sector involved as a recognized, preferred, or required credential for recruitment, screening, hiring, retention or advancement purposes; and, is endorsed by a nationally recognized trade association or organization representing a significant part of the industry or sector. Manufacturers rely in industry recognized credentials as a means of validating the effectiveness of skills training and education.

The Manufacturing Institute is working with manufacturing certification organizations who are the world market leaders in skills certification programs. This collaborative effort resulted in an organization of the certification programs, and the credentials they offer, into a system of "stackable credentials" that can be awarded in post-secondary education.

The following areas are currently covered by the Skills Certification System:

- Foundation Skills
- Cross-Cutting Technical Skills
- Machining & Metalworking
- Welding
- Automation
- Construction
- Die Casting
- Fabrication
- Fluid Power
- Lean
- Mechatronics
- Quality
- Transportation, Distribution, & Logistics
- Technology & Engineering

The Institute is currently developing certification pathways for the following sectors:

- Aviation & Aerospace
- Bioscience

Connecting curricula and programs of study to these industry-recognized credentials streamlines training time for students who have earned these credentials. The college is assured that students with these credentials have the competencies required and can issue credit for prior learning knowing that it was based on objective criteria that is accepted in the manufacturing industry.

Veterans may have acquired similar skills and competencies during their military experience. As was discussed previously, military skills badges make it easier to translate Military Occupational Specialty codes (MOS) to civilian positions in manufacturing. These badges provide insight into competencies earned in the military and thus can be used to award credit for prior learning.

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OTHER INFORMATION ON WORKING WITH VETERANS

FAQs

Develop FAQs for student veterans that answer the following questions:

- Where do I go for veterans' services, assistance, and information?
- How do I become eligible for veterans benefits?
- How do I initiate veterans' benefits?
- How can I certify my student enrollment?
- Who is the campus certifying official?
- What VA benefits are available to dependents of veterans?
- How long does it take to receive VA benefits?
- What if I am called to active duty and I have already paid registration fees and/or enrolled in classes?
- How do I notify the college when I am ready to return to school?
- Am I eligible for priority enrollment?

Student Veteran Organizations

- Provide support and advisement for student Veteran organizations
- Encourage student Veteran organizations to attend conferences and events with other organizations
- Facilitate meetings with student Veteran organizations from other nearby institutions

Support Services

- Offer admissions support, orientation, financial aid, housing and logistics, advising and mentoring, and learning communities; and provide current information on education benefits for Veterans
- Work-Study through the VA
- Provide a welcome packet of information
- Offer Learning Communities just for student Veterans
- Offer Academic Tutors just for student Veterans
- Offer emergency money for Veterans awaiting benefits
- Veterans Resource Center
- A visible resource center with lounge, computers/printers, Vocational Rehab (away from Registrar's or certifying official)
- Obtain Input from Student Veterans

Offer Continuous Contact with Student Veterans

Be highly visible to student Veterans, military service members, and their family members with at least one readily identifiable staff member to serve as an institutional point of contact (POC) to coordinate services, provide advice, and advocate for students with issues related to their military status and student status.

EDUCATORS

Offer a Specific Course for the Transition

This seminar is designed to help student Veterans, active duty military, and their family members become academically and personally successful while examining transitions from military life to civilian life and studying the history of Veterans in the United States.

Tracking Students (Veterans, Active Military and Dependents)*

Ask the following question on application:

Are you:

- a Veteran
- on Active Duty Military Service
- part of the National Guard or reserves
- a spouse or military dependent

Track the student from the time they submit an application through graduation (and if possible, employment)

Implement Enhanced Web Site for Veteran Students

Acknowledging Student Veterans

Provide a Student Veteran patch and ask them to display it proudly on backpack, etc.

Provide graduation cords for Veterans including graduates, faculty and staff

Offer a dedicated scholarship for student Veterans

EDUCATORS

Other Resources

National Association of Veterans Program Administrators (NAVPA) – promotes professional competency and efficiency through an association of members and others associated with and involved in Veterans education assistance programs. www.navpa.org/index.html

American Council on Education (ACE) Online Toolkit for Veteran Friendly Campuses – provides a Toolkit for Veteran Friendly Campuses is an online collaborative resource designed to help colleges and universities build better programs for student veterans. The toolkit highlights promising practices including Veteran-specific orientations, on-campus Veteran service centers, prospective student outreach efforts, faculty training, and counseling and psychological services tailored to student Veterans. It also includes video clips, profiles of student Veterans' programs across the U.S., and a searchable database of tools and resources. <https://vetfriendlytoolkit.acenet.edu/Pages/default.aspx>

American Council on Education (ACE) Military Credit Guide – presents ACE credit recommendations for formal courses and occupations offered by all branches of the military. All recommendations are based on ACE reviews conducted by college and university faculty members who are actively teaching in the areas they review. Courses and occupations can be searched using the ACE identification number, military course number or title, training location, dates completed, or subject and level. New courses and occupations are continually being evaluated by ACE, and these entries are added on a daily basis. The Military Guide includes all evaluated courses and occupations from 1954 to the present. www.acenet.edu/news-room/Pages/Military-Guide-Online.aspx

Institute for Veterans and Military Families - leverages higher education to design, develop and deliver world-class educational programs for Veterans, their families and community stakeholders. The institute's educational programs are designed to provide Veterans and their with the skills needed to be successful in education, work and life. www.vets.syr.edu/education

VetNet – provide information on transitioning from military to civilian life presents unique challenges. To make things easier and provide structure, a few of the leading organizations in Veteran career development have combined forces to create one, easy place to start. www.vetnethq.com

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General Benefit Information

- [Veterans benefits timetable](#)
- [VA benefits for servicemembers](#)
- [VA benefits for servicemembers entering the Physical Evaluation Board](#)
- [Benefits delivery at discharge](#)
- [Guide to choosing the right GI Bill](#)
- [Calculate your benefits](#)
- [Frequently asked questions about the GI Bill](#)

Education and Training for Veterans

- [Factors to Consider When Choosing Which GI Bill Benefit to Use](#)
- [Chapter 33 – Post-9/11 GI Bill](#)
- [Post-9/11 GI Bill - General Information](#)
- [Post-9/11 GI Bill - Eligibility and Payments](#)
- [Post-9/11 GI Bill - Marine Gunnery Sergeant John David Fry Scholarship](#)
- [Post-9/11 GI Bill - Transferability of Benefits](#)
- [Post-9/11 GI Bill - Study Abroad](#)
- [Post-9/11 GI Bill - School Responsibilities](#)
- [Post-9/11 GI Bill - Yellow Ribbon Program](#)
- [Chapter 30 - Prior active duty veterans \(Montgomery GI Bill\)](#)
- [Montgomery GI Bill – Active Duty – Chapter 30](#)
- [Montgomery GI Bill – Selected Reserves – Chapter 1606](#)
- [Reserve Educational Assistance Program \(REAP\) – Chapter 1607](#)
- [Chapter 31 - Service connected disabled veteran with a disability status or more \(Vocational rehabilitation\)](#)
- [Chapter 35 - Dependents, widows, and widowers](#)
- [Post-Vietnam Veterans' Educational Assistance Program \(VEAP\) – Chapter 32](#)

Dependents' Educational Assistance

For information on dependents' eligibility for benefits and their period of eligibility, and to find out how to apply, please see the summary of benefits for Survivors & Dependents Assistance.

- [Veterans Affairs pamphlet on assistance for survivors and dependents](#)
- [Current payment rates for educational assistance to survivors and dependents](#)

SECTION 3:
MANUFACTURERS

MANUFACTURERS

More than 82 percent of manufacturers report they cannot find people to fill their skilled production jobs. Meanwhile, thousands of service men and women return home each month, possessing not only an unmatched work ethic but also rigorous technical training and experience. Supporting veterans in their efforts to re-connect to employment is good for the country and good for the economy.

Hiring veterans is also good for your manufacturing business! There are plenty of reasons to hire veterans. Here are ten, courtesy of the Department of Labor:

1. **Accelerated learning curve:** Veterans have the proven ability to learn new skills and concepts. In addition, they can enter your workforce with identifiable and transferable skills, proven in real-world situations.
2. **Leadership:** The military trains people to lead by example as well as through direction, delegation, motivation, and inspiration. Veterans understand the practical ways to manage behaviors for results. They also know the dynamics of leadership as part of both hierarchical and peer structures.
3. **Teamwork:** Veterans understand how genuine teamwork grows out of a responsibility to one's colleagues. Military duties involve a blend of individual and group productivity. They also necessitate a perception of how groups of all sizes relate to each other and an overarching objective.
4. **Diversity and inclusion in action:** Veterans have learned to work side by side with individuals regardless of diverse race, gender, geographic origin, ethnic background, religion, and economic status as well as mental, physical, and attitudinal capabilities.
5. **Efficient performance under pressure:** Veterans understand the rigors of tight schedules and limited resources. They have developed the capacity to know how to accomplish priorities on time, in spite of tremendous stress. They know the critical importance of staying with a task until it is done right.
6. **Respect for procedures:** Veterans have gained a unique perspective on the value of accountability. They can grasp their place within an organizational framework, becoming responsible for subordinates' actions to higher supervisory levels. They know how policies and procedures enable an organization to exist.
7. **Technology and globalization:** Because of their experiences in the service, veterans are usually aware of international and technical trends pertinent to business and industry. They can bring the kind of global outlook and technological savvy that all enterprises of any size need to succeed.
8. **Integrity:** Veterans know what it means to do "an honest day's work." Prospective employers can take advantage of a track record of integrity, often including security clearances.
9. **Conscious of health and safety standards:** Thanks to extensive training, veterans are aware of health and safety protocols both for themselves and the welfare of others. On a company level, their awareness and conscientiousness translate into protection of employees, property, and materials.
10. **Triumph over adversity:** In addition to dealing positively with the typical issues of personal maturity, veterans have frequently triumphed over great adversity. They likely have proven their mettle in mission critical situations demanding endurance, stamina, and flexibility.

WHY MANUFACTURERS SHOULD HIRE VETERANS

MANUFACTURERS

Those who have served in armed forces bring a whole new world of acronyms and often confusing job titles to their resumes. They don't always clearly explain what they did as they executed actions in faraway places under duress. They know what they did but putting it into the right words so that prospective employers can relate to it is a different story. Also, the levels of responsibility they have held are phenomenal and can be intimidating to say the least. After all, the stakes in their end game involved life and limb, literally. Finally, there is the negative and oft ill-informed press concerning PTSD, traumatic brain injuries and the general disconnect between the military and civilian cultures. With all these unknowns, stereotypes, and disconnects, you can understand the importance of finding the right words and asking the appropriate questions.

There is an abundance of resources to support employers in their efforts to hire veterans. Tools and resources often support different business function from Senior Leadership to Human Resource to Corporate Philanthropy, all company resources can be leveraged to increase and improve success. A full set of company resources can be found on line at the Institute for [Veterans and Military Families](#).

When hiring veterans, common sense interview practices are recommended. Here are some tips:

- Prepare your questions for the job interview in advance.
- Read over the candidate's resume carefully before the interview.
- Ask the same questions of every candidate, regardless of whether they have served in the military or not.
- Keep the questions you ask legal and ethical.
- Stay up-to-date on the laws.
- Don't discriminate against anyone in theory or in practice. The Equal Employment Opportunity laws and regulations prohibit discrimination against applicants on the basis of age, race, color, religion, sex, disability, national origin, marital status or sexual orientation.

Don't ask:

What type of discharge did you receive from the military?
Are you physically or mentally disabled?
Do you have any brain injuries?
Did you get hurt in combat?

Will you be deployed anytime soon?
Do you have PTSD?
Do you see a psychiatrist?

Instead ask:

How does your military experience relate to the job description?
What did you do in the military?

Can you tell me about your training and education?
Can you do the minimum requirements for this job? Explain.

Asking veteran applicants questions about their disability is illegal according to the [Uniformed Services Employment and Reemployment Rights Act](#) and the [Americans with Disabilities Act](#).

MANUFACTURERS

Job Descriptions and Job Ads

In order to attract veterans to jobs in manufacturing, it's important to align job descriptions and job ads to military terminology. Skills translators and military badges, described later in this section, are great resources. This alignment shows veterans directly that their military skills and experience are relevant to manufacturing jobs and careers.

Veteran Organizations

There are several ways to connect with organizations that help veterans transition to civilian life. Below are four national resources—may have local affiliates.

The [National Resource Directory](#) is a federal government website that connects wounded warriors, service members, veterans, families and caregivers to thousands of services and programs at the national, state and local levels that support them during recovery, rehabilitation and reintegration. Visitors to the website can find information on topics such as post-traumatic stress disorder, military and Veterans' benefits, health care, educational opportunities, homeless assistance, employment and much more. Throughout the past few months, more than 60 new resources have been added to the NRD, bringing the total number of resources that can be accessed from the site to nearly 15,000.

The mission of the Department of Veterans Affairs www.va.gov is to fulfill President Lincoln's promise "To care for him who shall have borne the battle, and for his widow, and his orphan." by serving and honoring the men and women who are America's veterans. Veterans of the United States armed forces may be eligible for a broad range of programs and services provided by the VA.

Veterans' Employment and Training Service serves America's veterans and separating service members by preparing them for meaningful careers, providing employment resources and expertise, and protecting their employment rights.

[Contact an American Job Center near you](#)

[Contact your State's Director for Veterans' Employment and Training \(DVET\)](#)

To help even more veterans and military spouses make the transition to civilian employment, the U.S. Chamber's Hiring Our Heroes, U.S. Department of Veterans Affairs, the U.S. Department of Labor, and the Department of Defense, the U.S. Army's Army Career and Alumni Program, Soldier for Life, and Installation Management Command, and local government agencies and chambers of commerce have adopted a new approach: every member of the armed forces will start preparing for their transition months before they leave - they'll be drafting resumes, attending job fairs and summits like this one, applying for college if they want, and mapping out their next steps well before they hang up their uniform.

MANUFACTURERS

The tool, a new Online Veterans Employment Center, supports transitioning service members, veterans, and their spouses looking for new career opportunities. The new Employment Center helps simplify the job search process by providing a single website which brings together the most important online career tools within government. This tool is a result of collaboration between the Department of Defense, Department of Labor, Office of Personnel Management, Small Business Administration and the Department of Veterans Affairs.

A “military skills translator” is available to match military career tracks with civilian occupations and critical skills, create and upload a resume online, and find public and private job openings in a single search. Employers are provided with a direct feed of resumes from Veteran applicants, can view reverse skills translation (military to civilian skills) for applicants, and can make public their own Veterans hiring goals.

Veterans will have access to:

- Quick public resume posting with an instant connection to thousands of public and private employers
- Target job searches based on specific, high-demand career paths
- Single search for both public and private sector positions
- Military skills translator and resume generator
- Social media integration with bookmarking capability for saving job postings

Employers will have access to:

- Targeted feed of qualified resumes from Veteran applicants
 - Reverse skills translation (military to civilian skills) for applicants
 - Showcase their Veterans hiring goals and make public their progress towards those goals
 - Connection to resources designed to help recruit and retain talented, Veteran employees
- The Veterans Employment Center can be found at: <https://www.ebenefits.va.gov/ebenefits/jobs>

Engaging Veterans at Work

An industry “best practice” has been the creation of veteran affinity groups in the workplace. This allows veterans to get together regularly (typically monthly or quarterly) to connect with other veterans at work. This provides a valuable peer group which increases retention. Internal mentoring programs, where veterans support other veterans in the workplace, are also effective in this regard.

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TRANSLATING MILITARY SKILLS TO JOBS

Words matter. Sometimes it can be difficult to align military skills and experience to manufacturing job requirements. Two tools are available to assist manufacturers with this task.

Skills Translators

Skills translators are used to convert military skills, experience and training to jobs. These tools are available via Military.com, Feds for Vets, and VA's Veterans' Employment Center. Veterans are using these tools to map their military experience to manufacturing positions. Colleges/universities should be aware of these tools which can also be used to map military experience to programs of study. (see Veterans section for more information on skills translators)

Military Skills Badges

Like skills translators, badging systems map military skills and experience to civilian jobs. The Manufacturing Institute worked with Futures Inc. to create a digital "badge" system, making it easier to translate Military Occupational Specialty codes (MOS) to civilian positions in advanced manufacturing. <http://www.getskillstowork.org>.

The US Manufacturing Pipeline is providing the following digital badges:

- CNC Machine Operator
- Electronics Assembler
- Logistics Analyst
- Machinist
- Maintenance Technician
- Materials Handler
- Mechanical Engineering Technician
- Pipe Fitter
- Process Technician
- Production Technician
- Welder

These badges provide insight into competencies earned in the military and thus can be used to award credit

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for prior learning.

Local educational institutions that serve veterans provide a pipeline of qualified job candidates.

The Veterans' Administration has developed the WEAMS Institution search tool to locate the colleges and universities, vocational institutions, flight schools, and other educational facilities with programs that are approved for VA benefits. This tool is used by returning veterans and may be a useful resource for manufacturers, as well.

In addition, www.militaryfriendlyschools.com provides a tool that identifies colleges and universities that are considered "military friendly." Now in its 4th year, the G.I. Jobs team approaches 12,000+ VA-approved schools, and asks them to participate in an annual survey, at no cost. The survey and resulting list are the leading resource for military personnel, veterans, spouses, and military dependents seeking schools that provide the most value for military students. The G.I. Jobs Military Friendly Schools® list is determined mathematically from data obtained via school survey submissions. Each year the top 15% of schools from our survey are selected to appear on our list and are awarded the coveted Military Friendly Schools® designation.

Local community colleges, four-year colleges and universities, and other technical training centers that offer manufacturing programs are a great source. The following link provides a locator for community colleges <http://www.aacc.nche.edu/pages/ccfinder.aspx>.

Faculty and staff at local community colleges, four-year colleges and universities and technical training centers can provide information on their programs and students who are near completion. Faculty are often looking for industry partners to serve as adjunct faculty, on advisory groups, sponsor internships or other work experiences. Contact your local schools and form a partnership that can be mutually beneficial!

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OFFERING WORK EXPERIENCES TO VETERANS

Work experiences are extremely effective in demystifying today's modern manufacturing environment for veterans. They also provide exposure to the great jobs and careers available in manufacturing. There are four avenues available for offering these work experiences: using third party employment agencies, direct hiring, internships, or registered apprenticeships.

Third party employment providers as a resource

In order to source and prequalify candidates quickly, manufacturers can use the services of third party employment or staffing agencies. Staffing agencies perform recruitment and selection processes for organizations that don't have the time, expertise or resources necessary to manage the employment processes. Some staffing agencies provide temporary workers, and others provide candidates for temp-to-hire arrangements. Regardless of the employment type, there are certain advantages to employers' use of staffing agencies, including expertise, cost, availability of workers and employee retention.

Expertise

Staffing agencies often have a level of expertise that far exceeds some employers' human resources departments. Hiring recruiters, employment specialists and an employment or recruiting manager to supervise staff could require a lengthy recruiting period to find qualified employees. Staffing agencies provide services that rival the best qualified recruiters and employment specialists, usually at a lower cost. Employees of staffing agencies generally have a higher level of expertise related to job knowledge, employment trends and recruitment practices by virtue of continuous placement of employees. They also have industry expertise if they work for staffing agencies that specialize in certain fields, such health care providers.

Cost

Using staffing agencies can result in lower costs associated with hiring adequate staff to recruit applicants. However, because staffing agencies manage the entire employment process, they also relieve employers of costs related to pre-employment testing, background investigations and drug screening. In addition, employers save money related to the expense of payroll processing and benefits administration. Small employers find that they can rely on staffing agencies to provide them with qualified employees at remarkable savings.

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It is best to work with a reputable and local staffing agency that works specifically with veterans and understands manufacturing jobs.

Direct hiring

Local employment American Job Centers (AJC), funded by the Department of Labor, agencies can be a valuable resource in identifying and hiring veterans. The following link will help you locate a local AJC: <http://www.careeronestop.org/disasterrecoveryervices/findos/>

There are many online job boards that highlight specific outreach to veterans. Below is a list of some of those resources:

www.militaryhire.com

www.ustechvets.org

www.fedshirevets.gov

www.dol.gov/vets/

www.hireherosusa.org

www.vetjobs.com

www.va.gov/jobs/

www.usmanufacturingpipeline.com

In addition, the link below provides a list of Veteran Employment Program Offices responsible for promoting Veterans' recruitment, employment, training and development, and retention within their respective agencies. Veterans are encouraged to contact these individuals listed for specific information on employment opportunities in those agencies.

<http://www.fedshirevets.gov/agencydirectory/index.aspx>

Local community colleges, four-year colleges and universities, and technical training center also provide job placement services to their students.

College credit for work experiences

Colleges, universities and technical training centers frequently embed work experience into program requirements. This is most often done via internships or cooperative work experiences.

Internships

Internships normally carry college-credit and/or may be a required completion experience. Manufacturers find internships valuable because it provides them the opportunity to see if a prospective employee (student) has the necessary knowledge, skills and abilities. Internships provide students will valuable work experience that can be documented on resumes. Internship experiences require faculty involvement to ensure stated learning outcomes are met.

Cooperative Work Experiences

Area manufacturers may wish to hire students on a part-time basis that are not connected to an internship or apprenticeship. These are considered cooperative work experiences because there is no formal educational component attached to the job.

Registered Apprenticeships

As defined by the Employment and Training Administration, apprenticeships provide an "earn and learn" training model with

JOINING FORCES

From the White House to the executive office of America's companies, public and private sectors are joining forces to support veterans in transition. In support of this effort the President launched Joining Forces. Joining Forces is a national initiative to engage all sectors of society to give our service members and their families the opportunities and support they have earned. Since the first days of the Administration, First Lady Michelle Obama and Dr. Jill Biden have met with military families, learned about their successes and challenges, and made it their priority to support them.

Joining Forces creates opportunities for all Americans to step up and show their gratitude to our service members and their families. Through this effort, Mrs. Obama and Dr. Biden are asking Americans to do more for those who have done so much for us. They are asking Americans to get involved in any way they can.

Primary Objectives of Joining Forces

- Bring attention to the unique needs and strength of America's military families.
- Inspire, educate, and spark action from all sectors of society -- citizens, communities, businesses, nonprofits, faith-based institutions, philanthropic organizations, and government -- to ensure veterans and military families have the opportunities, resources, and support they have earned.
- Showcase the skills, experience, and dedication of America's veterans and military spouses to strengthen our nation's communities.
- Create greater connections between the American public and the military.

Joining Forces' Employment Priorities

- Promote expanded employment and career development opportunities for veterans and military spouses.
- Highlight the workforce potential of veterans and military spouses.
- Educate employers about the need to create military family-friendly workplaces.
- Work to reduce or eliminate licensing and credentialing barriers.

To learn more and get connected please go to: <http://www.whitehouse.gov/joiningforces>

OTHER INITIATIVES

The U.S. Department of Energy, in collaboration with the Office of the Secretary of Defense's Manufacturing Technology Program, Oak Ridge National Laboratory, Pellissippi State Community College and Oak Ridge Institute for Science and Education offers the EERE Advanced Manufacturing Internship Program. Participants are given accelerated hands-on learning experiences in a variety of advanced manufacturing specialties. For more information visit: <http://www.oraui.org/ami/index.html>.

GET SKILLS TO WORK

More than 80 percent of manufacturers report they cannot find people to fill their skilled production jobs. Meanwhile thousands of service men and women return home each month, possessing not only an unmatched work ethic but also rigorous technical training and experience. The Manufacturing Institute joined GE, Boeing, Lockheed Martin, Alcoa and other partners to launch the Get Skills to Work coalition. The coalition aims to train military veterans for advanced manufacturing careers, bolster the talent pipeline and enhance American competitiveness.

Get Skills to Work is helping our service members translate military experience to the specific skills needed in the industry, and train for the skills they do not yet have.

With over 500 small-, medium-, and large-sized manufacturers, including Boeing and Lockheed Martin, along with academic and not-for-profit partners, the coalition has issued a goal to reach 100,000 veterans by 2015.

Get Skills to Work has two key goals:

- Matching veterans' skills to civilian job responsibilities to support direct hire into manufacturing, and
- Accelerated training so veterans can quickly up-skill and be prepared for manufacturing careers.

Not only will this initiative give new opportunity to our heroes returning from active duty, but it will also support the skilled workforce needed in today's advanced manufacturing industry.

How It Works

Get Skills to Work is designed to help employers understand the skills veterans possess and create opportunities to improve those skills when necessary. There are several methods that can help you translate the military experience veterans already have, and the skills they are obtaining, into the positions you need filled.

To learn more and get connected please go to: www.getskillstowork.org

