Content Evaluation 2017
For
New England Institute of Technology Shipbuilding/Marine Trades and Advanced Manufacturing Institute

Trade Adjustment Assistance Community College and Career Training (TAACCCT) IVGrant

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Evaluation Process

Overview:

This evaluation is based on the 2017 performance year for the Trade Adjustment Assistance Community College and Career Training Grant IV awarded to New England Institute of Technology (October 01,2014 through September 30, 2018). This is the third evaluation conducted by NEIT/SAMI program for this grant. The intent of this independent review is to examine the deliverables defined under Activity I and II of the grant.

Method:

The evaluation/assessment of the TAACCCT IV grant for curriculum and recruitment involves two components: quantitative analysis of program enrollments, retention and completion and qualitative analysis of the program content including recruitment, curriculum and placement services provided through interviews, class observation and focus groups.

Data Collection:

Information for this report was collected from three sources. First, the program administration and faculty provided documents and materials from the curriculum, marketing, recruitment and employer engagement components of the SAMI program. Second, interviews with faculty and staff (administration, pipe welding, shipfitting, machine operation and CNC programming) occurred in December 2017. Finally, focus groups were conducted with completers and employers on December 7, 2018.

Activity #1: Develop and Implement Stackable/Latticed Industry-Credential Course for Shipfitting, Industrial Maintenance Technician, Pipe Welding and Robotics

The SAMI team amended the industry training areas to reflect the needs of the local industries and provide advanced instruction and competency development for CNC Programming and pipe welding employment preparation. The original proposal included Industrial Maintenance Technician, upon review with local businesses, the leadership team determined that this industry was not a high demand area. However, through the interactions with the industry partners and workforce development agencies, the program offerings were expanded to include advanced manufacturing (specifically machine and CNC operation).

Part I: Industry relevancy, program content quality

Program employer engagement in curriculum development (task # 2) scheduling course offerings (task #3) and roll out for all programs in June 2015 (task #4) were completed by the team in the first year of grant funding (see first evaluation report).

SAMI is currently (March 2018) offering programs for:

- shipfitting, pipe welding,
- machine operation and CNC programming,
- Robotics.

Initial review of the developed curriculums (see 2016 evaluation report) found direct connections between teaching content and industry application. In 2017 the programs made a number of additions and adjustments to reflect the current needs of the employers. A few of the programs offered are specifically tailored to meet industry partner needs which support the transition to a sustainable model for a responsive labor focused training program.

<u>New curriculum and instructional features include:</u>

- <u>Shipfitting/Pipe welding:</u> The instructors report advancing the blueprint reading component of the program in response to employer feedback. The instructors are able to use redacted blueprints from the employers due to their strong partnership (these documents are often proprietary). The blueprint reading component directly connects to the welding tasks in the simulated spaces providing a coherent learning experience specifically related to the industry application. The instructor and employer documented this learning process through a 'work package' approach and completed an updated curriculum Shipfitting 101.

- Shipfitting lab: This lab consists of markup spaces set to resemble the spaces inside a submarine. The eight cells are specifically measured, providing a simulated work situation where participants can develop their shipfitting skills.

- Shipfitting Curriculum Updates: Students now complete 8 projects where they are guided through the build (find correct piece, match to blueprint) to install (measure, locate and secure piece in lab). Students are also learning how to tack weld.

- Pipe welding: In 2017, SAMI added welding booths specifically made for the program. Additionally, the welding instructors developed 'testing' stations where participants work can be stress tested to examine the quality of the welding work. Participants progress through the program based on acquired competencies, and faculty provide specific individualized instruction based on areas of need. In addition, the SAMI program added 20 additional hours of steel welding and grinding specifically in response to industry need. The base welding curriculum program added a new piece of equipment allowing them to cut (and repair) pieces. Additionally, the instructors built a structure simulating tight spaces which welders in the field need to be able to access and work in.

- Robotics: The robotics program is focused on the robotic aspects of welding. The operation of the tabletop welding robots was established through the SAMI program The instructors for the program originated with SAMI (from industry) . Robotics is currently offered in two areas:
    A. NEIT's Automation Course
    B. Wolfpack training course (manufacture's program)

  Both sections were selected, customized and approved by Electric Boat as the robotic training they wanted for their employees. Section A was taught by NEIT staff and Section B was taught by a combo of NEIT and Electric Boat staff.

- Machine Operation/CNC Programming: In response to employer and completer feedback, the manufacturing program expanded the CAD/CAM instruction component. An additional staff member was added. The program introduces students to MasterCAM in addition to Solidworks. Machine operation instructors also shifted the learning activities in the machine program in response to student feedback (meaningful work versus projects). The program now has the participants tool a topper hammer instead of a chess piece. The finished product is something they then use in their work. Students work progresses from creation of individually machined parts to a functional moving product (steam engine). This process engages participants in skill development on both lathe and mill machines. Reading prints, attention to detail and accuracy are all integral parts of the learning process.

- Expanded Machine/CNC applications: The machine operation component of the program added three (second hand from industry partners) machines, a D grinder, Sharp Milling Machine and Bridgeport Milling Machine. In the CNC program, a multi drill Bridgeport V480 and E-Series by Okuma lathe were added. As of December of 2017 the multi drill was up and running expanding hands on access to equipment for participants in FANUC controls. The FANUC controls are widely used throughout the region and job skill relevant.

- Industry Informed content: In previous years SAMI faculty worked closely with industry partners on curriculum development. This trend appears to have continued and dramatically expanded with specific industry partners. Currently, SAMI faculty work directly with industry partners for curriculum revisions, industry applications and instruction. This year, Electric Boat stationed an employee at the SAMI program. Additionally, SAMI faculty and staff are able to access the production floor at the Quonset facility. This has resulted in a new aspect of the industry partnership program for inside/outside machine application.

- Participant Responsive Instruction: SAMI expanded instruction in mathematics and blueprint reading in response to student learning needs identified in the lab environment. Instructors noted upon evaluation of student work, that understanding of these two academic areas were lacking. In response, SAMI added instructors for both of these areas.

Summary Part I: Industry relevancy, program content quality[1]

The curriculum for shipfitting, pipe welding, machine operation and CNC programming have continued to evolve based on industry feedback and strengthening relationships with the partners. The creation of the simulation lab space, industry specific projects and revised student tasks reflect the programs commitment to maintaining relevant and current instructional content. Additionally, SAMI added equipment for both the welding and machining options. Participants can complete up to 400 hours of instruction. Instructors begin working with employers when students are roughly 2/3 of the way through their program to start job matching SAMI participants with open positions. This process allows the instructor to provide additional training for company specific skill sets resulting in higher employer satisfaction (see focus group feedback).

[1] The Robotics option offered in conjunction with SAMI has been fully integrated into the New England Institute of Technology associates degree program offerings, as a result, the application to industry or evaluation of the curriculum was not part of this review.

Part II: development of stackable or interlocked certificates that could lead toward an associate's degree (task #6) and employer recognized credentialing (task #7).

As of March 2018 SAMI offers students articulation options for:

Shipfitting = Welding Engineering Technology (WEL) associates degree.

- WEL151, Industrial Welding I (SMAW) – 3 cr.
- MT 114 marine Welding and Cutting – 2 cr.
- MT 260 OSHA Marine Industry Safety – 3 cr.

Pipe welding extension = Welding Engineering Technology (WEL) associate degree program.

- WEL151, Industrial Welding I (SMAW) – 3 cr.
- MT 114 marine Welding and Cutting – 2 cr.
- MT 260 OSHA Marine Industry Safety – 3 cr. (based on receiving OSHA 10 hour card)
- WEL 153, Industrial Welding III (GMAW) – 3 cr.

Machine Operation/CNC Programming = Advanced Manufacturing Engineering Technology (AMT) associate degree.

- MT 124 Manufacturing Processes – 4 cr.
- MT 260 OSHA Marine Industry Safety – 3 cr. (with OSHA 10 hour card)
- AMT 241 Machine Fundamentals and CNC – 3 cr.

Robotics is fully integrated into the associate's degree option at New England Institute of Technology.

Activity #2: Recruitment, Outreach, Assessment, Case Management

Part III: Participant Enrollment, Retention and Completion

Recruitment:

SAMI has an established over the grant cycle a recruitment web page, partnerships with state and regional employment service agencies, schools and the Rhode Island Unemployment Services office(s). Evidence of the outreach and recruitment activities include

- SAMI student success stories posted on the NEIT blog site https://www.neit.edu/blog/index.php/category/sami/ .
- NEIT SAMI webpage: https://cti.neit.edu/Clients/SAMI

SAMI administration established a system for monitoring and managing participant enrollment, retention, completion and employment. The system involves early outreach, orientation component, assessment of interest and aptitude, and case management services (task #16, 17, 18 and 19). Current system supported the TAACCT II grant Impact Evaluation (Fogg, Harrington, Khatiwada, 2016) specifically documenting employment and earning outcomes for SAMI II completers.

Media coverage included two visits by the Governor of Rhode Island and key workforce constituents. Graduations from the SAMI program were covered in local and state news and highlighted on social media platforms.

The staff report that they work closely with state of Rhode Island workforce and employment programs to identify new enrollees. Staff continue to work closely with these feeder organizations. Interestingly, completers who participated in focus groups (2016/2017) overwhelmingly reported that their primary method for hearing about the program was word of mouth from friends or family members.

Table 1: Participation Rates 1/01/2016 through 12/31/2018(source SAMI employment Data Records 2018)

Participants	*Shipfitting*	*Pipe Welding*	*(machine) CNC Programming*	*Robotics*
Enrolled	10	33[2]	112[3]	5
Completed	10 (100%)	32 (97%)	105(95%)	5 (100%)
Employed	6 (60%)	29 (88%)	101 (95%)[4]	4 (80%)

Enrollment:

Based on data collected from 01/01/2016 through December 31, 2018, SAMI has had 160 participants. They are currently at 80% of the targeted 200 participant mark. The SAMI program staff have noted a number of factors may have contributed to the lower recruitment numbers. These are discussed in the summary of this section.

Retention/Completion:

Of the 160 participants, eight did not complete the program resulting in a 95% completion rate as of January 1 2018. This meets the completion rate of 95% proposed in the TAACCCT IV grant. Students completing the program are recognized by industry as SAMI program completers providing them

[2] Three additional enrollees in program after December 31, 2017. Not included in this count.
[3] As of March 2018 10 additional students are enrolled in the CNC programming option not included in this count.
[4] Two completers moved out of state.

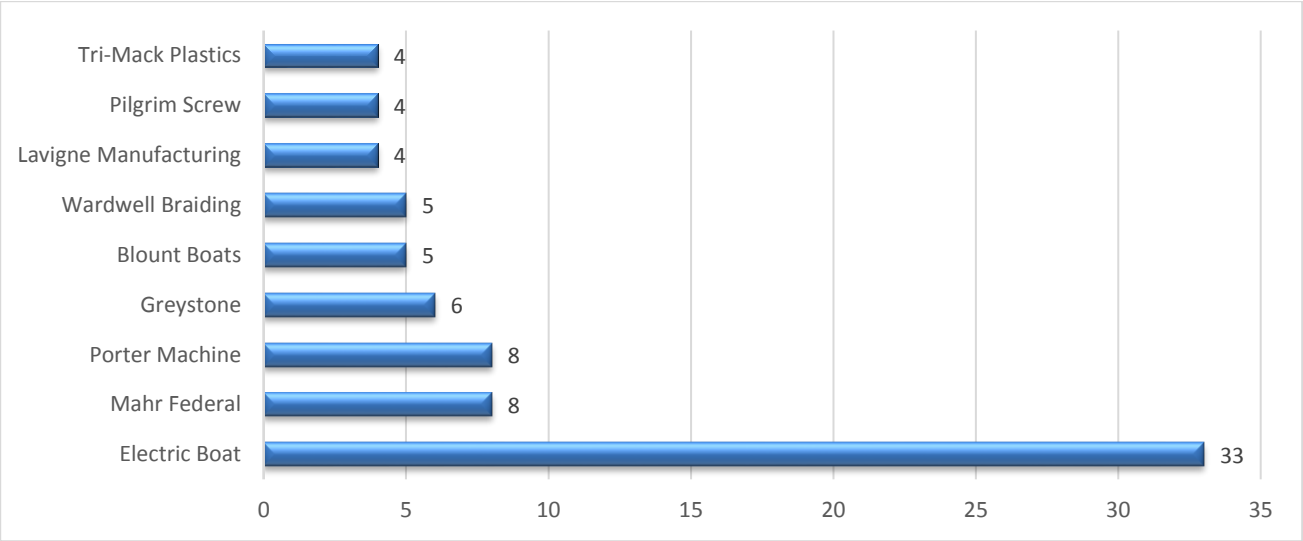
preferential hiring with a number of partner companies. Additionally, completers are able to articulate up to 16 credits (depending on the program) into associate degree options at NEIT.

Employment:

Of the 152 participants that completed their SAMI program, 140 were employed after (**92.1% employment rate)**. Additional data regarding completer outcomes from the first TAACCCT II grant can be found in the evaluation reports from Drexel University Center for Labor Markets and Policy. SAMI completers were employed by fifty-eight different employers[5]. Fifty of the Fifty-eight employed one or two SAMI completers representing 85% of the employer group. This group employed a total of 64 SAMI graduates just slightly less than half of the employed group.

The 10 top employers include partners that were engaged in the original TAACCCT II grant development and continue to be highly involved in curriculum and program review and development. The chart below shows the distribution of hires between 01/01/2017 and 12/31/2018. The largest employer, Electric Boat, is now a major player in the sustainability of the SAMI training program and directly funding post-employment training through the SAMI program.

Table 2 Companies Employing 4 or more SAMI Completers (source SAMI employment Data Records 2018)



For a full listing of the employers please go to Attachment 1.

Summary Part III: Participant Enrollment, Retention and Completion

The SAMI program is currently meeting grant expectations for retention and completion with 95% of the program enrollees successfully completing their program in machine/CNC programming or

[5] Two completers reported out of state employment without company names. The 58 is inclusive of those hires with employer names.

shipfitting/pipe welding. The programs in TAACCCT IV expanded beyond the introductory level of the trade areas and stacked credentialing skill sets through these two pathways resulting in a higher level of skill development for the TAACCCT IV participants. Despite this increase in content instruction and expectations for competency outcomes, the program was able to maintain an extremely high completer rate.

The quality of this programming is evident in the high overall employment rate of the completers (92%). Additionally, the large number of companies (10) that are employing four or more SAMI completers suggests an alignment between content instruction and value in the work place.

The SAMI program is at 80% of their targeted enrollment rates. Program administrators report that a portion of this could be due to the lower unemployment rates in Rhode Island. In 2014 Rhode Island had roughly a 9.0% unemployment rate, as of October 2017 that rate had dropped to 4.2% (Bureau of Labor Statistics, 2018). Another factor that could account for the drop in program enrollment is the increase in industry supported training efforts in the state and state funded initiatives reducing the dependency on the TAACCCT IV grant to provide all of the training. These programs heralded by the Governor during her visit to the SAMI graduation in both 2016 and 2017, are products of the SAMI program. One way to put it, 'SAMI did the job of creating sustainable workforce training programs so well, they worked themselves out of a job'. Additionally, space continues to be a challenge for programming.

To address these challenges, SAMI is running six start schedules for January, four program start dates in February and a proposed two in March. Currently SAMI is running three separate cohorts a week for these programs (7:00-3:30PM, 4:00-12:30AM, and 8:00-3:30PM). This overlap between programs can also cause some challenges in the classroom with space management. Administration continues to explore options for additional space to be able to accommodate the growing demand coming directly from employers for pre and post-employment training options.

The SAMI staff and administration focused on targeted outreach and marketing throughout the year to address enrollment goals for TAACCCT IV. Between January 1, 2017 and December 31, 2017, twenty-one presentations or informational sessions/meetings were held to promote the program with potential students and industry partners. In addition the program posted an advertisement for the program in local media venues and provided a press release celebrating the graduations and employment of the SAMI participants.

DATE	AUDIENCE
2/12/2017	Providence Journal – Sunday edition
2/24/2017	Seecon Phoenix
3/21/2017	Woonsocket High School – Cass Ave.
3/24/2017	Central Falls High School
3/28/2017	Applied Plastics Technology, Inc.
3/29/2017	South Kingstown High School

DATE	AUDIENCE
3/31/2017	New Urban Arts Institute
5/31/2017	Smithfield High School
6/1/2017	Cranston East
6/2/2017	Exeter West Greenwich High School
6/7/2017	Toll Gate High School
6/12/2017	Aquidneck Island Learning Center
6/19/2017	Project Learn
6/19/2017	Community Care Alliance – Healthy Transitions
6/19/2017	RIRAL
6/19/2017	English for Action
6/20/2017	Education Exchange
6/20/2017	South County Community Action Program – Youth Link Program
7/13/2017	Blackstone Valley Community Action Program
7/18/2017	RI Indian Council
1/13/2018	Job Fair in collaboration with Skills for RI's Future

Feedback and Evaluation by Completers and Employers

The third series of focus groups were held December 7, 2018 with employers and completers from the SAMI program. The questions mirrored those asked in the previous focus groups conducted in 2015 and 2016. In this section of the report, we summarize the feedback received from the two groups and connect specific areas to some of the program changes and advancements made over the life of the program.

SAMI Employer Focus Group

Participants: Ten employers participated representing five different companies: Electric Boat (33), Guill Tool & Engineering (2), Porter Machine (8), Mahr Federal (8) and McClellan Page (2)[6]

Question 1: How does the SAMI program assist in addressing employment needs?

The major theme that emerged focused on preparing participants for the 'real' aspects of the work. For example, one employer stated "you get your hands dirty in this business" and the SAMI program prepares them for the 'actual work'. Employers went on to comment that the basic skill sets developed in the SAMI program were valuable in the aspect that SAMI completers understood the basics. This point was brought up later in the discussion again when a number of employers emphasized the need to be

[6] Number in ( ) is the number of SAMI completers employed by the company between 01/01/2016 and 12/31/2018

able to run a manual machine (prior to CNC operation) noting that SAMI requires this preliminary skill set for all completers prior to the CNC programming piece.

The employers also suggested that the apprentice like model of the training (hands on and project based) may account for the preparation of the completers for the work. This was supported by the discussion that occurred around work ethic and focus on a task, "not being on their cell phone", that the employers felt was part of the SAMI program design.

A number of the employers mentioned their historical partnership with SAMI and extensive hiring of SAMI completers. For example, one employer has 20 employees on the machine floor. Six of those are SAMI graduates. Another employer has employed over 100 SAMI graduates over the two grant cycles. These employers likened SAMI to the 'human resource' department. "What SAMI does for us is serve in the HR role". The SAMI program not only prepares potential employees for the real aspects of the work but also serves as a screening system identifying those who would be best suited and most invested in the positions offered at these companies.

Question 2: How does the SAMI program assist with training needs?

Employers were less involved with SAMI for training existing employees or new hires. However a few employers mentioned the Real Jobs program and stated that they are involved through a transitional employment/training model with SAMI. The program allows SAMI participants to begin working and transition into work through a part pay/part on the job training model supported by the state. The company gradually assumes full salary costs.

One employer fully engages SAMI in their training needs. "We don't have the manpower nor the space/time to provide additional training on site". Through the partnership with SAMI, employees from this company are able to return to SAMI for advanced training in aspects of pipefitting and machining specific to the company's needs.

Question 3: What involvement did you (or someone from your company) have in the content development?

Three of the company representatives stated they have been involved in the program 'since the beginning'. One company was involved with getting additional equipment for the machine/CNC programming program. Another company is directly involved on a weekly bases in the curriculum and lesson plan development for pipe welding.

All of the companies reported being to the facility and having conversations with the faculty and staff around employment and training needs.

Question 4: How have you (your company) been involved in the delivery of the program?

The responses to this question blended with the previous question. One of the employers mentioned that they were about to start teaching part time in the SAMI program during the second shift. Another employer noted that they assisted with programming the CNC machines and serves on the advisory board for the program.

Question 5: What would you like to see offered in regards to workforce development and education partnerships?

Robotics: One of the areas that the employers brought up was the need to integrate machine operation, CNC programming and robotics into the program. One of the comments suggested that the robotics program should not be 'separate from the machining program' at SAMI (note currently the robotics program is part of the NEIT associate degree offerings and not specifically a SAMI training option). One employer did note that they are currently working with SAMI/NEIT to develop the robotic curriculum for the welding program. Others weren't as clear on if this connection was established or in process.

"Robotics is the future of manufacturing" another employer added. Again suggesting that the program progress from machine operation-CNC programming-robotics (note the current robotic component of SAMI focuses on welding). The progression was articulated by one employer in their statement "Take them away from a button pusher to a programmer". The point they emphasized was the ability to use their knowledge to program and set up a robotic manufacturing system that could 'run all weekend' while they went home.

Inspection: One employer suggested that SAMI consider expanding their programs to look at quality control and inspection as a skill/job area to develop.

A number of the (newer) employers expressed an interest in strengthening their partnerships and involvement with SAMI around program development and placement. One such employer summed it up as 'the supply (employers) are waning. SAMI serves as a source for the type of employee we need.

SAMI Completer Focus Group

Participants: Eight SAMI program completers participated in this focus group, seven males and one female. All were completers of the machine/CNC programming option with SAMI. Six of the seven were employed, one was enlisting in the marines. A few expressed that their first choice would have been the welding program, but were unable to get in.

Question 1: How did you hear about the program (enroll)?

The majority of participants stated that they heard about the program through friends, family or an acquaintance. Only one participant said they found out about the program through an employment

assistance agency. Two of the participants heard about the program from someone who was in SAMI and one heard about it in high school.

One of the participants stated that "I have friends who are college graduates and they can't find a job" explaining why they enrolled in the SAMI program. They researched the program on the internet and found the information they needed to apply.

50% of the focus group participants said they originally went to SAMI for welding. One stated they didn't even know what machining was (but now love it). Another stated they would like to go back for the welding program if they could.

Question 2: Describe the training and support you received through SAMI.

This question was bypassed during the focus group due to time constraints and to allow more time in regards to the application of what they learned to their current positions.

Question 3: Do you have a job through SAMI?

One student reported that they work for Lavigne Manufacturing and are working on a variety of machines including the use of robots. They reported being on the job three months and 'can run two or three machines at a time'. The company has over twenty different machines and the participant expressed excitement about the opportunity to learn how to operate them all. The aspect they liked most was the diversity and challenge.

Another student reported working at Mahr Federal operating a lathe and grinder. "I absolutely love what I do! Almost no repeat pieces".

The remaining completers reported that they work at Applitek Technology running multiple machines, McLellan Page Inc. operating a milling machine, and Guill Tool operating a lathe.

Question 4: How did the classroom training align to what you are doing in your job?

The participants were very engaged in the discussion around how their program at SAMI and specifically the skills or knowledge areas they were instructed in, were applied in their work place. Participants listed off a number of skills including XYZ and AB plains, measurement over all, machine usage with digital readouts, using precision tools, speed and feed, G code, and blue print reading. A number of students emphasized the blueprint reading skills and suggested even more could be done in that area. They also mentioned that the code writing was an important skill they used on their jobs and a few mentioned that the program should consist of more code writing (expanding on the CNC and blueprint reading pieces). One participant summed it up by saying that 'the amount of time we spend between the machine operation and the CNC programming pieces should be adjusted to have more time in CNC"

(interestingly the employers stated that the primary skill they valued was the manual machine operation).

Question 5: What are your future employment goals? Educational goals? (have these changed?)

The one student who was leaving to go into the Marines mentioned that operating a machine 'wasn't for me'. However he went on to state that the skills he learned and the certificate for the program were something that they valued, "something I can go back to if I need to".

Another participant stated they would like to 'do the SAMI welding program' if they could. Expressing their continued interest in that field.

A number of the participants mentioned that they might be interested in pursuing a program in engineering or programming in the future, but eluded that they are happy now learning all they can while on the job. Another mentioned that the company they work for does offer tuition support so they might look into that option.

At the time of this focus group, none of the completers were involved in additional training or enrolled in future course work. They were aware of the articulation programs however.

6. Anything else about the program you would like to share?

Over all the machine/CNC programming program completers participating in the focus group were pleased with the training they received from SAMI. They did have a few suggestions and reflections on the program which are highlighted here:

" I think the ratio is off between manual and CNC in the program. We spend too much time in the machine operations part"

"We (SAMI participants) got left behind some times because an instructor was out"

"Todd needs help (in regards to classroom instruction), we stand around waiting for a machine to open up"

"Training program for instructors" In reference to getting more instructors in the machine/CNC programming option.

"Not having too many people in the program"

"Separate out EB from SAMI, they have their own curriculum "

"More code writing". This statement was supported by a few other participants and another added "writing programs from scratch" and "more blueprint reading".

In regards to these comments, SAMI has hired additional staff and implemented the cohort shifts as mentioned above.

Summary of Employer and Completer Focus Groups

Overall both the employers and the SAMI completers reported that the SAMI content was highly relevant to the job. Employers repeat hiring of SAMI graduates over the past six years supports this belief. Employers continued to play a strong role in the design and delivery of the content though at unequal rates. For example Electric Boat is actively working on the welding robotics curriculum with SAMI and post-employment training options. McClellan Page a rather new partner is interested in getting more involved but hasn't as of yet (other than hiring two SAMI graduates). Another employer will be assisting with instruction twice a week in the machine/CNC programming option.

One of the emerging themes from the completer perspective was this sense of program capacity. The completers expressed a need for more lab space, equipment and staffing in the machine/CNC programming option. Additionally, they suggested expansion of the CNC programming components (blueprint reading, coding, etc.). Though the employers did suggest expansion into the robotics aspects of the manufacturing process, they also strongly supported the development of basic machine operation skills.

Overall both the employers and the completers expressed a strong appreciation for the program and the quality of the instructional content and outcome skill sets.

Conclusion:

With the SAMI initiative transitioning from DOL support to sustained programming with local, state and industry support, it is helpful to examine the program outcomes and components in regard to their relation to the overarching goals of the U.S. Department of Labor for the TAACCCT grants.

The Department of Labor website describes the broad range goal:

"..to strengthen our nation's institutions of higher education as engines of economic opportunity where adults can succeed in acquiring the skills, degrees, and credentials needed for high-wage, high-skill employment while also meeting the needs of employers in hiring skilled workers." **(DOL, 2017)**

To this end, the long-term outcomes for this initiative are to; improve participant employment and earning outcomes, meet employer demand for a skilled workforce, establish well-connected efficient systems in community/region, increase employer involvement, and provide effective training programs at community colleges with capacity to serve students (Abt, 2018).

Improve participant employment and earning outcomes

The objective of employment is the driving objective throughout the SAMI model. **92%** of the Program completers (n=160) for this review year are employed upon completion of the program.

Drexel University Center for Labor Markets and Policy conducted a comprehensive examination of the TAACCCT II SAMI participant outcomes in regards to employment, retention in employment and earning outcomes. This rigorous study using state employment records and propensity matching strategies concluded that **SAMI graduates were significantly more likely to be employed, remain employed and out earn (almost twice as likely to) their peers** (Fogg, Harrington, and Khatiwada, 2016).

Meet employer demand for a skilled workforce,

Evidence regarding the SAMI's program to meet employer demand for skilled workforce falls into two categories, one, the inclusion of SAMI in the industries hiring practices and two the expansion of industry partners and industry funded training initiatives.

SAMI is recognized by employers as a direct source for skilled employees. As one company representative stated "the supply is waning, what SAMI does is prepare people for the actual work". Employers who began working with the original program are still hiring SAMI completers. For example, **one company employs twenty SAMI graduates, representing 50% of their machining workforce**. In this year alone, ten companies hired four or more completers with Electric Boat (a founding partner for SAMI) hiring thirty-three.

A significant outcome for the SAMI program is the establishment of direct partnerships for workforce training with industry partners. SAMI now operates a fully integrated training initiative for Electric Boat to help the growing company meet the demand for skilled shipfitters, pipe welders and robotics operators. **Electric Boat recognizes SAMI as a primary partner in preparing potential employees and training current employees.** As a representative stated "we don't have the manpower or the time to do the training". This dynamic model of education/industry partnership allows for not only access to skilled entry level workers but opportunity to continue to develop their employed workforce skills to meet the increasing demands in industry.

Sixty (60) companies have employed a SAMI graduate in the past year.

Increase employer involvement

SAMI has sixty employers who hired at least one SAMI graduate this year. Of that, ten hired four or more employees from SAMI. Employers however expressed during the focus groups a number of additional ways in which they have partnered with SAMI. Specifically, Electric Boat is fully engaged in the welding robotic program development. Two other companies assisted with acquiring machines and a third

assisted with programming needed for the CNC aspect of the program. Additionally, employers are working at SAMI as part time instructors during the second shift creating a strong connection between what is needed in the work place and what is taught in the classroom.

Provide effective training programs at community colleges with capacity to serve students

The two elements in this outcome expectation is 'effective' and 'capacity'. The effectiveness of the SAMI program is evident in their rates of employment, maintained employment and higher earnings for their completers (see fogg, et. al. , 2016). Hiring patterns also support the effectiveness with a number of companies becoming 'repeat customers' employing 4 or more graduates from SAMI. Finally, the feedback from completers during the focus groups suggest a direct connection between what they learn in the program and what they use on the job (both current and 2015, 16 focus group reports).

Capacity (human resource and space) to serve is one area that the SAMI program has struggled with. This became more of an issue as the partnerships grew placing a higher demand on the classroom and lab spaces allocated to SAMI and the original staffing. One strategy employed by SAMI to address the staffing issue has been to look to the employer partners and SAMI graduates for suitable part time instructors. In regards to space, the program has expanded though it is unclear if this is sufficient to meet the needs of the students who suggested during the focus groups that they couldn't 'get on a machine' and 'waited around'.

One of the paradoxes that arises in this situation is the expectation to create partnerships and systems to 'sustain' the workforce training programs without the TAACCCT support, while at the same time, maintaining the same level of program delivery under the TAACCCT IV grant. As the SAMI program increases the partnerships with other agencies and engages directly with employers to meet employment and training needs, the demand on the resources increase.

Establish well-connected efficient systems in community/region,

Governor Raimondo has attended two of the SAMI graduations. At the 2016 graduation celebration she stated *"October is Rhode Island Manufacturing Month, so it is especially fitting to* ***recognize the key role that New England Institute of Technology plays in training unemployed Rhode Islanders for challenging and rewarding careers in advanced manufacturing,****" (October 2016, SAMI Graduation, NEIT).* This statement summarizes the focus of the SAMI administrative team to develop strong partnerships with the state and local employment service agencies as well as with the businesses. During the focus groups with employers, some mentioned the REAL jobs program and the opportunity to connect working with SAMI and these state run initiatives as a viable strategy to get skilled employees fully integrated into their workforce.

To date, SAMI has established strong partnerships and systems for workforce development with the Governors Workforce Board of Rhode Island, the Rhode Island Department of Labor and Training, The Rhode Island Foundation and the Champlain Foundations. These agency partnerships are a key component to the sustainability of the SAMI training system providing both a vehicle for businesses to access skilled workforce and training opportunities for those lacking the skills for gainful employment.

Attachment 1: Employer List for SAMI (as of 12/31/2017

Employer Name	Number
Electric Boat	33
Mahr Federal	8
Porter Machine	8
Greystone	6
Blount Boats	5
Wardwell Braiding	5
Lavigne Manufacturing	4
Pilgrim Screw	4
Tri-Mack Plastics	4
Amtrol	2
D&B Machining	2
Davis Standard	2
Goodwin Bradley Int.10/4 or Colonial	2
Guill Tool & Engineering	2
HTP	2
Maro Display	2
McClellan Page	2
New England Union	2
Out of State	2
Quickfitting Manufacturing	2
Sys. Resource Mgm	2
VIBCO	2
Yankee Supply	2
AEM Services - MA	1
American Tool	1
Applitek Technologies Corp.	1
Automated Manufacturing	1
Baystate Machine, Massachusetts	1
Belgravia Imports	1
BSM Pump Corp	1
Cap'N Jacks	1
Cimini & Associates	1
Colonial Machine	1
Colonial Tool-WI	1
Crabtree & Evelyn	1
Desco Industries, MA	1
EMI	1
Farber Industrial	1
Global Composites	1
Hi-Tech	1
Interplex Engineered Prod	1

Employer Name	Number
Judge Group/Brown University	1
Marzilli Machine	1
N.E. Steel	1
Packaging Graphics	1
Pentair	1
Qualified Resources	1
R&R Machine	1
R.Johnson Engine Sys.	1
RI Carbide	1
Romancing the Stone/Tiffany	1
Rosco Mfg.-WI	1
Safe-T-Cap	1
Saint Gobain	1
Seacon Phoenix	1
SX Industries-Massachusetts	1
The Steel Yard	1
T-Tech Machine	1
Waddington	1