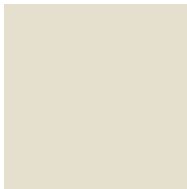
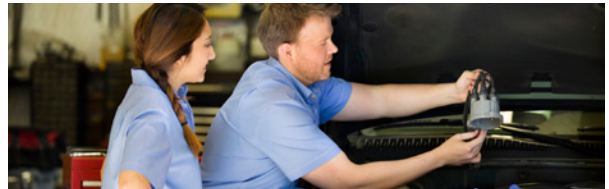
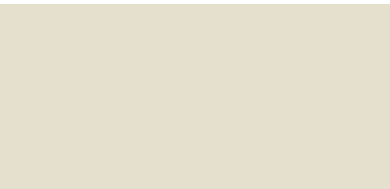
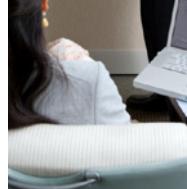


Work-and-Learn IN ACTION



Successful
Strategies
for Employers

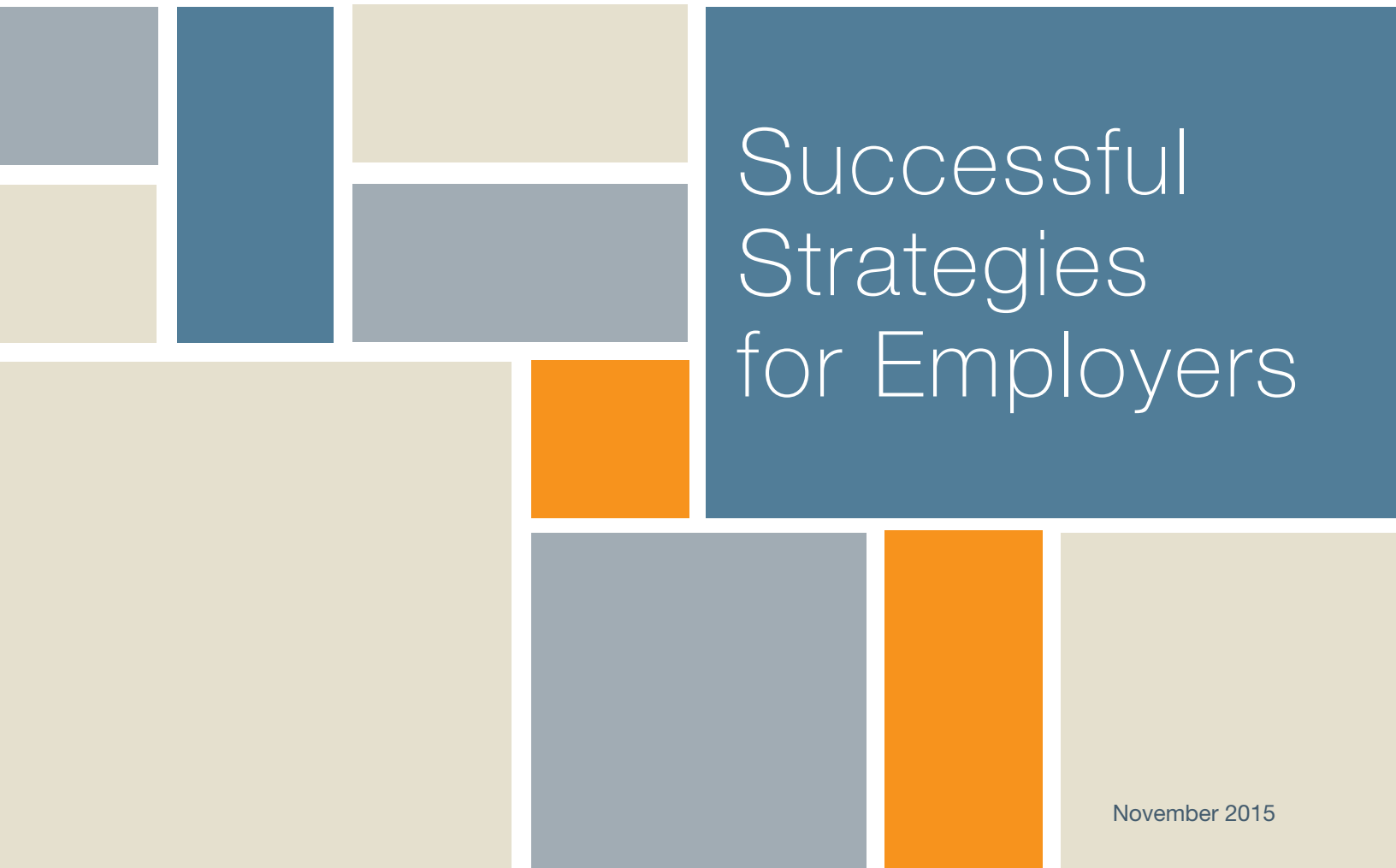




About the National Network of Business and Industry Associations

The National Network of Business and Industry Associations (National Network) is focused on better connecting “learning” and “work” to provide clear pathways to and from learning opportunities and good jobs. The National Network represents major business sectors and is funded through a collaborative partnership of Business Roundtable, ACT Foundation, the Joyce Foundation and Lumina Foundation. Members include leaders in the manufacturing, retail, healthcare, energy, construction, hospitality, transportation, professional and business, and information technology sectors. They represent the source of nearly 75 percent of projected U.S. job growth through 2020 (an estimated 30 million new jobs).

Work-and-Learn IN ACTION



Successful
Strategies
for Employers

November 2015



Preface

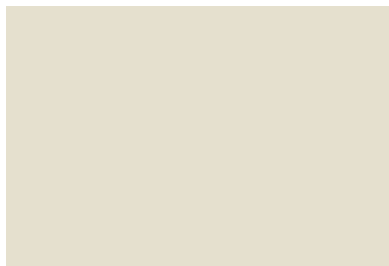
Hands-on, real-world work opportunities help students connect the dots between what they learn in school and what they will need to know to be successful in their careers. Characteristics of today's workplace make this connection more important than ever. First, today's jobs require individuals to have more specific, technical skills. Second, staffs are smaller, and employees need to be agile and respond to many tasks and changing responsibilities quickly. Third, employee demographics are changing as baby boomers retire and generations X and Y increasingly fill leadership roles. Finally, and more critically, technology changes so rapidly that there is a driving need for employees to innovate quickly and update and acquire new skills continuously.

Work-and-learn program partnerships are one solid way to surmount these challenges. Developing more work-and-learn partnerships among schools, businesses and other partners offers a clear path to giving working learners real-world experience on the job while in school. Building sustainable programs across the nation is boosting long-term learning and is a proven approach to solving the skills gap.

The following pages will introduce you to the nuts and bolts of work-and-learn and provide short summaries of programs delivering results today to businesses of varying sizes. This guide is intended to introduce employers, educators and others to a range of options along the work-and-learn continuum to help them find an approach that works for their organization and community. These programs can occur in a school, at a workplace or in the community. The models the National Network of Business and Industry Associations has chosen are yielding results and offering valuable lessons learned — paving the way to a future where work-and-learn is standard issue across the American economy.

Acknowledgments

The National Network acknowledges ACT Foundation and Business Roundtable for their support in the development of the guidebook. The National Network further acknowledges the contribution of its members and other participating companies whose time, ideas and feedback made this guidebook possible.



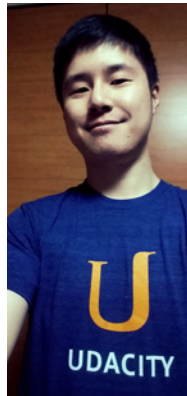


“At Permac, we do not measure the success of the program just in monetary returns. The rewards are evident in the smiles of Right Skills Now graduates who are growing the business, challenging staff to approach problems in innovative ways, and mentoring future students on the benefits of program participation and pursuing a career in manufacturing.”

— Darlene Miller, President and CEO, Permac Industries

“As AT&T moves to a software-defined, mobile-first environment, the need to develop employees with the skills to succeed and to help us succeed has never been more critical. These programs create a new and innovative way to help address a rapid overhaul of our employees’ skills.”

— Scott Smith, Senior Vice President of Human Resources, AT&T



“Gilbane’s participation in the ACE Mentor Program is a win-win. We expose young people to our industry. At the same time, our staff who mentor gain valuable work skills and enjoy the personal satisfaction of giving back to the communities where we live and work. Further, they get to network with others in our industry.”

— Thomas F. Gilbane, Jr., Chairman and CEO, Gilbane, Inc.



“Businesses must be committed to collaborating with their local communities in developing strategies to grow the next generation of local, skilled talent. Those communities with engaged businesses that focus on growing local talent will be the surviving and globally competitive communities of tomorrow.”

— Mario Lozoya, Director, Government Relations and External Affairs, Toyota Motor Manufacturing Texas, Inc.



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Closing the Skills Gap

Through Work-and-Learn Programs


Securing the right person for the right job at the right time is critical for employers operating in a highly competitive, innovation-driven global economy. Today's 21st century workforce has to be highly skilled, agile, and able to learn and adapt to changing business requirements and technologies. Yet despite this need, companies report significant skill shortages within their workforces.

According to a Business Roundtable survey of its members, which include more than 200 CEOs of leading U.S. companies, more than 95 percent of CEOs report a skills shortage within their companies. The competitiveness of U.S. businesses and the U.S. economy depends on closing this skills gap.

One proven method for companies to address the skills gap and develop a talent pipeline is to create work-and-learn programs that connect theory-based classroom instruction with career development. Work-and-learn models integrate structured education and training with

the world of work, which includes career exploration, job exposure, internships and full-time employment. Work-and-learn programs can be applied at multiple career levels and job functions and may be tailored for participants ranging from middle school students to mid-career employees.

Work-and-learn programs allow employers to help students and workers gain and demonstrate necessary “hands-on” skills, competencies and other **common employability skills** (e.g., teamwork and dependability) that are necessary for workplace success. Human resource departments can also use work-and-learn models to increase awareness of job opportunities, recruit and hire more qualified candidates, and more effectively train people to specific standards. Employees and businesses benefit when individuals weave learning opportunities throughout their careers to upgrade their skills, acquire new competencies, and apply them across multiple jobs and industries.



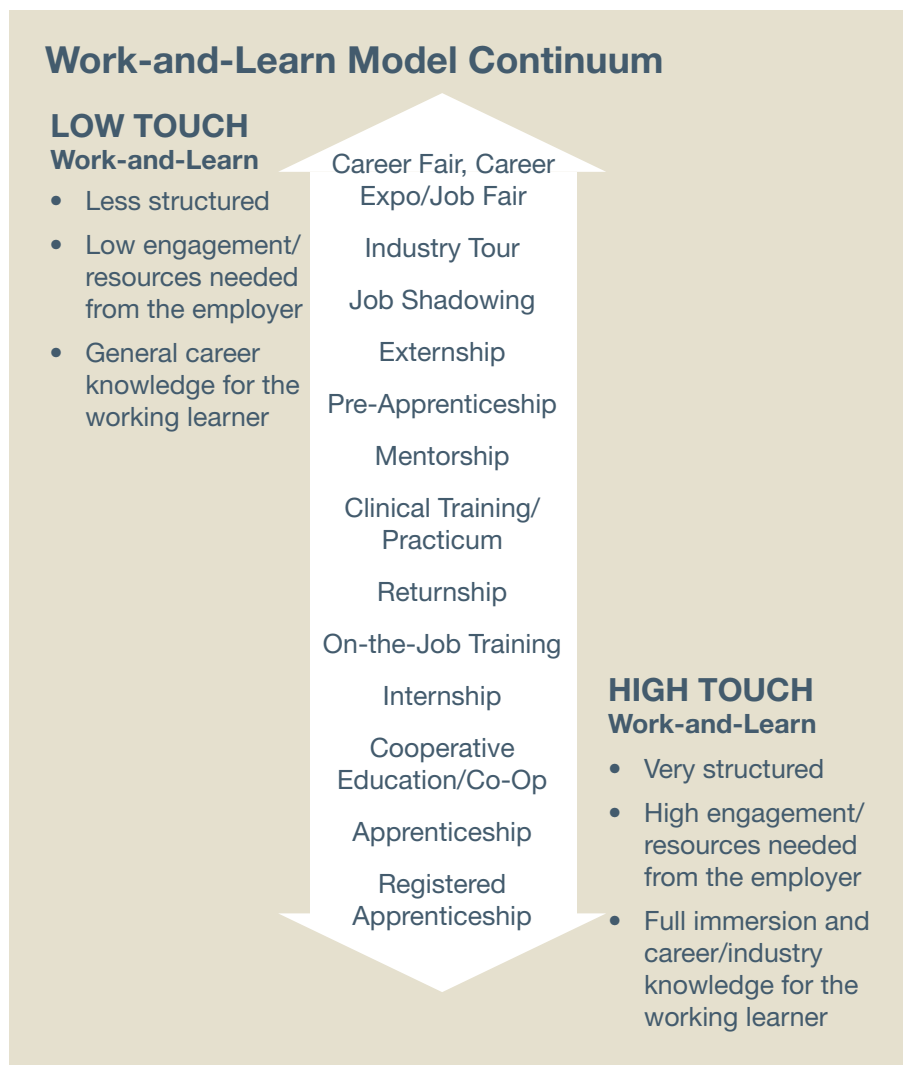
Work-and-learn models integrate structured education and training with the world of work, which includes career exploration, job exposure, internships and full-time employment.

21st Century Work-and-Learn Models

Through partnerships with community stakeholders (e.g., educational institutions, government and nongovernment organizations), businesses can implement work-and-learn models that meet their current workforce needs while also building a strong pipeline for qualified talent in the future. The models in the graphic below are some of the most common and effective work-and-learn approaches, including internships, apprenticeships, mentoring and job shadowing. These models are organized in a continuum based on the depth of the work-and-learn experience, ranging from low to high touch (general career knowledge to full immersion in an industry or career). As the business world adopts the work-and-learn framework, companies are creating unique and innovative hybrid solutions that

mix elements of these work-and-learn models to meet the needs of their companies, employees, interns and future candidates. These hybrids succeed because they adapt to the specific needs of the company and program participants.

This guidebook contains examples of successful work-and-learn models developed and fielded by businesses to help solve their individual skills gap challenges. Although the various work-and-learn models fit into the broad model categories below, each example highlighted in this guidebook is tailored to fit the company's unique needs and circumstances. The models in this guidebook cover a wide range of industries and were chosen because they are scalable and flexible, involve community



engagement (which may include participation by education institutions, local businesses, government and nongovernment agencies), and are replicable within other businesses and industries.

The most successful work-and-learn models must include elements that are valuable to both the employer and working learners. A quality work-and-learn model may include:

- Multiple funding sources;
- Competency-based learning progressions;
- Attainment of industry-recognized credentials;
- Assessments (e.g., third-party, observational, standardized) of the learning;
- Learners' acquisition of academic credit;
- An emphasis on mentorship;
- Integration of common employability skills (e.g., critical thinking, communication, teamwork) into the learning progression;
- Work elements that reflect the regional/local economy;
- Support or operation by a third party, including industry associations, chambers of commerce and community colleges; and
- Strong community partnerships among the business, industry partners, government and educational institutions.

Next Steps

The National Network and ACT Foundation are focused on identifying and promoting work-and-learn models that meet the changing needs of working learners and businesses. The National Network and ACT Foundation are engaged in research to define and deploy the next generation of work-and-learn models, such as reimagined career and technical education, e-mentorships, and simulations. Stay tuned for future editions of this guidebook that will illustrate the evolving landscape of work-and-learn and provide tools for employers to develop these models.

“Work and learning for a whole host of reasons are becoming synonymous after age 18, and they are the gold standard for youth who are transitioning to adulthood, especially in economic terms.”

— Anthony Carnevale, lead author of a **recent report** from Georgetown University's Center on Education and the Workforce recognizing the value of working and learning together

Value of Work-and-Learn

to the Employer, the Learner and the Community

Following is a list of outcomes that are most often attributed to different work-and-learn models. These outcomes are addressed in the model descriptions beginning on page 9.

Student/Working Learner

- On-the-job training and opportunities for career advancement (supervision/training/further certifications)
- Industry-recognized credentials
- Credit hours/degree
- Career awareness and exploration of available industries and occupations
- Transferable interpersonal and intrapersonal skills (leadership, critical thinking, communication, teamwork, etc.) and other common employability skills
- Relationship building with business and community representatives participating in the work-and-learn model
- Income for student
- Incentive to complete degree/education

Employers

- Long-term recruiting pipeline for talented human capital supply
- Cost-effective talent development
- Increased company visibility within the community
- Relationship building with community partners (educational institutions, government organizations, etc.)
- Capacity building at little cost (e.g., federal work-study money or volunteerism)
- Identification of demographics of potential employees in a geographic region
- Links with higher education institutions to provide guidance on teaching practices and methodologies that better align with industry needs
- Opportunities for employees to serve as mentors and in leadership roles

Questions To Consider

When Designing a Work-and-Learn Program

The National Network has compiled this guidebook to inspire businesses and industries to create new work-and-learn programs within their communities. Provided below is a list of questions to consider in the design and development of a work-and-learn program.

- 1. Program Goals and Objectives:** What are the goals and objectives of the work-and-learn model? How will the program benefit the business?
- 2. Workforce Needs and Model Selection:** What are your current and future workforce needs, and how might a work-and-learn model support these needs? Which model type(s) best align with your workforce needs?
- 3. Budget:** What is the available budget for the work-and-learn model?
- 4. Resources:** What other internal and external resources are available to the organization to develop and run the work-and-learn model (teachers, equipment, corporate partnerships, etc.)?
- 5. Alignment with Company Culture:** How will the design of the work-and-learn model align with company culture?
- 6. Employee Involvement:** Will employees value the program enough to serve as mentors/managers for work-and-learn program participants? Do you have plans to identify mentor and manager resources for the program?
- 7. Partnerships:** What groups might the business partner with or leverage to make the work-and-learn model a success? Partnerships to consider include educational institutions, for-profit organizations, government, nongovernment organizations, parents/guardians, consultants, workforce development groups, and local businesses and industries.*
- 8. Recruitment:** How will you develop an effective recruiting process to attract students and workers to the work-and-learn program? Might you leverage program partnerships in the recruitment of talented students and workers for the program?
- 9. Value to Program Participants:** Does the work-and-learn program provide students/workers with something of value (academic credits, employer recognition, credentials, etc.)?
- 10. Management Support:** Is the work-and-learn program supported by senior management?
- 11. Return on Investment and Cost-Benefit Analysis:** How will you quantify the success and return on the model?***
- 12. Program Management:** Who will manage the work-and-learn program and track its performance against established model goals and objectives?
- 13. Skills and Competency Mapping:** Have you developed a map of the skills and competencies needed for your company's jobs and a plan to teach these skills to work-and-learn participants?
- 14. Program Pilot:** Are you prepared to pilot your program with a small group of program participants?
- 15. Evaluation of the Pilot and Larger Program Rollout:** Do you have a plan to review model goals and objectives against the pilot program results? Do you have a plan to adjust program elements as needed before adding additional resources and individuals to the program?

*One resource that lists many organizations working in career education and workforce development is *A Guide to Understanding Career and Technical Education* by the Career and Technical Education Foundation.

**A number of third-party resources have been created to support the development of return-on-investment calculations for work-and-learn models. These include tools from *The Manufacturing Institute* and *Grads of Life*.



Model Profiles

OVERVIEW Work-and-Learn Models and Components

The matrix below is designed to provide an overview of the work-and-learn components included in each model profile. Identify the components of most interest to you and then select the models that feature these components. Once identified, review the profiles of these models in the guidebook to learn best practices for implementing those model components.

Model Name	Model Components												
	A	C	CE	CO	CR	CT	E	H	IT	I	M	OJT	OB
4Ps of Internships										✓	✓		
ACE Mentor Program								✓		✓	✓		
Alamo Academies		✓								✓			
The Apprentice School at Newport News Shipbuilding	✓										✓	✓	
AYES		✓								✓			
Best Western I Care® Program												✓	
CME Professional Development Co-Op			✓	✓						✓		✓	
FirstBuild								✓		✓	✓	✓	
KY FAME	✓						✓					✓	
MI-BEST Internship Program		✓								✓			
Nanodegree					✓					✓	✓	✓	
ProStart		✓							✓		✓	✓	
Prudential VETalent		✓								✓	✓	✓	
Right Skills Now		✓			✓					✓			
SAW						✓							✓

KEY:

- A Apprenticeship
- CR Credentials
- H Hands-on Training
- OJT On-the-Job Training
- C Certification
- CT Clinical Training/
Practicum
- IT Industry Tour
- OB Online and
Classroom Blended
Training
- CE Career Expo
- E Externship
- I Internship
- M Mentorship
- CO Cooperative
Education/Co-op

4Ps of Internships

Redefining Internships To Increase Company Participation and Opportunities for Student Learners

MODEL SUMMARY

The 4Ps of Internships is a framework of four models that allows employers large and small, with a range of budgets, to offer valuable work-and-learn opportunities. Through these internship models, high school students gain in-demand skills that increase their motivation, maturity and aspirations.

BACKGROUND

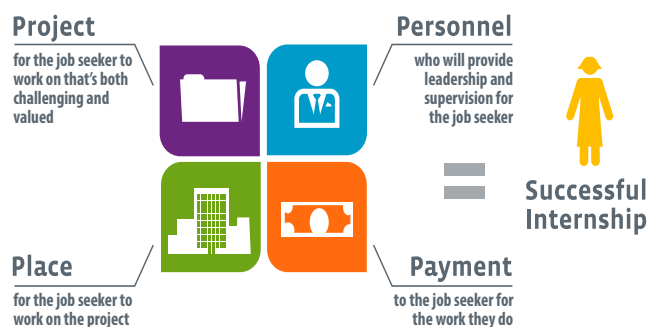
CompTIA's Creating IT Futures Foundation works with Chicago Public Schools Early College STEM Schools to provide students meaningful, skills-based internships with employers in the Chicago region. In 2014, the relationship manager for workforce development at the Creating IT Futures Foundation was challenged with securing enough employers to host 90 students for summer 2015 internships. Many employers were reluctant to host a high school student for a variety of reasons, including concerns about the liability of employing a young person, the space required to host an intern on site, the level of student skill and perceptions of the students' ability to complete employer-valued projects.

The Creating IT Futures Foundation team took the challenge head on and developed a new model to redefine the way businesses engage in high school training and internships. The traditional internship model suggests that an employer must provide the project, place of work, personnel to supervise the intern and intern compensation. Under the 4Ps of Internships model, the team at the Creating IT Futures Foundation works with its partners to figure out three of the Ps (payment, personnel and place), leaving the business to simply provide the fourth P (project).

KEY ELEMENTS OF MODEL

- Career exploration
- Mentorship
- Paid internships
- Leadership, communication, problem-solving, presentation and critical-thinking skills training
- On-the-job information technology (IT) training
- Pathway to careers in IT
- Sense of professional responsibility

the 4Ps of internships.



The 4Ps of Internships model, provided by the Creating IT Futures Foundation.

PARTNERSHIP

In addition to the Creating IT Futures Foundation, the 4Ps of Internships partners include Bank of America, Chicago Public Schools, Chicagoland Chamber of Commerce, Chicagoland Workforce Funder Alliance, Cisco, IBM, Lumity, Microsoft, Motorola Solutions and Verizon Wireless.

KEY:

A Apprenticeship	CR Credentials	H Hands-on Training	M Mentorship
C Certification	CT Clinical Training/ Practicum	IT Industry Tour	OJT On-the-Job Training
CE Career Expo	E Externship	I Internship	OB Online and Blended Classroom Training
CO Cooperative Education/Co-op			

■ NUTS AND BOLTS

The 4Ps of Internships provides alternative internship models for employers that might not have the resources necessary to provide all four elements of an internship (project, place, personnel and payment). The model recognizes that employers vary in what they can offer a student as part of an internship. When combined, the 4Ps provide real, powerful opportunities for student learners.

The program's four internship models include:

1. **Traditional Internship:** In this model, employers provide all four Ps at their workplaces. Students complete projects that are of value to the employer, receive on-site supervision and are compensated for their work.
2. **Shared Managed:** This model is best for employers that are unable to host the project for the intern on site. For example, IBM hosted a group of students in summer 2015 at its Chicago offices, but the project managers they worked with were remote.
3. **Partner:** The partner model applies best to large corporations that are unable to supervise an intern on location but are able to offer internships through channel partners. Projects within this model are funded by a corporate sponsor but are provided by

the sponsor's partner. They may be on site or virtual. Intern compensation is provided by either the sponsor or the partner company.

4. **Consultant:** This model was designed for smaller businesses that do not have enough room or work for an intern individually but are able to aggregate their projects with other small businesses through a local organization such as the chamber of commerce or school district — in this case, Chicago Public Schools. Interns participating in a consultant internship are managed and complete the project at the school/local organization. Students receive compensation from their school district or other entity.

No matter which model is used, the key elements of the 4Ps of Internships program include:

- **Paid Summer Internship:** Participants complete a paid summer internship with support from their supervisor. Interns participate in projects that cover website design and development, computer programming, networking, database development, blogs, mobile app development, and media production.
- **Client/Customer Relationship Management:** Interns learn how to manage customer expectations and lead customer meetings.
- **Mentorship:** Interns receive support from their supervisor, who serves as a student mentor. Mentors guide interns through projects and expose them to new areas and career pathways within information technology (IT).
- **On-the-Job Training:** While completing their internship projects, students receive hands-on IT technical training, including HTML, JavaScript, CSS and website design.
- **Opportunity To Participate in Teaching:** As part of a Cisco/Bank of America project, students also had the opportunity to participate in teaching. In this internship, students received training on how to teach Bank of America employees to use VOIP equipment.

“People in IT jobs learn new technology all the time. These interns got a real-world taste, learning the necessary skills and technology to design a website.”

— Matt Bruce, Executive Director, Chicagoland Workforce Funder Alliance



4Ps of Internships summer interns work on the Chicagoland Workforce Funder Alliance website.

The program kickoff took place during the summer of 2015. Ninety students across five Chicago Public Schools Early College STEM Schools participated in paid, skills-based internships with 33 providers. The Chicagoland Workforce Funders Alliance, a fund that pools resources to address workforce development challenges in manufacturing and IT, participated in the program kickoff.

One of the projects paid immediate dividends. Using the consultant internship model, five students were tasked with redesigning the Alliance's website to align with today's technology. The Creating IT Futures Foundation found a space for the team to work, arranged compensation for the interns (through the Chicago Public Schools budget), and hired a design and development

teacher to supervise the day-to-day internship activities. The Alliance provided the project and compensation for the supervisor. The students led client meetings with Matt Bruce, executive director of the Chicagoland Workforce Funder Alliance; designed page layouts; and developed video content for the website.

PROGRAM BENEFITS, RESULTS AND OUTCOMES

The 4Ps of Internships offers an alternative model to provide youth training and internships that demonstrate a student's experience and ability to future employers. The implementation of the initial model was deemed a success, and the Creating IT Futures Foundation team is already planning the next summer internship program.

The 4Ps of Internships student benefits and outcomes include:

- **Career Exploration:** Students participating in the kickoff program reported a better understanding of career opportunities within the IT industry and an increased interest in pursuing a career in the field.
- **Technical Skills Applied to Real Business Projects:** Students use skills taught in the classroom and apply them in a professional setting through projects like website design and database development.
- **Common Employability Skills:** Interns working on the Chicagoland Workforce Funder Alliance project learned how to organize and hold client meetings, effectively manage projects, work as a team, present work plans and materials to the customer, and use technical skills to design a website layout.
- **Income for the Student:** Students are paid for their work during the six-week internship.
- **Relationship Building with Business Representatives:** Through the internship, students are able to demonstrate their skills and form relationships with project staff that may lead to full-time employment. At IBM, two high school students interning in the server room demonstrated such high performance that the company offered them co-op positions for the upcoming school year, which may lead to full-time employment offers. According to Gretchen Koch, executive director of workforce development at the Creating IT Futures Foundation, a server technician has the potential to make a six-figure salary with benefits.

- **Importance of Dependability in the Workplace:** Students learn that the success of a project depends on their ability to arrive on time and ready to work.

The 4Ps of Internships employer benefits and outcomes include:

- **Return on Investment:** For Matt Bruce, executive director of the Chicagoland Workforce Funders Alliance, a \$5,000 budget and 40 hours of his time resulted in a complete overhaul of the Chicagoland Workforce Funder Alliance website. On a personal level, he enjoyed participating in the program and supporting interns in their skills development.



A summer intern presents new website content during a Chicagoland Workforce Funder Alliance meeting.

- **New Ideas from Smart, Creative Young Talent:** Matt Bruce was so impressed with the results of the website project that he is already planning a project for the team to complete next summer.
- **Support for Market Research Engagements:** At IBM, a group of interns completed a shared managed internship program to help IBM design the pharmacy of the future. The team developed and administered a survey, analyzed data, and reported their findings to the IBM pharmaceutical team.

- **Engagement in Creating an IT Talent Pipeline:** Through the internship programs, employers have the opportunity to equip students with the skills needed for future jobs in the IT industry.
- **Support for Diversity within the IT Industry:** Through the program, employers are able to provide role models to young people who might not have considered a career in the industry – offering a path

to increase diversity in the field. The program also empowers these students, which is very important at the high school level.

- **Liability Assumed by the School, Not the Employer:** Employers do not always have to assume the liability risk for the high school interns. In some cases, Chicago Public Schools acted as the payment agent and employer of record.

■ SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

The goal for internship placement next summer is 175 students. Feedback from the kickoff of the 4Ps of Internships program indicates that many participating companies plan to host even more interns next year. At the Chicagoland Workforce Funder Alliance, Matt Bruce plans to host another set of interns and treat them as third-party consultants. He believes their skills and maturity allow for this type of relationship.

In the future, students interested in an internship will complete a skills assessment. It will provide an objective

way for the team at the Creating IT Futures Foundation to better assess students' skills and match them with the appropriate internship opportunity.

To overcome recruiting challenges, the Chicagoland Chamber of Commerce publicized the program to its small IT business members and provided \$10,000 in funding to pay the interns. Within 48 hours, 10 companies had signed up to host an intern. These efforts will increase next year.

■ WORDS OF WISDOM

Advice to companies considering developing their own internship program includes:

- **The 4Ps of Internships model may be applied to any industry.** This program cuts across all business sectors and provides employers a solution for engaging in high school training through internships.
- **Students in high school are capable of completing employer-valued projects.** Matt Bruce was an advocate for work-based learning before participating in the 4Ps of Internships program. After participating in the program, he is now a strong advocate for supporting high school student internships. Even though these students were teens, he was very impressed by how they managed the project and by their professional behavior.

INFORMATION, TOOLS AND RESOURCES

- **Creating IT Futures Foundation – Early College STEM Schools**
<http://creatingitfutures.org/developing-programs/early-college-stem-schools>
- **Early College STEM Schools**
<https://chooseyourfuture.cps.edu/early-college-stem-schools/>

VIDEOS

- **4Ps of Internships Student Videos**
<http://bit.ly/1PtIGid>
- **4Ps of Internships Chicagoland Workforce Funder Alliance Team Meeting Video**
<http://bit.ly/1OBtkSI>

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ACE Mentor Program

Mentoring the Next Generation of Construction Professionals, Part of Gilbane's DNA



MODEL SUMMARY

The Architecture Construction Engineering (ACE) Mentor Program is a free afterschool offering, which over the course of 15 sessions exposes high school students to careers in the design and construction industry through real-world mock design and engineering projects. Students are guided through a project by their volunteer architect, engineer and construction management mentors and gain valuable exposure to businesses and leaders within the industry. Nationwide, approximately 20 percent of students in the ACE Mentor Program participate annually in internships with ACE-affiliated companies. Using Gilbane Building Company's adoption of the ACE Mentor Program as an example, the utility of the model for many other companies in the design and construction industry is made clear.

BACKGROUND

The current and future success of Gilbane Building Company depends on talented architects and engineers to design buildings, coupled with enough construction managers and skilled crafts workers to build them. According to a 2012 McGraw-Hill Construction report, *Construction Industry Workforce Shortages*, more than two-thirds of surveyed industry representatives are concerned about workforce shortages. The team at Gilbane recognized that to meet the demand for future skilled workers, workforce recruitment should start at the high school level by exposing young students to careers in the industry.

Fortunately for Gilbane, the integrated construction industry developed a strategy and mechanism to help fulfill this workforce need with the creation of the ACE

KEY ELEMENTS OF MODEL

- Pathway to careers in construction architecture, design or engineering
- Mentorship
- Opportunities for paid internships
- Pipeline for design and construction businesses of varying sizes
- Leadership, communication, presentation and critical-thinking skills training

Mentor Program in 1994. Over the course of a year, students participating in the ACE Mentor Program are guided through a real-world mock design project, exposing them to careers in construction, architecture and engineering.

Scores of Gilbane employees have volunteered countless hours with ACE and have helped to create chapters in several cities across the country, including Providence, Cleveland and Houston. In addition, Gilbane Chairman and CEO Thomas F. Gilbane, Jr., helps lead the national nonprofit organization as its chairman, after previously serving as a board member.

ACE's tried-and-true formula and its well-established, still-expanding network make leveraging the system easy for any company within the industry.

KEY:

A Apprenticeship

C Certification

CE Career Expo

CO Cooperative Education/Co-op

CR Credentials

CT Clinical Training/
Practicum

E Externship

H Hands-on Training

IT Industry Tour

I Internship

M Mentorship

OJT On-the-Job Training

OB Online and Blended
Classroom Training

■ PARTNERSHIP

Today, there are 62 ACE affiliates (chapters) spread across 32 states, the District of Columbia and Puerto Rico that deliver the program in 200 cities and communities. Approximately 2,900 ACE mentors engage 8,000 students from 1,000 schools each year. Major construction and

■ NUTS AND BOLTS

In the ACE model, a team of architects, engineers, construction managers and other industry professionals mentors a group of high school students over 15 two-hour afterschool sessions. During this free, hands-on program, students experience a realistic simulation of designing and planning a project, culminating in a presentation in a public forum. Students learn about industry careers as they interact and problem solve with active professionals and tour workspaces and construction sites.

Key elements of the program include:

- **Hands-On Training and Career Exploration:** Through real-world mock design projects, students are introduced to the key players in a large-scale design project and learn the role that each performs in the planning, design and construction phases of a project.

“Gilbane’s participation in the ACE Mentor Program is a win-win. We expose young people to our industry. At the same time, our staff who mentor gain valuable work skills and enjoy the personal satisfaction of giving back to the communities where we live and work. Further, they get to network with others in our industry.”

— Thomas F. Gilbane, Jr., Chairman and CEO, Gilbane, Inc.



ACE students tour Cleveland’s Progressive Field where Gilbane has completed renovation projects.

design companies sponsor ACE at the national level, including AECOM, Bechtel, Caterpillar, EMCOR Group, Gilbane Building Company and Turner Construction Company. Hundreds of local and regional firms sponsor ACE chapters.

- **Exposure to Professional Offices and Construction Sites:** Students tour professional offices and active construction sites, gaining firsthand insight into the day-to-day experiences of workers in the industry.
- **Mentorship:** Students are guided through the project by their volunteer architect, engineer and construction management mentors and gain exposure to leaders within the industry.
- **Presentation and Team-Building Skills:** Students learn valuable professional skills, including communication, teamwork and problem-solving, while working in teams to develop the mock design project. At the culmination of the year, ACE student teams present their designs to fellow ACE students, teachers, mentors and prospective industry employers.
- **Paid Internships:** Each year, almost 20 percent of ACE students nationwide enjoy internship opportunities with ACE-affiliated companies. Gilbane regularly employs many ACE interns.
- **Scholarships:** In 2015 alone, ACE affiliates awarded \$1.5 million in scholarships to students headed for college or into trade programs.

National, regional and local companies participate in ACE. Participation involves no direct costs, but companies such as Gilbane are encouraged to make tax-deductible donations to support scholarships and the operations of the local and national programs. The companies also have indirect costs associated with staff volunteering to serve as mentors to students in the program.

Gilbane’s mission is to build more than buildings; it aspires to build communities as well. In the spirit of community service, Gilbane Chairman and CEO Thomas F. Gilbane, Jr., currently chairs ACE’s national board, and other leaders from the company chair seven affiliate boards. Gilbane is involved with ACE programs and affiliates whenever possible, whether through a company office or major project site. More than 125 Gilbane employees actively mentor with 25 ACE affiliates.

PROGRAM BENEFITS, RESULTS AND OUTCOMES

The ACE Mentor Program is building a pipeline of future talent for the design and construction industry. More than 45,000 students have participated in the program since its establishment in 1994. Student and business participation, as well as survey results, prove ACE's model is successful in exposing young students to careers within these fields. Moreover, 70 percent of program alumni in college report that participating in the ACE program gave them an advantage over their freshman college classmates.

The ACE program has received national recognition for its commitment to building a talented future pipeline of design and construction professionals. At a 2010 White House ceremony, the ACE program received the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring. More recently, in 2014, the American Institute of Architects presented its Collaborative Achievement Award to ACE.

ACE student benefits and outcomes include:

■ **Strong Participation and Program Interest:**

Across the nation, almost 8,000 high school students participate in the program annually. In fact, the demand from schools and students to join the program exceeds the availability of mentors.

■ **Pathway to Future Training:** Of the 1,975 high school seniors who completed the program in 2015, 70 percent entered college declaring majors in architecture, engineering or construction. Historically, a remarkably high 75 percent of alumni have stuck to these majors during college.

■ **Success for a More Diverse Workforce:** ACE alumni are significantly more diverse in terms of gender, race and ethnicity than their national counterparts studying architecture, engineering and construction. The ACE program is helping the industry become more inclusive to reflect the demographics of the nation's future workforce.

■ **Scholarships for Future Training:** ACE students are eligible to receive more than \$1.5 million in scholarships that local affiliates raise annually. During the past two decades, ACE has awarded student scholarships worth \$12.5 million.

ACE benefits to Gilbane Building Company include:

■ **Building of Relationships Across the Industry:** Gilbane is one of the top educational builders in the United States. The company's involvement in ACE

helps establish valuable relationships with educators, school administrators and guidance counselors and therefore can be viewed as an advantage when the company bids on jobs.



Gilbane mentor works with students in New York City.

■ **Mentoring and Training of the Future Workforce:**

Gilbane mentors spend between 30 and 75 hours per year working with ACE students during work hours — and frequently on their own time as well. The company does not view this time as lost productivity because employee mentors value participation in the program so highly that they readily make up any time out of office. Further, the mentoring opportunity increases their long-term loyalty to the company.

■ **Alignment with Gilbane's Corporate Social Responsibility Efforts:**

Since 2007, Gilbane has donated more than \$700,000 to the national ACE program and its local affiliates. It considers this “investment” an act of corporate social responsibility, a down payment on a future stream of employees and a training opportunity for current employees.

■ **Leadership Opportunities, Particularly for Young Staff:**

Gilbane strongly encourages employees at all levels to get involved with ACE. For young professionals in particular, volunteering for ACE is looked upon favorably for performance reviews and promotions. Chairman and CEO Thomas F. Gilbane, Jr., conducts an informal annual review of all business units' participation in ACE and each summer grants Gilbane's annual ACE Mentoring Award to one or more employees during a companywide town hall meeting. Winners receive \$1,000 to give to their local ACE chapter.

- **Training for Emerging Professionals:** While Gilbane does not measure the return on investment of its involvement with the ACE program, the company considers ACE an excellent training experience for its emerging professionals. Depending on the office,

management candidates are encouraged or even required to become ACE mentors. Gilbane ACE mentors sharpen leadership, communication and teamwork skills and also expand their networks through contact with mentors from other firms.

■ SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

Comparatively little expense on Gilbane's part is required to sustain its involvement in the ACE program. The most important ingredient for success is the CEO's promotion of the program.

ACE's long-term sustainability depends on mentors. The demand from schools and students to join the program exceeds the availability of mentors. This demand is driven by word of mouth among schools and teachers and also by affiliates reaching out to local school systems.

■ WORDS OF WISDOM

For design and construction industry companies of any size interested in growing the industry's workforce, the ACE Mentor Program offers a "plug-and-play" model. Interested companies simply need to connect with a local ACE affiliate. A committed company where no affiliate exists can also take the lead in establishing an affiliate. ACE staff will assist in this process.

The ACE model also offers industries and large companies in fields outside of design and construction a readily adaptable framework. The key steps involve: (1) devising hands-on activities linked to the industry or company line of work; (2) recruiting mentors who are passionate about their work and eager to nurture the next generation of professionals; and (3) establishing a relationship with a school or school system. ACE is willing to share its experience, as well as organizational and programmatic materials, with other industries.

For businesses considering developing a similar program, ACE recommends that program organizers follow strong risk management practices such as carrying liability insurance and conducting background checks on mentors.

INFORMATION, TOOLS AND RESOURCES

- **ACE Mentor Program** www.acementor.org
- **Gilbane Building Company**
www.gilbaneco.com
- **McGraw-Hill Construction Smart Market Report**
<http://bit.ly/1NesrCd>

VIDEOS

- **ACE Sponsor Companies Explain Benefits of Their Sponsorship**
<http://bit.ly/1Lq6yPM>
- **Gilbane-Produced Video Showcasing ACE Program and Company Involvement**
<http://bit.ly/1Xm1bb5>

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Alamo Academies

Providing a Fast Path from High School to High-Tech Careers

MODEL SUMMARY

Alamo Academies, through mentorship, skill building and more, provides high school students with a pathway into advanced manufacturing careers. Program graduates earn high school and college credit, obtain industry-approved certifications and participate in an eight-week paid summer internship.

BACKGROUND

When Kelly Air Force Base in San Antonio, TX, closed in 1995, the workload was outsourced to government contractors, including Lockheed Martin and Boeing. As part of a 15-year contract, Lockheed Martin supported the development of fighter fleet engines and the maintenance, repair and overhaul of engines used in cargo aircraft for the U.S. government. In 1999, Lockheed Martin faced a future talent shortage as its aging workforce began to retire. The company had to quickly develop a strategy to fill the talent pipeline and transfer the knowledge and skills of its seasoned staff to the next generation of workers — a critically important task to ensure that Lockheed Martin could continue to provide the utmost quality expected by the nation’s armed forces.

Lockheed Martin started by offering summer internships to three high school students who were enrolled in aerospace technical courses. Upon the interns’ high school graduation, Lockheed Martin hired these students full time to become part of a new wave of skilled, young

PARTNERSHIP

Alamo Academies is operated by Alamo Area Academies, Inc., a nonprofit organization. Partners include Alamo Colleges; San Antonio area high schools; more than 100 industry partners (including Toyota and Lockheed Martin); manufacturing associations; economic

KEY ELEMENTS OF MODEL

- Industry-recognized credentials
- Mentorship
- Self-confidence
- Career path exploration through a hands-on paid internship
- Pathway to a career in high-tech science, technology, engineering and math (STEM) industries
- College certificate
- 30-plus credit hours toward an associate/ bachelor’s degree
- Opportunities to enhance skills through on-the-job training/apprenticeships

talent. The internships were such a success that, in 2001, Lockheed Martin commissioned local colleges and businesses to develop the Alamo Academies to “grow their own young talent” within the San Antonio community. The program was designed to close the region’s skills gap by developing a pipeline of skilled, entry-level workers for the high-tech industries of advanced manufacturing, health care, information technology, aerospace, and oil and gas heavy equipment. The resulting program now offers students in high school the opportunity to earn college credits, begin working in a high-tech industry, and prepare for further career and educational advancement.

development departments; chambers of commerce; government organizations (including Port San Antonio and Workforce Solutions Alamo); and the cities of New Braunfels, San Antonio and Seguin.

KEY:

A Apprenticeship

C Certification

CE Career Expo

CO Cooperative Education/Co-op

CR Credentials

CT Clinical Training/
Practicum

E Externship

H Hands-on Training

IT Industry Tour

I Internship

M Mentorship

OJT On-the-Job Training

OB Online and Blended
Classroom Training



Alamo Academies high school students intern at Toyota Motor Manufacturing in San Antonio, TX.

NUTS AND BOLTS

Alamo Academies is an award-winning, communitywide, collaborative STEM-based program for high school students to earn dual credit (high school and college), obtain industry-approved certifications and participate in an eight-week paid summer internship. Participating students are enrolled in one of five Alamo Academies: Advanced Technology and Manufacturing, Aerospace, Health Professions, Heavy Equipment, or Information Technology and Security. School districts provide the books and transportation for students, and Alamo Colleges provides authorized certification centers and instructors.

Key elements of the program include:

- **Education:** Students learn the technical and soft skills necessary to succeed in a high-tech industry.
- **Paid, For-Credit Internship:** Students complete an eight-week, paid summer internship between their junior and senior years of high school that allows them to apply high-tech processes learned in the classroom to business projects. Under close

supervision, student interns at Lockheed learn how to disassemble, prep, test and repair a jet engine; tag parts for service; and grind compressor blades.

- **Exposure to Executives and Development of Presentation Skills:** At Toyota, interns present their internship experiences to Toyota executives in a process that mirrors the one used for full-time engineer management report-outs.
- **Mentorship:** During their internship, students are assigned a supervisor and a team of colleagues, who serve as their mentors.
- **Industry-Recognized Certificates and Certifications:** Graduates receive a Level I Certificate of Completion, certifying that the student has the skills and knowledge needed for an entry-level job in a high-tech industry. Students in the Advanced Technology and Manufacturing program receive nationally recognized Manufacturing Skill Standards Council Certified Production Technician certificates.
- **High School Diploma and College Credit toward an Associate/Bachelor's Degree:** Alamo Academies graduates earn a high school diploma and receive more than 30 tuition-free credit hours toward a postsecondary degree.

“We encourage Alamo Academies graduates to pursue further training and education. Full-time employees are reimbursed 100 percent for night school, and Level I mechanics who pursue additional education are promoted faster than their peers. Alamo Academies graduates are also considered for Lockheed Martin’s [U.S. Department of Labor]-registered apprenticeship program.”

— Joe Wilson, Community and Government Relations, Lockheed Martin Commercial Engine Solutions

PROGRAM BENEFITS, RESULTS AND OUTCOMES

Alamo Academies is recognized by the U.S. Department of Labor, the Federal Reserve Board of Dallas, the Texas Governor’s Office, the Texas Higher Education Coordinating Board, the Manufacturing Institute and the Manufacturing Skill Standards Council as a successful Higher Education Career Academy model for closing the

“Businesses must be committed to collaborating with their local communities in developing strategies to grow the next generation of local, skilled talent. Those communities with engaged businesses that focus on growing local talent will be the surviving and globally competitive communities of tomorrow.”

— Mario Lozoya, Director, Government Relations and External Affairs, Toyota Motor Manufacturing Texas, Inc.

skills gap. The Alamo Academies model may be applied across a range of industries, as evidenced by replication of the original Aerospace model to create the other four Academies programs.

Alamo Academies student benefits and outcomes include:

- **Strong Participation and Graduation Rate:** More than 1,100 junior and senior high students have completed the program with an 84 percent first-time-in-college graduation rate — 22 times higher than the state average.
- **High-Paying Jobs:** Graduates’ starting salaries are approximately \$30,500, plus \$12,200 in benefits.
- **Schools-to-Careers Pathway:** 94 percent of graduates receive jobs or pursue higher education and training.
- **Pathway to Future Training and Advancement:** Participants are eligible to receive financial support toward an associate or bachelor’s degree and for opportunities to complete partner company apprenticeships.
- **Academic Success for a Diverse Population:** The student population is 78 percent minority (70 percent Hispanic, 6 percent African American and 2 percent Asian).
- **Scholarships:** Program graduates have been awarded more than \$14 million in scholarships since program establishment.

Alamo Academies community and business benefits include:

- **Pipeline of Skilled Entry-Level Workers:** Alamo Academies is a demand-based education model triggered by partner businesses that establish the Academies’ target enrollment levels to meet their skilled labor demand. At Toyota, the program has provided workers the technical skills needed for advanced manufacturing operations, including troubleshooting and repairing robotics.
- **Mentoring and Training of the Future Workforce:** Through the internship, businesses are able to mentor and train students on company processes and procedures to “grow their own local talent.” This provides businesses priority access to skilled, certified talent while reducing the resources allocated to recruit talent through mainstream hiring practices, such as career fairs and job boards.
- **Economic Development:** Alamo Academies is a strong recruiting tool for encouraging companies to relocate to the San Antonio region. A factor in Toyota’s decision to build a manufacturing plant in San Antonio was the Alamo Academies Advanced Technology and Manufacturing program, which provides Toyota a dedicated pipeline of skilled entry-level workers.



Alamo Academies high school students intern at Lockheed Martin in San Antonio, TX.



Alamo Academies graduates, now working at Toyota.



Information Technology and Security Academy students win the National Youth Cyber Defense Competition.

■ SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

Alamo Academies partners contribute more than \$2 million annually to support program operating costs: Alamo Colleges provides facilities, equipment and instruction; school districts provide textbooks and transportation; employers pay intern salaries; and cities fund operating costs. Toyota also plays a vital role in its

commitment to increasing awareness of the program benefits and supporting smaller businesses interested in hosting Alamo Academies summer interns. Through a grant, Toyota provides six smaller businesses the funds necessary to hire and pay Alamo Academies summer interns.

■ WORDS OF WISDOM

Recommendations for businesses interested in building a collaborative, community-based school-to-career program include:

- **Be Engaged in Training Your Future Workforce:** Businesses must be dedicated to developing and sustaining programs that close the skills gap and ensure that their industry continues to thrive. Through internships, businesses can expose young students to the latest technologies and skills needed to remain competitive.

- **Develop a Demand-Based Education System:** Education institutions must align student enrollment to industry workforce demands.
- **Rally the Community:** This model requires a commitment from local government, workforce development teams, schools and employers.
- **Communicate Program Benefits to Key Stakeholders:** Partners must educate parents and high school career counselors on programs, such as Alamo Academies, that lead to high-demand, high-paid jobs with little or no college debt.

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INFORMATION, TOOLS AND RESOURCES

- Alamo Academies
www.alamoacademies.com

The Apprentice School at Newport News Shipbuilding

A One-of-a-Kind Trade School for Shipbuilders

A M

OJT

MODEL SUMMARY

The Apprentice School, located in Newport News, VA, is an industry-driven, hands-on apprenticeship college for individuals interested in pursuing a career in shipbuilding. The school offers four- to eight-year programs in more than 19 shipbuilding skill areas, as well as advanced programs to develop the next generation of world-class journeymen and company leaders.

BACKGROUND

The Apprentice School, founded in 1919, is part of Newport News Shipbuilding, a division of Huntington Ingalls Industries. Huntington Ingalls Industries designs, builds and maintains ships for the U.S. Navy and Coast Guard. The company also provides after-market services for military ships around the globe. The skills needed to build nuclear-powered aircraft carriers and submarines — and other Huntington Ingalls Industries vessels — are not included in programs of study offered by other colleges. The Apprentice School provides Huntington Ingalls Industries a pipeline of talented, skilled leaders to support the business and drive the future of the company.

With more than 10,000 active alumni, it is the premier apprenticeship program for the shipbuilding industry, offering 19 areas of study and seven advanced programs. Areas of study include coatings specialist, electrician, machinist, millwright, pipefitter and shipfitter. Last year, more than 4,000 applications were received for 230 spots, placing the acceptance rate at 6 percent — on par with the acceptance rate of Ivy League colleges.

PARTNERSHIP

The Apprentice School has partnerships with a host of higher education institutions, including Christopher Newport University, Hampton University, Old

KEY ELEMENTS OF MODEL

- Industry-recognized credentials
- Paid on-the-job training
- No school debt
- Common employability skills
- Opportunities to earn an associate degree with partner colleges
- Technical skills needed in advanced shipbuilding
- Leadership skills
- Relationship building with Huntington Ingalls Industries employees



Newport News Shipbuilding Foundry Apprentice Daniel Gular sands the surface of a mold for a gate valve. The gate valve was used in the refueling and complex overhaul of the aircraft carrier USS Theodore Roosevelt (CVN 71). Photo courtesy of Huntington Ingalls Industries.

Dominion University, Paul D. Camp Community College, Rappahannock Community College, Saint Leo University, Strayer University, Thomas Nelson Community College,

KEY:

A Apprenticeship

C Certification

CE Career Expo

CO Cooperative Education/Co-op

CR Credentials

CT Clinical Training/
Practicum

E Externship

H Hands-on Training

IT Industry Tour

I Internship

M Mentorship

OJT On-the-Job Training

OB Online and Blended
Classroom Training

Tidewater Community College and Virginia Wesleyan College. It is accredited by the Commission of the Council on Occupational Education.

■ NUTS AND BOLTS

The three main pillars of The Apprentice School are craftsmanship, scholarship and leadership. Apprentices spend two days a week learning concepts in the classroom and three days a week applying those concepts to real-world projects in the Newport News shipyard. All apprentices complete the World Class Shipbuilding Curriculum, in addition to the Trade Related Education Curriculum. The World Class Shipbuilding classroom subject areas include technical mathematics, drafting, engineering, design, marine engineering and naval architecture, technical communications, and business processes.

The hands-on work at the shipyard is provided in six-month rotations through the various jobs within an apprentice's selected craft. Over the course of the program, apprentices complete 1,000 hours of coursework and 7,000 hours of on-the-job training guided by Newport News employees who serve as mentors. More than 40 percent of current shipbuilders' production managers are Apprentice School graduates, signaling the importance of the leadership pillar of the program. In addition to coursework and on-the-job training, apprentices also receive:

- **Student Services To Foster Leadership and a Sense of Community:** Apprentices receive housing assistance, orientation services and pre-employment support.

■ PROGRAM BENEFITS, RESULTS AND OUTCOMES

Apprentice School benefits for the apprentice include:

- **Articulation Agreements with Postsecondary Schools:** The Apprentice School has articulation agreements with premier postsecondary institutions in Virginia to further students' learning. In 2015, Huntington Ingalls Industries partnered with Old



Newport News Shipbuilding apprentices pour molten steel into a mold in the shipyard's foundry. Photo courtesy of Huntington Ingalls Industries.

- **Career and Academic Advising:** Incoming apprentices are assigned an academic advisor, who interacts frequently with the apprentices. Apprentices also receive career guidance from a dedicated career advisor.
 - **Opportunities To Participate in the School's Intercollegiate Athletic Program and Extracurricular Associations:** The Apprentice School has a Division III Athletic Department, which includes football, golf, baseball, men's and women's basketball, and wrestling teams. Student organizations include a drum line, an Apprentice Alumni Association, an Apprentice Jaycees Student Chapter, the Apprentice School Students Association, Apprentice School Society of Manufacturing Engineers, The Apprentice School Chapter of the Society of Naval Architects and Marine Engineers, and the Apprentice Athletic Club.
- Dominion University to offer a new six-year marine engineer degree program.
- **No School Debt or Long-Term Employment Contract:** Accepted students are paid \$35,000 for the first year with pay increases throughout the program, and there is no employment contract that requires students to work for Huntington Ingalls Industries after graduation.
 - **Well-Paying Job Opportunities:** After graduation, Apprentice School students are guaranteed a job with Huntington Ingalls Industries at an average annual salary of \$54,000. The majority of graduates accept a job with Huntington Ingalls Industries.

“Huntington Ingalls Industries’ apprentice schools provide training and education to develop the skilled talent needed in our shipyards, but more importantly, they develop our future company leaders.”

— Bill Ermatinger, Corporate Vice President and Chief Human Resources Officer, Huntington Ingalls Industries

For Huntington Ingalls Industries, the benefits include:

- **Attracting a Diverse Talent Pool:** The student population includes military veterans, current shipbuilders, college and high school graduates, and those from nonshipbuilding career fields. Such a diverse group allows Huntington Ingalls Industries to gain creative and innovative perspectives to support the growth and expansion of its business.
- **Reducing Turnover Costs and Increasing Employee Retention:** Huntington Ingalls Industries is able to recruit apprentices who are familiar with the company and have the skills and competencies required.

■ SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

To run a program of this size, Huntington Ingalls Industries spends more than \$250,000 per apprentice on training. Huntington Ingalls Industries recognizes that to continue making great military ships, it needs a dedicated pipeline of skilled and talented workers. The Apprentice School provides the company the talent needed to sustain its business. The school also allows the company to maximize the potential of every employee and build a sense of

■ WORDS OF WISDOM

Advice to companies considering developing their own school or apprenticeship program includes:

- **Think Big, but Start Small:** The Apprentice School was established more than 90 years ago and over time has expanded into 20-plus trade programs. Strategizing on what the future of the program might look like is great, but starting the program with a few students in one region and rolling it out to a larger student body and geography over time is best.
- **Seek Support from Available Resources and Funding Streams:** Investigate available public and private resources and funding streams that might support the development of these programs. For apprenticeships, contact the U.S. Department of Labor Office of Apprenticeship and state apprenticeship agencies for support. Another great resource is local community colleges, which often have the training equipment needed to support a program. Other resources might include the state workforce development board or chamber of commerce.

- **Building Huntington Ingalls Industries' Future Leaders:** 80 percent of Apprentice School graduates build long-term careers at Huntington Ingalls Industries and serve in a management role at some point in their careers. The company values the apprenticeship program for the leadership development as much as for the trade skills.
- **Aligning the Development of a Highly Skilled Workforce with Company Demand:** The number of applicants who are accepted per trade program fluctuates based on the company's needs.

community through classroom learning, hands-on work experience, and extracurricular sports and associations.

In addition to the Newport News Shipbuilding Apprentice School, Huntington Ingalls Industries also offers apprenticeship training at the Haley Reeves Barbour Maritime Training Academy at Ingalls Shipbuilding in Pascagoula, MS. These two programs are the cornerstone and capstone of Huntington Ingalls Industries' workforce development efforts.

INFORMATION, TOOLS AND RESOURCES

- **The Apprentice School** www.as.edu
- **Apprentice Schools at Huntington Ingalls Industries** www.huntingtoningalls.com/careers/apprentice
- **Huntington Ingalls Industries** www.huntingtoningalls.com
- **U.S. Department of Labor Office of Apprenticeship** www.dol.gov/apprenticeship
- **White House Apprenticeship Summit Fact Sheet** <http://1.usa.gov/1NifXdH>

CONTACT

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MODEL SUMMARY

Automotive Youth Educational Systems (AYES) prepares high school students for full-time, entry-level automotive technician or parts specialist roles or for a postsecondary program through which they can further advance their technical education. Participants complete 320 hours of on-the-job training as interns, participate in SkillsUSA* and can earn an industry-recognized student certification.

BACKGROUND

In 1995, former CEO of General Motors (GM) Jack Smith announced the development of a GM initiative to improve the quality and quantity of technical education within the United States. At that time, automotive service dealers were short handed and needed technicians with the right skills, knowledge and attitude to troubleshoot and perform automobile maintenance. The credibility of the automotive industry rested on having knowledgeable technicians available to meet customers' demands for service of their automobiles. Within two years, 14 automotive manufacturers, representing an impressive 95 percent of all cars sold in the nation, joined GM to

PARTNERSHIP

AYES is a partnership among automotive vehicle, parts, tool and equipment manufacturers; dealers and trade associations; state departments of education and labor;

NUTS AND BOLTS

The AYES initiative is designed for junior and senior high school students with strong academic performance and an interest in pursuing a career in automotive service. To qualify for the program, students must be enrolled in a

KEY ELEMENTS OF MODEL

- Income for student
- Relationship building
- Self-esteem/self-confidence
- Work ethic
- Teaching of transferable skills
- Job shadowing
- Involvement of community business partners in the education process and system
- Industry-recognized certificate

create the AYES initiative. In 2009, AYES joined the Institute for Automotive Service Excellence (ASE) Industry Education Alliance, along with the National Automotive Technicians Education Foundation (NATEF) and the Automotive Training Managers Council. This initiative provides automotive partners like Mercedes-Benz of Arlington (located in Arlington, VA) with career-ready, entry-level automotive technicians and service personnel.

more than 350 secondary schools; 600 instructors; and independent after-market service providers.

NATEF-accredited automotive program; demonstrate a disciplined attendance record; and have parent, teacher and counselor endorsement.

*SkillsUSA is a nonprofit association that serves more than 300,000 high school, college and postsecondary students — and their instructors — annually in trade, technical and skilled service instructional programs. SkillsUSA programs teach leadership, citizenship and character development to complement technical skill training and emphasize respect for the dignity of work, ethics, workmanship, scholarship and safety. SkillsUSA has served 11.9 million annual members since its founding in 1965.

KEY:

A Apprenticeship	CR Credentials	H Hands-on Training	M Mentorship
C Certification	CT Clinical Training/Practicum	IT Industry Tour	OJT On-the-Job Training
CE Career Expo	E Externship	I Internship	OB Online and Blended Classroom Training
CO Cooperative Education/Co-op			

Key elements of the model include:

- **Education:** Participants learn safety training and the basic math, science and communication skills necessary for an entry-level technician position.
- **Career Training:** Educational institutions provide the tools and training for AYES participants to compile a professional portfolio and be successful in a job interview.
- **Job Shadowing:** Students shadow experienced workers in the service lane, parts department and service department at participating automotive centers.
- **Interview Day:** Students interview with service shop representatives during a formal Interview Day event and provide feedback to ensure the best fit.
- **Paid Summer Internship:** AYES participants complete a 320-hour paid summer internship, working side by side with their mentor, a master automotive technician. Interns perform disassembly of parts and diagnostics and can complete rotations in the customer service and collision centers.

PROGRAM BENEFITS, RESULTS AND OUTCOMES

The AYES initiative elevates both the business and the community while creating a pipeline of young, talented automotive service individuals. AYES provides industry partners dedicated, interested students who want to learn how to become the best automotive technicians and parts specialists. Their passion and dedication motivate and elevate the professionalism of the entire staff. By participating in AYES, industry partners have priority access to the technicians of tomorrow. Much of Mercedes-Benz of Arlington's demand for entry-level technicians is met through the AYES initiative. The initiative has also met the need for filling entry-level service advisor, parts advisor and technician positions within Mercedes-Benz customer service, parts and collision centers. Nationwide, 3,500 employers participate in AYES to mentor and train their future workforce.

For the student, training and education do not end at AYES graduation. Many companies sponsor AYES graduates to continue their education, including through postsecondary education and automotive manufacturing programs and degrees, such as the BMW STEP, Chrysler CAP, GM-ASEAP, Honda PACT, Mercedes-Benz Elite or

“AYES provides us with a dedicated and passionate pipeline of automotive technicians. They want to do a good job and are interested in continually learning and improving their skills.”

— Stan Rodia, Service and Parts Director, Mercedes-Benz of Arlington

- **SkillsUSA:** Students participate in SkillsUSA, which allows them to strengthen employability skills (dependability, attitude, teamwork and communication).
- **On-the-Job Training:** During their senior year, AYES participants may continue to hone their skills by working after school at their internship host site.
- **ASE Student Certification:** Students obtain the industry-recognized ASE Student Certification after passing the exam.

AYES graduates are prepared for a full-time, entry-level automotive technician or parts specialist role or for a postsecondary program to further advance their technical education.

the Toyota T-TEN programs. Mercedes-Benz of Arlington has sponsored graduates to complete automotive degrees at Northern Virginia Community College and the Mercedes-Benz Elite program.



Mentor Marvin Wentzel with former AYES student Jonathan King. Jonathan furthered his automotive training through Universal Technical Institute as well as the Mercedes-Benz Elite Training program. Jonathan is now a Mercedes-Benz Certified Technician.

■ SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

Currently, there are AYES-affiliated programs in 45 states with 700 participating schools. This national program continues to provide the skills and training needed to close the entry-level automotive technician skills gap.

Depending on the jurisdiction, the biggest roadblock to implementing the AYES initiative is addressing automotive shop insurance coverage for participating interns, as they are typically under 18 years of age. AYES can provide automotive business partners with letters from insurance companies that can alleviate this concern. It is strongly recommended that businesses interested in creating similar programs check the laws and regulations in their local jurisdiction regarding insurance coverage and liabilities.

■ WORDS OF WISDOM

An employer creating a similar program must build strong relationships with local educational institutions and instructors. The instructors must understand the employer's business and its current technologies. For Mercedes-Benz of Arlington, the success of the AYES initiative is largely a result of its education partner — in this case the Arlington Career Center — as well as ASE Master Certified instructors and their commitment to building the future pipeline of automotive technicians and service personnel.



Felege Zewede, who is replacing the drive belt for the alternator and power steering system, started as a 2010 AYES summer intern with Mercedes-Benz of Arlington. After graduating high school, he joined the team full time and is a Mercedes-Benz Certified Technician.

INFORMATION, TOOLS AND RESOURCES

- **Arlington Career Center AYES**
www.apsva.us/Page/8677
- **AYES** www.ayes.org
- **SkillsUSA** <http://skillsusa.org/about>

CONTACT

Automotive Youth Educational Systems
Phone: 703-669-6677
Email: info@ayes.org

Best Western / Care[®] Program

Empowering Staff and Creating Customer Service Stewards

MODEL SUMMARY

I Care[®] provides Best Western staff the leadership and problem-solving training and resources needed to provide exceptional customer service as part of its larger effort to “clean up” its overall brand.

BACKGROUND

When making hotel arrangements, customers find it challenging to determine which hotel brand is consistently the cleanest. In the early 2000s, not a single hotel brand consistently ranked high among customers for cleanliness and customer care, creating a lack of consumer trust in a highly competitive hotel market. In 2007, Best Western set out to differentiate its brand and become the industry leader in superior customer care.

To achieve its goal, Best Western established its Best Western *I Care*[®] program, a staff training initiative that seeks to provide guests better customer service during

PARTNERSHIP

To develop the *I Care*[®] program, Best Western partnered with:

- J.D. Power and Associates and other data research organizations to provide an analysis of guest feedback; and

NUTS AND BOLTS

Key elements of the program include:

- **Manager Training** to improve effectiveness and build trust with staff and hotel guests.
- **On-the-Job Training** on how to best use innovative cleaning tools and methods, as well as preventative maintenance. As part of *I Care*[®], housekeeping staff learned how to use ultraviolet (UV) sterilization wands and UV inspection light to clean common areas and guest rooms.

KEY ELEMENTS OF MODEL

- On-the-job training
- Leadership, communication and critical-thinking skills training
- Staff empowerment
- Training in the latest cleaning methods
- Certified service champions

their hotel stay, beginning with high standards for cleanliness. *I Care*[®] is an acronym for the ideals and beliefs held by Best Western staff – Interact, Can-Do, Ask Questions, Resolve the Problem and Express Gratitude.



- ASPIRE, IDEO, and Proctor & Gamble to design and implement the *I Care*[®] training.

- **Problem-Solving and Leadership Skills** to empower hotel staff to be proactive and address the most commonly reported problems that have the biggest impact on a customer’s experience and, ultimately, the hotel’s revenue.

The program was developed using Stephen Covey leadership skills and techniques, which are available to employees through an online training tool. The first two phases of the Best Western *I Care*[®] program have been rolled out nationwide.

KEY:

A Apprenticeship

C Certification

CE Career Expo

CO Cooperative Education/Co-op

CR Credentials

CT Clinical Training/
Practicum

E Externship

H Hands-on Training

IT Industry Tour

I Internship

M Mentorship

OJT On-the-Job Training

OB Online and Blended
Classroom Training

■ PROGRAM BENEFITS, RESULTS AND OUTCOMES

The *I Care*® program is now a symbol of Best Western's culture and its commitment to providing superior customer service. Since the program was developed, Best Western guests and employees have reported a number of results, including:

- A significant decrease in customer complaints. Initial results of the training and certification suggest a 71 percent reduction in guest complaints and a 19 percent increase in customer service ratings. A Best Western hotel in Tempe, AZ, reported a 20-point improvement in customer satisfaction scores after each round of *I Care*® training.
- Reduced time spent onboarding and training new hires.

“Getting away from the one-and-done training model to a long-term model with constant staff communication is so important to maintaining a business competitive edge.”

— Michael Nalley, Director, Education, Training & Guest Feedback, Best Western International

- Increased employee engagement and sense of pride and empowerment.
- Improved quality of work among hotel staff.
- A commitment and a sense of responsibility among employees to adhere to the ideals of *I Care*® and the hotel brand. In an industry with high employee turnover, this is an invaluable shift that benefits the entire company.
- Increased feedback from hotel owners and managers regarding training resource needs.
- Certified service champions at every Best Western hotel in North America. The champion is the on-property promoter of the program and works to keep the concept and training alive at the hotel.

While the program was initially designed to be administered in a top-down approach, it has transformed into a bottom-up engagement. Now, hotel staff hold managers and owners accountable for the ideals in the Best Western *I Care*® training. The program has empowered staff to set high expectations for managers, who are responsible for ensuring that these ideals are part of hotel services and operations 24 hours a day, seven days a week.

■ SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

Best Western is currently rolling out phase three of the Best Western *I Care*® program — “Creating Your Future” — which will focus on maximizing guest loyalty through superior customer care. As part of the program's evolution, when this phase is rolled out, the program will be renamed *I Care*® *Every Guest Every Time*.

During this phase, hotels will complete a gap analysis to identify areas for customer care improvement. For each

identified area of improvement, hotel staff will develop an action plan for addressing the issue and increasing guest loyalty, which ultimately leads to increased hotel revenue. If a margin in customer service still exists after phase three, Best Western management plans to analyze the data and obtain staff feedback to determine the next course in the *I Care*® program.

■ WORDS OF WISDOM

Recommendations for businesses interested in building a similar onboarding and on-the-job continuing training program include:

- **Do Your Homework:** Define the training program goals and objectives and how the program supports the company's strategy. Senior management must be committed to providing the time, money and resources to build a robust training program, like the *I Care*® program.
- **Provide Flexible and Ongoing Learning Opportunities:** Ongoing learning provides opportunities for staff to be retrained on important concepts and program ideals. It is recommended that these learning opportunities be designed in a flexible manner so they can be completed when most convenient for employees.

- **Implement Stakeholder Feedback Mechanisms:** Feedback mechanisms allow for measurement of the program's success against established goals and benchmarks. They also allow for development of new program ideas for future training phases or programs.

CONTACT

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CME Professional Development Co-Op

A Dedicated Pipeline for Entry-Level Talent at Medtronic

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MODEL SUMMARY

The Haley Barbour Center for Manufacturing Excellence (CME) Professional Development Co-Op provides students enrolled in the University of Mississippi CME program an opportunity to apply their classroom skills and knowledge to projects at a major manufacturing operation. Students complete paid co-ops that provide them practical, on-the-job work experience alongside established professionals in their field of study.

BACKGROUND

In 2014, the human resources team at Medtronic Spinal set out to investigate new opportunities for growing its pipeline of entry-level talent. Through research, they learned of the CME Professional Development Co-Op program at the University of Mississippi. After careful review, the team decided to form a partnership with CME. Given Medtronic's proximity to the CME campus (approximately a one-hour drive from Memphis, TN), the team believed the co-op program would be a great way to support the business's long-term projects while also identifying qualified entry-level talent.

Established in 2008, the CME undergraduate program at the University of Mississippi provides unique and cutting-edge opportunities for engineering, business and accounting students interested in manufacturing.

PARTNERSHIP

Key partners of the CME co-op program include Baxter International; Caterpillar; GE Aviation; HAECO Americas, LLC; International Paper; Mars Foods; Medtronic; Schultz

KEY ELEMENTS OF MODEL

- Pathway to careers in modern manufacturing
- Mentorship
- Income for student
- Transferable interpersonal and intrapersonal skills
- Relationship building with business representatives at the co-op site
- Credit hours toward an undergraduate degree

The interdisciplinary program provides students fundamental knowledge of engineering, combined with an understanding of accounting, communication, human resources, leadership and management — all skills necessary in modern manufacturing. Throughout the program, CME students from multiple degree paths work in teams to solve complex manufacturing problems and create products. Most CME students participate in a two- to three-semester, paid co-op at a CME partner business, such as Medtronic.



CME co-op students at Medtronic.

Extruded Products; Texas Instruments; Thomas & Betts; Toyota; the University of Mississippi; and Viking Range.

KEY:

A Apprenticeship

C Certification

CE Career Expo

CO Cooperative Education/Co-op

CR Credentials

CT Clinical Training/
Practicum

E Externship

H Hands-on Training

IT Industry Tour

I Internship

M Mentorship

OJT On-the-Job Training

OB Online and Blended
Classroom Training

■ NUTS AND BOLTS

Students apply for the Medtronic co-op by submitting their resumes to the company, and those selected for the next round interview with key members of Medtronic Spinal. These students are also invited to the Medtronic Spinal facility in Memphis for a facility tour and meetings with key staff.

Co-op participants gain valuable work experience that increases in difficulty and responsibility as they advance through the program. Key elements of the program include:

- **Professional Development:** Before participating in a co-op, freshman CME students receive support in developing a professional resume and cover letter, preparing for interviews, and understanding business communication, as well as tips on how to conduct a job search. Through the co-op, students learn how to manage responsibility and work efficiently under pressure.
- **Exposure to Modern Manufacturing:** At Medtronic Spinal, students are exposed to breakthrough technologies used in medical devices. Co-op participants complete stints in finance operations,

sourcing engineering and concurrent engineering. In concurrent engineering, students apply their knowledge and skills to develop design transfers and designs for manufacturing.

- **Alignment with CME Academic Phases:** Work experiences during the co-op are aligned with the CME curriculum to provide students hands-on learning and an opportunity to apply skills taught in the classroom.
- **Mentorship:** At Medtronic Spinal, students are matched with a principal-level engineer, who provides knowledge sharing, guidance on the design and manufacturing process, and the opportunity for students to attend key project meetings.
- **New Hire Training:** Medtronic Spinal co-op students complete the same training as new employees, including new-hire orientation and a mini sales representative training. The training provides students a better understanding of the medical device industry, as well as the company, its employees and its customers.

■ PROGRAM BENEFITS, RESULTS AND OUTCOMES

The CME co-op student benefits and outcomes include:

- **Career Planning and Guidance:** Through career planning and guidance, students are exposed to various careers within manufacturing.
- **Paid Co-Op Position with Practical On-the-Job Training.**
- **Opportunities To Interact and Network with Potential Future Employers.**
- **Increased Motivation and a Stronger Desire To Learn.**
- **Transferable Interpersonal and Intrapersonal Skills.**
- **Credit Hours Toward an Undergraduate Degree.**

The CME co-op program employer benefits and outcomes include:

- **Priority Access to Top Talent:** By participating in the CME co-op program, business partners like Medtronic Spinal have priority access to young engineering and business talent who have developed a unique skill set focused on manufacturing.

- **Support for Long-Term Business Projects:** The length of the co-op is advantageous to the business, as it provides high-quality, motivated students to support long-term projects that typically cannot be assigned to a summer intern.
- **Opportunities for Staff To Serve as Leaders and Mentors:** For the co-op managers, the program provides opportunities to lead and mentor a potential future employee.

“It has been extremely gratifying to see these talented individuals develop right in our ‘backyard’ with an opportunity to recruit them for full-time employment upon graduation. With the talent and successes that the CME program brings to Medtronic, this strategy has been secured to support our overall business initiatives going forward.”

— *Dominic Presty, Senior Director, AMET and Core Spine, and Jeff Cobb, Senior Engineering Manager, Medtronic*

- **Ability for Key Staff To Focus on Strategic Business Projects:** The program opens up more time for Medtronic Spinal engineers to focus on strategic work as the co-op students perform other project tasks.

- **Funding Support:** Grant funding is available to companies to help alleviate financial barriers associated with hosting a co-op at their facility.
- **Enhanced Relationship with the University of Mississippi.**

■ SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

The vision of CME is to work with business partners to improve business conditions, serve partner company employees and promote economic growth. The CME partnership with Medtronic Spinal is a success story for the program: CME co-op students support the design and development of major medical devices that help alleviate pain, restore health and extend life, even as the students learn valuable industry-specific skills.

The Medtronic Spinal team places great importance on the relationship with CME and finds the program beneficial for their recruiting efforts. CME and Medtronic Spinal staff members are collaborating on how to improve the partnership, Medtronic Spinal's co-op program and the potential to hire co-op students upon graduation.

“Partnering with a professional and dedicated institution like the University of Mississippi and their Center of Manufacturing Excellence (CME) program has allowed Medtronic Spinal’s Advanced Manufacturing Engineering Team to select highly talented individuals to work on key growth programs and accelerate associated deliverables. This has clearly been a ‘win/win’ scenario for both entities and has been so successful that we are looking to expand our partnership with the University of Mississippi in other key areas of Operations as quickly as possible,” said Dominic Presty, senior director, AMET and Core Spine, and Jeff Cobb, senior engineering manager, Medtronic.

■ WORDS OF WISDOM

Recommendations for organizations interested in building a similar program include:

- **Make It Easy for Companies To Participate:** CME’s attentive and invested staff make supporting students through a co-op easy for Medtronic Spinal. Building a talent pipeline is important, but Medtronic Spinal’s human resources team has other daily tasks and deliverables to support business operations that take precedence over running the co-op program. Because the process is seamless, they are able to manage co-op program logistics with little time and resources. In total, the team spent less than 30 hours on logistics relating to the co-op, which included interviewing co-op students, meeting with CME staff, conducting background checks and hosting student tours of the Memphis facility.
- **Use Work-and-Learn Programs as a Recruiting Tool:** Medtronic Spinal wants to make more students aware of the medical device industry. Through the co-op program, the Medtronic Spinal team can illustrate for students the process of designing, developing and manufacturing new medical devices. The company can also lay out a path for students to an in-demand career field.

INFORMATION, TOOLS AND RESOURCES

- **CME Co-Op Program** <http://bit.ly/1NaQD5W>

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FirstBuild

Providing an Environment for Working Learners of All Ages

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MODEL SUMMARY

FirstBuild engages working learners of all ages in the development, technology, production and sale of next-generation appliances. The FirstBuild micro-factory in Kentucky provides University of Louisville students an opportunity to connect classroom learning and production skills. The facility also provides a community space for innovators of all ages where they can access the expertise and support needed for their custom projects.

BACKGROUND

FirstBuild was developed by GE Appliances and Local Motors as an online, micro-manufacturing community designed to inspire innovators of all ages to solve some of the toughest design and engineering challenges facing the appliance industry. To participate, community members must first submit their ideas to the FirstBuild website. Participants then identify market needs and vote to determine which of the submitted ideas should be pursued as projects and, ultimately, which products should move on to the micro-production stage. Products selected for

PARTNERSHIP

FirstBuild's key partners are GE Appliances, Local Motors, the University of Louisville Department of Engineering,

NUTS AND BOLTS

FirstBuild includes:

- An open community for makers of all ages;
- Collaboration space with University of Louisville engineering student clubs;
- Online innovator collaboration space;
- Engineering capstone projects for University of Louisville engineering seniors;

KEY ELEMENTS OF MODEL

- Paid internships and jobs
- Mentorship
- On-the-job training
- Career awareness and exploration
- Transferable interpersonal and intrapersonal skills
- Relationship building
- Technical skills needed in advanced manufacturing

production are designed and built within FirstBuild's micro-factory in Louisville, KY. This facility, officially opened in July 2014, enables innovators of all ages to participate and watch the appliance production process unfold. FirstBuild also holds open community hours that provide makers of all ages in the Louisville community access to the tools and resources needed to support their next big design.

local secondary schools and residents in the Louisville community.

- Internship opportunities for college students; and
- Activities for young students related to science, technology, engineering and math (STEM).

The innovators can access the Louisville facility on weekdays from 9 a.m. to 9 p.m. During these times, innovators have access to tools and project support from FirstBuild engineers and student workers to help them bring their product to market. The facility provides the advanced technology tools necessary to move from design

KEY:

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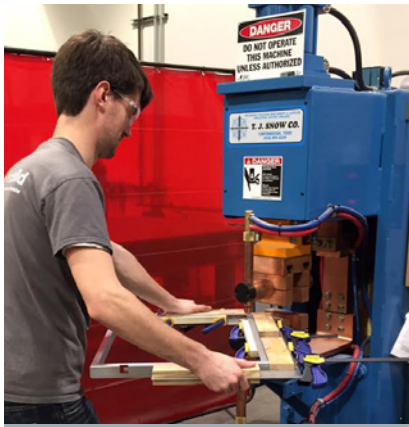
IT Industry Tour

I Internship

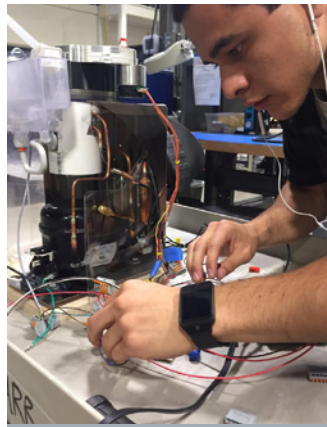
M Mentorship

OJT On-the-Job Training

OB Online and Blended
Classroom Training



Student worker Gregg Blincoe (University of Louisville) assembles an oven drawer for the easy-load oven.



Intern Ricky Aguiar (University of Louisville) works on the Opal Nugget Ice Maker.

decided to initiate a college internship program with the University of Louisville. Students from the university completed their senior capstone projects at FirstBuild's facility in 2015 and participated in the initial FirstBuild internship class, which required the participants to build an easy-load double oven with a sliding drawer. The oven concept, originally submitted by a FirstBuild community member, received the votes necessary to move into the design phase and by spring 2015 was ready for production. The FirstBuild team interviewed engineering students at the facility and selected five students based on their manufacturing skills and competencies. During the summer of 2015, the selected students were tasked with building 200 ovens for market distribution.

Key elements of the internship include:

to product development, including woodworking, welding, 3-D printing and computer-aided milling. FirstBuild also helps innovators sell and market their appliance products through the FirstBuild website and by facilitating opportunities to bring products to store shelves.

FirstBuild also creates a direct link between manufacturing operations and the University of Louisville's Department of Engineering curriculum. FirstBuild is conveniently located across the street from the university's campus, making it easy for students to both attend class and apply their learning in a real manufacturing operation environment. Incoming students to the engineering program are immediately exposed to FirstBuild as part of their freshman project. Through this experience, students learn to design and build a product with the support of the FirstBuild engineers. Located adjacent to the FirstBuild facility is the University of Louisville engineering garage, which is used by the engineering clubs to design products for competitions and class assignments. Students also have access to the FirstBuild open community space, including advanced tools and support from senior engineers.

In alignment with the program's vision to provide opportunities for hands-on learning, the FirstBuild team

- **Management of Production Line and Processes:** Working as a team, interns applied skills learned in the classroom to produce the ovens, including tool and die, Toyota's "5S system," line audit and quality processes, how to control fit and finish, batch build and batch assembly, plant performance tracking, and manufacturing ramp-up curves. From Monday through Wednesday, interns produced the oven parts and on Thursday and Friday assembled and packaged them. Each week, the interns reviewed the plant's performance with the production supervisor and brainstormed ways to make production more efficient.
- **Interpersonal and Intrapersonal Skills:** Interns learned important teamwork, problem-solving and communication skills that are necessary to run a production facility. If an intern needed assistance with the finish of a part, other interns routinely pitched in to help solve the problem.
- **Mentorship:** Interns worked closely with their production supervisor and senior engineers at the facility, who served as mentors by assisting students in problem-solving and process improvement.

■ PROGRAM BENEFITS, RESULTS AND OUTCOMES

The FirstBuild community benefits innovators of all ages within the Louisville area, as well as those community members who engage through the FirstBuild website.

FirstBuild student benefits and outcomes include:

- **In-Demand Technical Skills:** While working, students learn how to operate machinery, manage a production line and troubleshoot in-line problems.
- **Paid Internships and Jobs:** Interns and student workers are paid from \$12 to \$17 per hour and develop the skills to handle the responsibilities associated with a full-time job.

For example, an intern from the 2015 summer class gained the skills necessary to bend parts on a large press break machine on her own.

- **Access to Mentors:** Students develop relationships with FirstBuild supervisors and engineers, who teach them critical skills and provide professional development.
- **Career Awareness and Exploration:** Students learn how to design, develop, produce and market a product. Through FirstBuild, students are exposed to career paths in areas of manufacturing they might not have otherwise considered.
- **Intern Performance Reviews:** Managers provide interns a formal performance review at the conclusion of the internship, which gives feedback similar to that of a job review.
- **Strong Participation:** 100 percent on-time attendance was reported for the initiating 2015 summer internship class.

Maker/innovator community benefits and outcomes include:

- **Support in Bringing Ideas to Market:** FirstBuild helps makers bring new ideas to market while also providing them royalties.
- **Free Access to Tools:** The FirstBuild facility provides access to the tools necessary for the design and development of new products and innovations.

■ SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

The FirstBuild team continues to expand its relationship with local educational institutions. The summer 2015 internship was a success, and the FirstBuild team plans on running future internships. Currently, the FirstBuild micro-factory team is considering shifting factory hours to 12 p.m. to 7 p.m. so University of Louisville students are

■ WORDS OF WISDOM

The FirstBuild team urges people who want to set up similar programs to engage with local educational institutions and provide students hands-on learning opportunities that connect education with the workplace. This is especially critical in industries like manufacturing, which has a shortage of workers with the skills necessary to operate the advanced machinery in today's plants.

“You cannot hammer a nail over the internet. Learning ‘with your hands’ builds a strong foundation for future learning to stack upon.”

— Randy Reeves, Operations Manager, FirstBuild

- **Community of Makers:** Through the FirstBuild community, innovators have the chance to share ideas and network.

GE Appliances and Local Motors benefits and outcomes include:

- **Ability To Bring Product to Market Faster.**
- **Support for the Community Through a Maker Space:** At the FirstBuild community space, Louisville makers receive the support and resources needed to bring their ideas to market.
- **Cost-Effective Way To Blend Working and Learning Environments:** The costs associated with the student internship programs are low and provide students valuable hands-on experience in manufacturing appliances that will be sold in the market.
- **Opportunity To Engage the Consumer:** By creating a platform for community engagement, FirstBuild incorporates consumers into the future design and development of GE appliances.

able to further support the production process. By shifting the hours, FirstBuild will be able to further its ultimate goal of teaching students the skills and knowledge necessary to succeed in their professional careers while inspiring them to be lifelong innovators.

INFORMATION, TOOLS AND RESOURCES

- **FirstBuild** <https://firstbuild.com>

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KY FAME

Building Kentucky's 21st Century Skilled Manufacturing Workforce Through a Unique Employer-Educator Partnership

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MODEL SUMMARY

The Kentucky Federation for Advanced Manufacturing Education (KY FAME) develops a pipeline of skilled advanced manufacturing technicians through on-the-job application of a three-pronged process combining technical skills, personal behaviors and manufacturing core exercises. The program serves to improve the image of the manufacturing industry and promote manufacturing-related career pathway opportunities for Kentucky residents.

BACKGROUND

In the late 2000s, Toyota's Georgetown, KY, plant established a unique apprenticeship-style program to train and replace its aging skilled workforce, which was ripe for retirement. Toyota established the program because few applicants had the technical and professional skills necessary to perform the highly technical and advanced manufacturing jobs at its Georgetown plant. The program was designed around Toyota's manufacturing principles and included 11 fundamental elements: six personal behaviors coupled with five manufacturing core exercises. KY FAME was developed in response to growing workforce needs across a variety of manufacturers from multiple sectors as a proactive effort to create a curriculum aligned to the workplace that could be applied simultaneously on the job and in the classroom.

The first cohort of KY FAME students started in 2010, with 12 students who were simultaneously working at Toyota and pursuing associate degrees at Bluegrass Community & Technical College. The program has grown as employers have witnessed the success at Toyota and the potential benefits to their companies and regions. As of fall 2015, the Advanced Manufacturing Technician (AMT) track has 104 students enrolled at six Kentucky

KEY ELEMENTS OF MODEL

- Industry-recognized credentials
- Paid on-the-job training
- Little or no school debt
- Common employability skills
- Associate degree
- Technical skills needed in advanced manufacturing
- Foundation for future career pathway

community colleges, with the seventh and eighth regions recently organized.

In recent years, another region of the state — northern Kentucky — has experienced a similar high demand for manufacturing jobs. The northern Kentucky story is illustrative of how KY FAME is being adapted and adopted across the commonwealth. In northern Kentucky in particular, multiskilled maintenance professionals were in high demand, and due to the labor shortage, workers were moving from company to company as they were offered more pay. In late 2013, the Florence, KY-based team of Robert Bosch Automotive Steering LLC (Bosch AS), led by Mike Hirsch, set out to study and benchmark best practices of work-and-learn programs to train and secure a dedicated pipeline of skilled workers after high school graduation. The team studied and toured apprenticeship and workforce development programs in the Carolinas, Michigan and Kentucky before settling on the KY FAME AMT program as its model of choice.

The Bosch AS team worked with local manufacturing companies to develop a Northern KY FAME Chapter, whose objective is to satisfy manufacturing companies' needs for skilled maintenance technicians and individuals

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who can operate, program and maintain next-generation digital automation technology. In August 2015, the chapter launched its first semester of the program in partnership with 12 sponsoring companies. The first class of 25 students is expected to graduate in May 2017. The chapter now has 17 member companies and expects the number of students enrolled in the program to grow to 60 per cohort year.

■ PARTNERSHIP

KY FAME is a collection of manufacturing-led regional chapters including almost 100 companies across Kentucky, such as 3M Manufacturing, Bosch AS, General Electric, Hahn Automation, L'Oréal, MUBEA and Toyota. Local economic development and workforce organizations such as the Northern Kentucky Tri-County Economic Development Corporation and the Central Kentucky Business Education Network partner within the regional chapters. The KY FAME governing board of directors

■ NUTS AND BOLTS

Companies recruit three different types of students for the KY FAME program:

- High-achieving high school students with an interest and background in science, technology, engineering and math (STEM);
- Veterans with technical backgrounds; and
- Current or displaced workers interested in advancing their skills.

Once identified, prospective students complete and submit an application, which is then reviewed by KY FAME and company partners. Recently, Bosch AS posted five internal openings for the program and received 55 applications. These applicants completed the required entrance exam (COMPASS or ACT) as well as an on-site interview.

Each week, over the course of five consecutive semesters, selected program participants complete a 40-hour work week, plus course homework. The work week includes:

- 16 hours of instruction and labs over two days on campus in a simulated manufacturing setting at a Kentucky Community and Technical College System location; and
- 24 hours of hands-on apprenticeship-style training with mentors at an AMT partner company. Through hands-on instruction at these companies, students make the connection between concepts presented in the classroom and the workplace.



KY FAME students work at the Robert Bosch Automotive Steering facility in Florence, KY.

includes the KY FAME regional chapter presidents, the Kentucky Community and Technical College System representing education, the Kentucky Association of Manufacturers representing manufacturers, and the Kentucky Cabinet for Economic Development representing government.

Key elements of the program include:

- **Advanced Technical Skills Training:** Through classroom learning and hands-on work experience, students learn the technical skills needed to succeed in manufacturing. These skills include electricity, robotics programming and operation, fluid power, mechanics, and industrial troubleshooting.
- **Analytical, Critical-Thinking and Interpersonal Skills:** Students learn to work in team environments, solve real-world business problems using lean processes, identify ways to improve processes and cut costs, and adapt to business changes. These skills are critical for students to operate and maintain the complex and expensive machines used in U.S. manufacturing operations.
- **Exposure to Multiple Manufacturing Businesses and Processes:** Students are exposed to all companies within their KY FAME chapter membership, not just the company where they are employed.
- **Core Skills for a Safe and Productive Work Environment:** The program is based on five core manufacturing fundamental elements. Students learn the skills necessary for a safe and productive work environment. These skills are taught through manufacturing core exercises, which include safety culture, the “5S system” of efficient workplace organization, lean manufacturing, problem-solving and machine reliability.

PROGRAM BENEFITS, RESULTS AND OUTCOMES

The KY FAME partnership program provides a locally sourced pipeline of globally competitive, talented and skilled industrial maintenance workers.

KY FAME student benefits and outcomes include:

- **Common Employability Skills for Success in Business:** Students learn key skills through the classroom and workplace, including the interpersonal, analytical and critical-thinking skills necessary to succeed in business. The six personal behaviors are attendance, initiative, diligence, interpersonal skills, teamwork and communication. Assessments in school and at work chart the development of these skills.
- **Pathway to High-Demand Technical Jobs:** KY FAME graduates are prepared for employment as industrial maintenance technicians. According to a Q1 2015 Economic Modeling Specialist International report, a source for labor market data and regional economic analysis, the demand for skilled industrial maintenance technicians is projected to grow by 9 percent in Kentucky and 11 percent nationwide between 2014 and 2024.

“The next step is to identify high school students in their junior and senior years to complete internships at Bosch AS that would serve as a feeder into the KY FAME AMT program.”

— Mike Hirsch, Vice President of Operations, Robert Bosch Automotive Steering, and President, Northern Kentucky FAME Chapter

- **Associate Degree in Applied Science in Industrial Maintenance Technology – Advanced Manufacturing Technician Track:** KY FAME graduates obtain an associate degree with 68 to 71 college credit hours that may be applied toward a bachelor’s degree in advanced manufacturing engineering or advanced manufacturing business at partner four-year universities. At many companies, program graduates hired full time may apply the company tuition reimbursement toward advanced degrees.
- **Industry-Recognized Certifications:** KY FAME employers led the development of the AMT track, recognizing the need for statewide quality and consistency in technical skills education.

- **1,800 Hours of On-the-Job Training:** Students complete two years of hands-on work experience at their sponsoring employer.
- **Little to No School Debt:** Company sponsors provide competitive pay, with most students earning enough (approximately \$25,000) over the course of the program to cover the associated tuition and program costs.
- **Opportunity for Full-Time Employment with the KY FAME Sponsoring Employer:** Students develop relationships with and the skills needed by sponsoring employers, making them quality candidates for potential full-time employment.

KY FAME employer benefits and outcomes include:

- **A Pipeline of Skilled Workers:** At Bosch AS, costs to replace a technician average \$10,000, while the cost per participant in the KY FAME program is only \$2,500. This makes it extremely cost effective to develop a pipeline through KY FAME, a program aligned to Bosch AS’ specific needs for skilled technicians.
- **Mentoring and Training of Entry-Level Technicians to Company Standards:** KY FAME allows employers to train maintenance technicians to their company standards for quality, productivity and safety. To compete globally, the company is focused on improving productivity and reducing quality incidents while maintaining a safe work environment. The team at Bosch AS believes this is essential to staying globally competitive.
- **Skilled Future Leaders:** Upon program graduation, students are often hired into full-time jobs as team or line leaders within the sponsoring employer’s organization. The expectation is that, as the KY FAME program continues at Bosch AS, improvements will be reported within the key performance indicators for productivity, quality and safety.

KY FAME technical and community college benefits and outcomes include:

- **Faculty Equipped To Meet Local Manufacturing Needs for Skilled Workers:** As part of the program, faculty are trained and certified to deliver the KY FAME curriculum. The curriculum aligns with the most in-demand, technology-driven skills for technicians within the areas of robotics, mechanics, electronics, fabrication and fluid power.

- **Direct Access to Local Employers:** Employers and educators constantly communicate about coursework, job training and student progress. Additionally, educational institutions are provided updated information on local employer workforce needs.

- **Knowledge of Future Training Needs:** At Bosch AS, a handful of educators are selected to spend a week at the plant to learn more about the current and future needs of the industry that they can then incorporate into their teaching and curriculum.

SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

The KY FAME program has been recognized by the U.S. Department of Labor’s National Career Pathway Network as the “Best Career Program in the U.S. (2013).” Neighboring states are applying KY FAME best practices to their own programs. Using the model, Toyota has established programs in its plant communities in Alabama, Indiana, Kentucky, Mississippi, Missouri, Tennessee, Texas and West Virginia. The program is successful because it is an employer-educator partnership led by local employers. Through industry leadership, a program like KY FAME is sustainable. The program continues to

grow, with eight chapters established and two more being planned across Kentucky. With the KY FAME model as the foundation of the AMT program, other job functions and pathways can be established, such as tool and die, machine operators, etc.

The KY FAME model is a critical component of strategies to develop and fill the skilled pipeline of industrial technicians within the Kentucky Bluegrass region. At Bosch AS, the next step is to identify high school students in their junior and senior years to complete internships that would serve as a feeder into the KY FAME AMT program.

WORDS OF WISDOM

Recommendations for employers interested in building a similar program within their community include:

- **Obtain Industry Buy-In:** Before launching the Northern Kentucky Chapter of KY FAME, Mike Hirsch visited local manufacturing companies to promote the program as a solution to the skills gap. For a program of this size to be successful, employers must take a leadership role.
- **Build a Robust Recruiting Strategy Through Grassroots Effort:** To recruit for the Northern Kentucky FAME Chapter, Mike Hirsch started by meeting with local school superintendents and community college presidents to explain the skills gap in the industry and how the program would address the problem and to request their support. Next, the companies within the Northern Kentucky Chapter held open houses for parents, students and teachers to learn more about the advanced technologies and career paths within manufacturing. These grassroots

efforts helped change the perception of manufacturing from dirty and dangerous to a productive and lucrative career pathway opportunity for students.

- **Be Industry-Led:** Following industry’s lead, employers involved regional stakeholders, including economic development/workforce development and local community/technical college partners. Additionally, two to three companies partnered to visit high schools to talk with junior and senior high school students about the KY FAME program as a viable alternative to a four-year degree. Through these efforts, the Northern Kentucky FAME Chapter was able to sponsor 25 students for the first semester of the program.

INFORMATION, TOOLS AND RESOURCES

- **Kentucky Skills Network**
<http://thinkkentucky.com/workforce>
- **KY FAME** www.kyfame.com

CONTACTS

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MI-BEST Internship Program

Providing Bozzuto Management Company a Dedicated Pipeline of Technical Workers

MODEL SUMMARY

The Maryland Integrated Basic Education and Skills Training (MI-BEST) Certificate for Apartment Maintenance Technicians (CAMT) program connects apartment maintenance technician students to employers in the residential property management industry. The program is designed to provide low-income workers the necessary skills to obtain full-time jobs within the industry.

BACKGROUND

In 2012, Maryland's Montgomery College received a \$105,000 grant from the Greater Washington Workforce Development Collaborative, an initiative of The Community Foundation for the National Capital Region. The goal was to develop a contextualized instructional model using the National Apartment Association Education Institute (NAAEI) CAMT curriculum and the college's existing CAMT program and facilities. The program was designed to train low-income workers with diverse backgrounds, many of whom needed assistance with speaking English and other basic skills. The college applied the MI-BEST model to provide students the additional support needed to succeed in the program and in the workforce. Today, the program is known as the MI-BEST CAMT program.

When designing the program, the staff at Montgomery College wanted to select a field of study that would lead to immediate full-time jobs with benefits for the students. Feedback from local apartment management companies indicated high demand for apartment maintenance technicians and opportunities for future advancement. Despite the demand, the college found many companies were interested in hiring only technicians with prior experience.

KEY ELEMENTS OF MODEL

- Mentorship
- Paid internship
- Industry-driven and industry-recognized credential
- English language and basic skills
- Computer skills
- Workplace skills
- Technical skills
- Pathway to full-time jobs with benefits

To address this challenge, NAAEI and college staff reached out to local business partners to determine their interest in creating internship opportunities for MI-BEST students. Bozzuto Management Company, a property management company with more than 50,000 residences, was highly interested in developing an internship program. The program would provide Bozzuto with dedicated, entry-level employees that the company could develop into skilled, seasoned employees.



A Bozzuto maintenance intern presents building recommendations to Bozzuto senior staff.

KEY:

- | | | | |
|---------------------------------------|---|----------------------------|--|
| A Apprenticeship | CR Credentials | H Hands-on Training | M Mentorship |
| C Certification | CT Clinical Training/
Practicum | IT Industry Tour | OJT On-the-Job Training |
| CE Career Expo | E Externship | I Internship | OB Online and Blended
Classroom Training |
| CO Cooperative Education/Co-op | | | |

■ PARTNERSHIP

The MI-BEST CAMT internship program is administered as a partnership of Montgomery College, Bozzuto Management Company and NAAEI.

■ NUTS AND BOLTS

MI-BEST CAMT is a seven-week program that combines English language instruction, basic skills and employment skills with basic technical training to produce work-ready apartment maintenance technicians. The model uses two instructors, an English for speakers of a second language (ESOL)/basic skills instructor and a CAMT content instructor, who co-teach the course. During the program, students complete coursework five days a week from 8:30 a.m. to 4:30 p.m. The course is offered twice a year and is free to qualifying students. After completing the coursework, highly successful students are selected by Bozzuto to complete an internship, during which they have the opportunity to apply skills taught in the classroom in the workplace.

Key elements of the program include:

- **English as a Second Language:** Students learn basic skills in reading and communicating in English that are necessary to securing employment in apartment maintenance.
- **Apartment Maintenance Basic Technical Training:** Students learn how to maintain and repair the interiors and exteriors of apartment buildings, electrical systems, plumbing, appliances, and HVAC systems.
- **Interview Preparation and Ongoing Job Placement Support:** Through the program, students receive workplace readiness training, which includes tips on how to prepare for and succeed in an interview. For the first Bozzuto internship, 16 students were interviewed, and six were selected to participate by Bozzuto staff. Montgomery College works with NAAEI to recruit apartment companies to participate in career fairs and provides ongoing support to students regarding any issues that might affect their ability to succeed in a job (e.g., transportation or child care).

“We were delighted with the dedication, motivation and enthusiasm these individuals displayed over the course of the internship, not to mention their capacity to demonstrate their ability to be contributing members of our maintenance teams in just a short time.”

— *Kristen Reese, Vice President of Talent Management, Diversity & Inclusion, Bozzuto*

- **Paid Internship with On-the-Job Training:** Bozzuto designed the hands-on internship. The kickoff took place in the summer of 2015 with a group of six interns. Each intern was paired with Bozzuto communities to complete an eight-week internship. The interns were assigned host managers, who served as mentors and helped to enhance the technical skills taught through the MI-BEST CAMT program. To expose them to different facilities and job functions, interns were provided with a list of tasks to learn and perform (learning milestones) at two Bozzuto communities and were invited to company events. The milestones included learning how to respond to a service ticket and perform preventative property maintenance. Interns also completed Bozzuto plumbing, electrical and new employee training. Through check-in points, mentors provided feedback regarding each intern’s performance and his or her ability to hit established learning milestones. The check-in points also allowed the Bozzuto learning and development team to identify and address any challenges early in the internship.
- **Presentation Skills:** At the completion of the internship, interns conducted two building inspections and presented their findings to Bozzuto senior staff.

PROGRAM BENEFITS, RESULTS AND OUTCOMES

The MI-BEST CAMT program has successfully provided low-income workers with the knowledge and skills needed to land a full-time job as an apartment maintenance technician. Since implementation, more than 90 students have completed the program.



Bozzuto maintenance interns with Kimberly Brown, instructional services senior program manager, Montgomery College.

MI-BEST CAMT student benefits and outcomes include:

- **Industry-Recognized Credentials:** The CAMT credential was developed by the NAAEI and is accredited by the American National Standards Institute. It is recognized by the industry and certifies that individuals are proficient in the skills needed to be apartment maintenance technicians.
- **Paid Internships:** The internships provide students with hands-on instruction and the experience needed

SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

The program is supported by grants from the Greater Washington Workforce Development Collaborative (an initiative of The Community Foundation for the National Capital Region), the Bank of America Charitable Foundation and The Community Foundation for Montgomery County. Montgomery College provides in-kind support.

At Bozzuto, feedback was positive, and the company plans to continue running the apartment maintenance technician internship program. Future internship classes will include a mid-point skills test. This test will allow fast

to secure full-time employment as an entry-level apartment maintenance technician.

- **Access to Full-Time, In-Demand Jobs:** Graduates of the MI-BEST CAMT program have moved from unemployment or minimum wage jobs to full-time jobs earning competitive wages. Upon successful completion of the Bozzuto maintenance internship program, graduates were offered full-time maintenance technician positions with the company at a competitive salary and with full company benefits.
- **Communication and Technical Skills:** Through classroom instruction, students learn valuable English, math, reading, technical and listening skills needed to succeed in the apartment management industry.
- **Professional Development and Career Readiness Skills:** The internship program includes job-interviewing skills to help students secure full-time positions with benefits.

Program benefits and outcomes for Bozzuto include:

- **Alignment with Bozzuto Talent Strategy:** The program complements the Bozzuto strategy to build a pipeline for entry-level workers to join the company.
- **Recruiting Tool for Loyal Employees:** The first Bozzuto interns were excited to participate in the program. The company's goal is to reduce turnover among maintenance technicians, thus reducing downtime (when positions are vacant), hiring and training costs.
- **Dedicated and Engaged Employees:** Of the six interns in the first Bozzuto class, four were given full-time offers, and one received an internship extension.

learners, or students with prior maintenance experience, to move from the internship to full-time employment in four weeks.

An unanticipated challenge the program faced was interns' ability to secure reliable transportation. The staff at Montgomery College is currently investigating partnerships with local companies to help support the transportation process. This support includes helping students obtain a driver's license and secure budget-friendly and reliable cars.

■ WORDS OF WISDOM

Bozzuto recommendations to fellow employers considering a similar partnership include:

■ **Invest in Training Entry-Level Workers:**

Companies should invest in training people who really demonstrate a desire to secure a full-time job. These individuals are more inclined to stay at your company than a seasoned employee, who might be taking the job simply to increase his or her salary.

- ### ■ **Be Flexible:** In the Bozzuto internship initiating class, one student had previous maintenance technician experience and demonstrated a higher skill level. The Bozzuto team provided him the opportunity to test out of the internship at the mid-point and be placed into a full-time position.

- ### ■ **Structure the Program for Success:** The Bozzuto team structured the program to provide interns with the resources and learning milestones needed to succeed and obtain full-time positions with the company.

INFORMATION, TOOLS AND RESOURCES

- **MI-BEST CAMT Fact Sheet**
<http://bit.ly/1NqbWTG>

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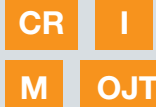
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Nanodegree

Transforming IT Training by Making It Affordable, Relevant and Available Online



MODEL SUMMARY

The Nanodegree program is an online, fast-track, high-skill and career-specific training for individuals interested in gaining industry-relevant technology skills. In as little as six months or less, students master the foundational programming and/or analytical skills necessary to qualify for an entry-level position at major corporations, including AT&T, as a web developer, data analyst, or iOS or Android applications designer. Upon completion, students receive an industry-recognized credential, and those who are not currently AT&T employees have the opportunity to apply for AT&T internships and full-time employment.

BACKGROUND

AT&T is in the midst of a business transition from a hardware-based environment to a software-defined, cloud-based and mobile-first environment. The transformation is driven by a shift in the communications business and customer preferences for wireless and mobile devices. The change requires AT&T employees to build critical software skills in areas such as cloud architecture. To make this transformation, the company recognized it needed to widen the pipeline of trained applicants.

AT&T decided to collaborate with Udacity to develop a curriculum to address these hiring and training needs. AT&T's investment in the Nanodegree program is part of **AT&T Aspire**, the company's signature philanthropic program, which seeks to prepare students for success in school and the 21st century workforce. The Nanodegree program is offered through the massive open online

COLLABORATION

While AT&T was Udacity's pioneer industry collaborator, many leading employers are now involved with the

KEY ELEMENTS OF MODEL

- On-the-job training and opportunities for career advancement
- Industry-recognized credentials
- Technical skills training
- Relationship building with AT&T personnel for those who secure an AT&T internship
- Paid internships
- Pathway to careers in information technology (IT)

course (MOOC) format and initially focused on seven competencies: Front-End Developer, Data Analyst, Full Stack Web Developer, iOS Developer, Introduction to Programming, Android Developer and Beginning iOS App Development. Over the course of eight months, the team developed the educational content and feedback mechanisms for Nanodegree programs, with a focus on improving learning for the changing job landscape. Their work resulted in a fast and affordable pathway for students and AT&T employees to gain the skills needed to succeed in leading technology companies, such as AT&T.

The Nanodegree program is endorsed by Business Roundtable, an association of chief executive officers of leading U.S. corporations working to promote sound public policy and a thriving U.S. economy.

Nanodegree program, including Autodesk, Cloudera, Facebook, Google, MongoDB and Salesforce.

KEY:

A Apprenticeship

C Certification

CE Career Expo

CO Cooperative Education/Co-op

CR Credentials

CT Clinical Training/
Practicum

E Externship

H Hands-on Training

IT Industry Tour

I Internship

M Mentorship

OJT On-the-Job Training

OB Online and Blended
Classroom Training

■ NUTS AND BOLTS

Nanodegree credentials take most students an average of six to nine months to complete, with 10 to 15 hours per week of training and student practice in applying the skills taught in the classroom. The Nanodegree program was launched in fall 2014, and as of late summer 2015, there are more than 10,000 Nanodegree enrollments, including more than 1,000 AT&T employees, in the following programs:

- Front-End Web Developer (launched in 2014);
- Data Analyst (launched in 2014);
- Full Stack Web Developer (launched in 2015);
- iOS Developer (launched in 2015);
- Introduction to Programming (launched in 2015); and
- Beginning iOS App Development (launched in 2015).

Working with Google, Udacity recently developed Tech Entrepreneur and Android Developer Nanodegrees to add to the program offerings.

The Nanodegree program is structured around project-based video instruction and is designed with flexibility in mind — it can be completed anywhere, at any time of the day.

Key elements of the Nanodegree include:

- **Skills-Based Technical Education and Instruction.**
- **Code Project Review:** Students learn how to code through personalized code-level project review, which takes place within two hours of code submission, on average.
- **Project-Based Learning:** Completed student projects are hosted on GitHub, giving learners an online platform to showcase their experience and skills to prospective employers.
- **Industry-Recognized Credentials:** The program is recognized by top software development companies, including Google.
- **Student Forums:** The program provides opportunities for students to collaborate and learn from one another.

“As AT&T moves to a software-defined, mobile-first environment, the need to develop employees with the skills to succeed and to help us succeed has never been more critical. These programs create a new and innovative way to help address a rapid overhaul of our employees’ skills.”

— *Scott Smith, Senior Vice President of Human Resources, AT&T*

■ **Career Advice, Mentorship and Counseling:**

The Nanodegree program includes a career advisor segment that provides step-by-step mentorship for the student on conducting a successful job search, including individualized feedback on his or her resume, an online presence, practice answering behavioral and technical interview questions, and workshops on salary negotiation and networking. Students also have an opportunity to schedule career-counseling sessions and attend career fairs.



Dawoon Choi, Udacity Front-End Web Developer student.

“Many students have noted that the fast code-level review of their submitted projects is extremely helpful for learning quickly and concretely what they want to know and identifying areas where they need to improve in order to succeed in the workforce,” noted a Udacity spokesperson. “This practical, hands-on and flexible approach to learning also gives students a portfolio of unique projects they built themselves to showcase to employers who appreciate seeing the results of their Nanodegree credential in a tangible way in order to evaluate their readiness for the job. A Nanodegree credential is much more than a piece of paper. It’s hands-on experience.”

PROGRAM BENEFITS, RESULTS AND OUTCOMES

The Nanodegree program student benefits and outcomes include:

- **Training for Current AT&T Employees:** The Nanodegree program provides a fast and affordable option for full-time employees to gain the necessary skills to obtain positions within the company.
- **High-Quality, In-Demand Technical Skills:** The focus is on technical skills needed to land an entry-level software development job or to grow an employee's current knowledge and skill set.
- **Accessibility for Diverse Student Populations:** As part of AT&T Aspire, scholarships through nonprofit organizations like Genesys Works and Year Up provide program access to diverse student populations, including women, minorities, recent high school graduates, veterans, and the long-term underemployed and unemployed. By gaining the skills needed to secure in-demand jobs, students are able to more easily reach economic self-sufficiency. In addition, AT&T is joining Udacity to provide 1,200 scholarships for underserved students through qualified nonprofit organizations.
- **Affordable Education and Stackable Industry-Recognized Credentials:** The Nanodegree program costs \$200 per month and is typically completed in six to nine months. Students who graduate within 12 months of their start date are eligible for a 50 percent reimbursement of their tuition if they are not already receiving reimbursement through their company. At program completion, students receive a stackable credential that is recognized by major employers,

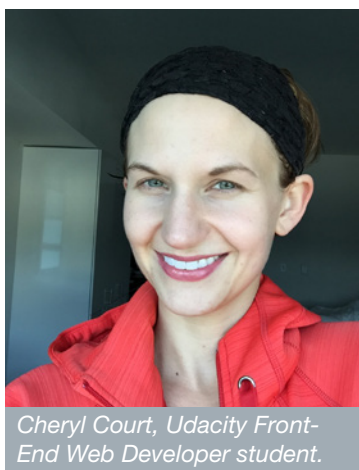
including AT&T, Autodesk, Cloudera, Google and Salesforce.

- **Pathway to In-Demand Technology Careers:** Udacity partners recognize the Nanodegree program as a pathway toward a technology position within their company. AT&T is offering 100 paid internship slots for Nanodegree credential graduates who are not AT&T employees, providing them an opportunity to be considered for a full-time position with the company.

The Nanodegree program benefits to AT&T include:

- **Networking Across AT&T Locations:** A virtual collaboration platform allows AT&T employees to network with employees outside of their home office.
- **Training Accessible 24/7:** The platform is available for employees to gain needed skills when it is convenient for them. It also reduces the need for in-house resources to provide training.
- **Cost-Effective Training:** The online training platform is a cost-effective way to quickly train staff across AT&T sites.
- **Curriculum Alignment with Company Needs:** AT&T subject matter experts are frequently involved in curriculum design to ensure that students are learning the technology skills the company needs for continued growth and success.
- **Dedicated Pipeline of Talent:** The company has established a dedicated pipeline of future technology talent by offering Nanodegree program graduates who are not AT&T employees the opportunity to intern at AT&T.

SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES



Cheryl Court, Udacity Front-End Web Developer student.

The first cohort to complete the Nanodegree program graduated in the spring of 2015. As they would with any new learning platform and credential program, Udacity and AT&T continue to work closely to learn and apply lessons to improve the program. These adjustments are made based on student feedback regarding the coaching process and ways to improve the virtual collaboration environment and program curriculum. For

example, Udacity and AT&T have incorporated feedback and made changes to better articulate the prerequisites needed to successfully complete the Nanodegree program. This clarity helps ensure that students are set up for success before program enrollment.

The Nanodegree program is a key part of the AT&T training and talent acquisition model. The Nanodegree program has been integrated into AT&T's competency-based job models, and management has communicated the benefits of the degree to employees. This integration helps employees to see the connection between the Nanodegree program and current and future company positions.

■ WORDS OF WISDOM

Recommendations for companies considering developing their own MOOC program include:

- **Assess Current Training Program Offerings within the Company:** Identify how the program is unique compared to other company training initiatives.
- **Develop a Thorough Employee Communication Plan:** Invest the time and resources needed to develop a plan that clearly communicates the benefits of the program for both the company and the individual employee. The plan should also explain why the online platform is the best method for delivering the training.
- **Use Subject Matter Experts To Design the Curriculum:** At AT&T, subject matter experts frequently worked closely with the Udacity team to design the curriculum. This collaboration ensures a match between the program and the skills needed by the company.
- **Get Buy-In from Senior Management:** Senior leadership must support the program and communicate why it is important to the company and its employees. This involvement is critical to boosting employee buy-in.

INFORMATION, TOOLS AND RESOURCES

- **AT&T Press Release on Partnership with Udacity to Create Nanodegrees**
<http://soc.att.com/1pBY4fV>
- **AT&T Press Release on AT&T and Udacity Offering Scholarships to Underserved Students** <http://soc.att.com/1LPXFIQ>
- **Udacity Nanodegree**
www.udacity.com/nanodegree
- **Udacity's Career Advisor Offering Blog Post**
<http://bit.ly/1LOZtW8>

VIDEOS

- **Meet Udacity** <http://bit.ly/1Gkx7au>
- **Networked Education AT&T**
<http://bit.ly/1Gkx9yQ>

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ProStart

Providing High School Students the Necessary Skills To Be Future Restaurant and Foodservice Leaders

C**IT****M****OJT**

MODEL SUMMARY

The ProStart program is a nationwide, industry-driven career and technical education program for high school students interested in pursuing a career in the foodservice industry. Through two years of classroom instruction and 400 hours of paid training, students learn the essential tools and techniques of the industry, including safety, food preparation, cooking, nutrition, ordering, inventory, restaurant management and marketing.

BACKGROUND

ProStart is the National Restaurant Association Education Foundation's (NRAEF) cornerstone program. The program is a two-year career and technical education culinary and restaurant management program for high school students. It provides the skills needed to succeed in the foodservice industry to more than 118,000 high school students in 1,700 high schools across 50 states, the territory of Guam and Department of Defense Education Activity schools (located in Europe and Asia).

The program is administered through NRAEF in partnership with state restaurant associations and members of the restaurant industry, including the world's leading casual dining restaurant company, Brinker

KEY ELEMENTS OF MODEL

- Restaurant industry work experience
- Industry-recognized credentials
- Credit hours
- Career awareness and exploration of the foodservice industry
- Transferable interpersonal and intrapersonal skills
- Common employability skills
- Mentorship and relationship building with foodservice professionals

International (owner of Chili's® Grill & Bar and Maggiano's Little Italy®), and third-generation restaurant owner Peter Sclafani, executive chef and co-owner of Ruffino's Restaurant in Baton Rouge and Lafayette, LA. Bob Sabina, area director for Chili's Grill & Bar in San Antonio, TX, led the implementation of ProStart at Brinker International. At the time of implementation, Sabina was based in Colorado, where he led ProStart engagements at Colorado Chili's restaurants. Sabina's son even participated in and completed the ProStart program.



Thunder Ridge High School (Highlands Ranch, CO) ProStart students pose for a picture after visiting Chili's Lone Tree in Colorado. Students learned interviewing skills, culinary arts and Chili's marketing practices.

PARTNERSHIP

The ProStart program succeeds due to the strong national and local community partnerships among ProStart businesses; industry partners, including Brinker International and Ruffino's Restaurant; educators; and the NRAEF and its respective state restaurant association partners.

KEY:

A Apprenticeship**C** Certification**CE** Career Expo**CO** Cooperative Education/Co-op**CR** Credentials**CT** Clinical Training/
Practicum**E** Externship**H** Hands-on Training**IT** Industry Tour**I** Internship**M** Mentorship**OJT** On-the-Job Training**OB** Online and Blended
Classroom Training

■ NUTS AND BOLTS

Key elements of the program include:

- **400 Hours of Paid and Mentored On-the-Job Training:** Restaurant industry training from professional chefs provides ProStart students the skills necessary to succeed in the foodservice industry. These skills include knife skills, cost control, culinary techniques, marketing and customer service.
- **Classroom Instruction on Basic Foodservice Skills and Techniques:** Over the course of two years, students complete coursework in nutrition, kitchen essentials, culinary arts, safety and sanitation, communication, teamwork, nutrition, restaurant management, purchasing, and inventory and cost management.
- **Exploration of the Foodservice Industry:** ProStart business partners work closely with program teachers to align coursework with career exploration events. At participating Chili's restaurants, students receive job interview training from the general manager, learn techniques for effective restaurant marketing, and take lessons in culinary tools and techniques from working members of the kitchen staff.
- **Opportunity To Participate in ProStart Competitions:** Competitions begin at the state level in two areas: restaurant management and culinary arts. In the management competition, students develop a restaurant business proposal and present

■ PROGRAM BENEFITS, RESULTS AND OUTCOMES

The ProStart program teaches students the basic skills in foodservice, the art of cooking and restaurant operations.

Student benefits include:

- **ProStart Certificate of Achievement (COA):** Students who pass the end-of-year exams covering both culinary arts and restaurant management practices and demonstrate at least 400 hours of industry work experience receive an industry-recognized ProStart COA award. This certificate signals to employers that the student has the skills needed to succeed in the industry.
- **Scholarships Toward Future Training and Education:** Students placing at ProStart competitions receive scholarships for culinary programs at top institutions, including The Culinary Institute of America; Johnson & Wales University; and the University of Nevada, Las Vegas.

it to a panel of industry judges. In the culinary challenge, students must complete a three-course meal in 60 minutes with only two butane burners and no access to running water or electricity. Business partners, like Ruffino's and Maggiano's, help students prepare for these competitions. Teams that place first in the culinary and management competitions are invited to the National ProStart Invitational, where approximately 350 students compete for scholarships to the nation's premier postsecondary culinary and restaurant management programs.

"Getting staff involved in the program is easy. Once employees spoke to a ProStart class, they loved it and were hooked!"

—Bob Sabina, Area Director, Chili's in San Antonio, TX

- **Common Employability Skills:** Through classroom training and application of that training on the job, students learn critical skills that apply in all jobs, including teamwork, problem-solving, customer service, public speaking, interviewing and accountability.



Bob Sabina, area director of Chili's in San Antonio, TX, teaches students about advanced food cost management.

- **Pathway to Long-Term Careers in the Foodservice Industry:** Peter Sclafani knows firsthand the time and dedication required to complete the ProStart program, as he serves as a judge in ProStart competitions. Of those students he has polled in the ProStart competition, Sclafani has noted that about 80 percent plan to pursue a culinary or restaurant management career. When interviewing to hire for new positions, he often gives preferential treatment to applicants who have completed the program.
- **College Credit:** Premier culinary arts and hospitality management colleges in the nation have articulation agreements with ProStart, which allow students to earn credit toward introductory college courses.

“The ProStart program is communicating to today’s youth that the restaurant business is a great place to build a long-term and rewarding career. All you have to do is work hard and be passionate.”

— Peter Sclafani, Executive Chef and Co-Owner, Ruffino’s Restaurant

- **Confidence:** The program empowers young students to pursue career paths in the foodservice industry — and beyond.

The ProStart program benefits foodservice businesses of all sizes and provides students basic culinary skills, allowing managers to spend their time training employees on advanced skills that drive business success. ProStart students are exposed to the principles of food safety,

■ SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

Both Sabina and Sclafani believe that, after volunteering for a ProStart event, a person is hooked. Although the restaurant business requires long hours, Sabina has more than enough volunteers ready to spend at least one hour speaking with a local class. Sclafani, who is president of the Greater Baton Rouge Chapter of the Louisiana Restaurant Association, asks all 30 board members to pledge an hour to speak to ProStart students. He believes this commitment is important to help further students’ career development and expose them to various restaurant industry segments.

■ WORDS OF WISDOM

Words of wisdom for businesses interested in creating a similar program include:

- **Give an Hour:** No matter how busy you are, you can find an hour to serve as a mentor through a program like ProStart. “Students in these programs are so hungry for more information and interaction with professionals in their desired career area,” said Peter Sclafani.
- **Make Participation Voluntary:** For the experience to be valuable to both the student and the employee, the program must be voluntary and grow naturally. At Brinker, participation in ProStart is voluntary and bears no weight on an employee’s professional development or career plan. According to Sabina, “Employees must want to participate and understand

equipping them with knowledge of the temperature danger zone (the range in which food-borne bacteria can grow), proper hand-washing techniques and the importance of avoiding food cross-contamination. With the ProStart program available in communities across the nation, it is an easy and cost-effective way for employers to develop talent.

After beginning its participation in the ProStart program, Chili’s experienced the added bonus of an increase in community brand loyalty. Many parents of ProStart students started regularly visiting the restaurant and thanking staff for their commitment to the program. “The parents became a part of the extended Brinker family,” said Sabina.

According to Peter Sclafani, the program is also a great way to build strong relationships with local schools and provide them insight into the skills needed in the foodservice business.

At Brinker, the program has been such a success that ProStart teachers were invited to attend the upcoming Brinker all-hands general management meeting to discuss ways to take the ProStart and Brinker relationship to an even higher level. For Brinker, the goal is to further expose students to the Brinker business and more actively involve students through summer programs at Chili’s and Maggiano’s. Through these efforts, Sabina hopes students will remember the impact the company had on their education and consider Brinker a place to build their careers.

the importance of growing their local community and future workforce for the experience to be worthwhile to the students and the individual.”

INFORMATION, TOOLS AND RESOURCES

- **NRAEF Meet ProStart** www.nraef.org/ProStart

CONTACT

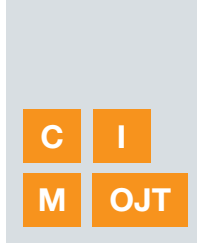
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Prudential Financial, Inc. VETalent

Providing Skills and Opportunities for Veterans Transitioning to the Civilian Workforce



MODEL SUMMARY

VETalent is an academic and on-the-job training program for military veterans transitioning into the civilian workforce. Participants complete internships and consulting engagements with major corporations, such as Prudential Financial, Inc. Upon completion of the consulting phase, participants are considered for full-time employment with VETalent partner companies.

BACKGROUND

In 2005, Workforce Opportunity Services (WOS), a nonprofit organization that helps companies build strong talent pipelines through unique work-study programs, identified the need to expand education and training opportunities for high school graduates in underserved areas. Working with the senior vice president and chief information officer at Prudential and with local educational partners, WOS established a new Talent Acquisition Pipeline (T.A.P.) program in information technology (IT) and business operations. During the program, participants complete an internship at a WOS corporate sponsor, such as Prudential. Upon certification in their program area of study (IT, business operations, etc.), they serve as consultants to Prudential or one of the other corporate T.A.P. partners. At the end of the consultant phase, participants are considered for full-time employment with the company.

In late 2009 and early 2010, Prudential leadership set out to develop programs to support veterans who had

KEY ELEMENTS OF MODEL

- On-the-job training
- Internship
- Industry-recognized certifications
- Mentorship
- Pathway to a full-time job in the civilian workforce
- Relationship building with business and community representatives

served in the military after Sept. 11, 2001. Building on the best practices and success of the T.A.P. program, WOS and Prudential, working with Rutgers University in Newark, NJ, established the VETalent program. The new initiative was designed to train veterans who had served in Iraq and Afghanistan for civilian jobs in IT. Since the program's establishment, VETalent has expanded into other in-demand areas, including customer service, back office administration and project coordination, and is supported at six Prudential locations.



PARTNERSHIP

To help make VETalent a success, WOS works with academic partners and more than 30 company sponsors that support other veteran programs, including

Blackstone; BNY Mellon; General Electric; Guardian; HBO; HP; Johnson & Johnson; Merck; and Prudential Financial, Inc.

KEY:			
A Apprenticeship	CR Credentials	H Hands-on Training	M Mentorship
C Certification	CT Clinical Training/ Practicum	IT Industry Tour	OJT On-the-Job Training
CE Career Expo	E Externship	I Internship	OB Online and Blended Classroom Training
CO Cooperative Education/Co-op			

■ NUTS AND BOLTS

Admission to the program is competitive and requires applicants to (1) have served in the military after Sept. 11, 2001, and have been honorably discharged or be a spouse of a military member who has served in the military after Sept. 11, 2001; (2) hold a high school diploma or equivalent credential; and (3) demonstrate basic computer knowledge, attention to detail, proven leadership and strong interpersonal skills. The costs to participate in the program are covered by Prudential, and all participants receive a stipend during the training period.

The program includes:

- **Networking with Fellow Participants:** Participants complete the program in a “cohort,” which ranges from 10 to 25 students, providing opportunities for students to network and share experiences with one another.
- **Coursework:** During the academic phase of VETalent, veterans gain the skills and knowledge needed to perform specific jobs within the areas of IT, sales or business operations.
- **Professional Skills Training:** Program training includes written and verbal communication within a corporate business, as well as interpersonal skills.
- **Mentorship and Career Guidance:** VETalent participants complete a mentoring series designed to help veterans transition from the military to a business environment. Participants may also receive support during their transition through Prudential’s VETNET, a network that connects employees with military backgrounds at all levels of the corporation. As consultants, participants also receive coaching and guidance from their line supervisors. Client service managers at WOS provide job placement assistance with WOS corporate partners, such as Prudential.
- **Internship:** Through the internship, participants learn the skills needed to be successful within their particular job function.
- **On-the-Job Training in a Civilian Work Environment through Consultant Role:** The IT Quality Assurance cohort (10 veterans and three spouses of military veterans) that graduated in August 2015 is now completing the consulting phase of the program.

■ PROGRAM BENEFITS, RESULTS AND OUTCOMES

Since 2010, 15 cohorts have completed the VETalent program at Prudential, helping more than 300 veterans transition from the military to the civilian workforce. More than 25 companies have developed, or are considering developing, their own WOS programs similar to VETalent.

Benefits to VETalent participants include:

- **Industry-Recognized Certificates by the Partnering College or University:** The program provides VETalent participants industry-recognized and portable credentials that certify their skills and knowledge within the program area (IT, project management, business operations, etc.).
- **Pathway To Build Meaningful Careers within the Civilian Workforce:** Participants who successfully complete the VETalent Quality Assurance Training program can be hired as quality assurance professionals at the sponsoring company.
- **Free Training and Weekly Stipend:** Prudential covers the training costs and provides participants a weekly stipend. This support allows participants to focus on the training, rather than the financial burdens associated with most training programs.
- **Support in the Transition from Military to Civilian Workforce:** Through resources made available by the sponsoring company, participants have access to mentors and counselors who help them navigate transitions.

“Veterans bring significant value to the workforce, including practiced leadership skills, discipline, the ability to perform in stressful situations, and a solid work ethic. We recognize the sacrifices made every day by these men and women and believe their experience and leadership can only make our company stronger.”

—Charles Sevola, Vice President and Head of the Office of Veterans Initiatives, Prudential Financial, Inc.

Benefits of VETalent to Prudential include:

- **Supports Prudential Commitment to Veterans:** The Prudential relationship to the military dates back to the early 1900s. The company is committed to making a positive impact on the lives of active duty service members and veterans. VETalent graduates report that they were unsure what to do after the military, but entering this program provided them the skills and opportunities to build a rewarding career.
- **Provides a Dedicated and Talented Pipeline of Workers:** Through on-the-job training and

■ SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

The Prudential team continues to look at ways to grow the program and expand it beyond the current business units. Currently, the team is exploring an option to create a hybrid program, in which the first semester of the training would be the same for all training areas, while the second semester would provide participants the opportunity to receive training that is specific to their career area through

■ WORDS OF WISDOM

Prudential recommends the following to businesses considering training and workforce development programs for veterans:

- **Start by Looking at Jobs for Which You Already Offer Training Programs:** This program can be easily applied to any job function for which a company offers training and educational programs, whether through third-party training, through an educational partner or within the company's facility. These training programs can easily be modified to align with the WOS veteran program model (similar to VETalent).
- **Select Candidates for Success:** The program is valuable to veterans only if they complete it and secure full-time employment.
- **Ensure Program Buy-In from Senior Leaders:** Programs like VETalent are successful and sustainable only if they are supported by senior management. At Prudential, Barbara Koster, senior vice president and chief information officer, and John R. Strangfeld, chairman and CEO, are fully committed to and believe in the program as a way to support veterans and build the company's talent pipeline. At Prudential, the program is managed by a veteran initiative team, which reports directly to senior management.

consultancy, sponsoring companies have the opportunity to train and retain skilled workers.

- **Promotes High Retention Rates:** Once hired for a full-time position with Prudential, VETalent graduates have high retention rates.
- **Has the Flexibility To Support Multiple Divisions of Prudential:** The length, duration and teaching disciplines are highly flexible, allowing the program to be customized to support multiple business units.

breakout sessions. The goal is to increase the number of participants within a VETalent cohort.

Prudential believes that the VETalent platform is flexible and can be applied to various jobs within any industry. Management's focus is on sharing company insights with other corporations and using this best practice model as a vehicle to inspire other companies to support veterans transitioning into the civilian workforce.

- **Select Mentors Who Are Passionate About Training and Have the Time To Coach:** Pairing participants with mentors and line supervisors who have the time to coach and inspire them is important. Veterans participating in VETalent programs are highly motivated; they simply need support to make a successful transition into the civilian workforce.

INFORMATION, TOOLS AND RESOURCES

- **Prudential Commitment to Veterans**
www.prudential.com/veterans
- **Workforce Opportunity Services**
www.wforce.org

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Right Skills Now

Providing Skilled, Credentialed and Work-Ready Manufacturing Talent Now

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MODEL SUMMARY

The Right Skills Now initiative is a fast-track training program that provides participants college credit, four industry-recognized credentials and the opportunity to work at an accelerated manufacturing internship.

BACKGROUND

The Right Skills Now manufacturing program was started in 2011 in response to a request from the President's Council on Jobs and Competitiveness High-Tech Education Committee. At that time, a report from Deloitte and Touche and The Manufacturing Institute, *Boiling Point? The skills gap in U.S. manufacturing*, found that more than 80 percent of manufacturers reported difficulty recruiting skilled candidates to fill more than 500,000 open positions in manufacturing, despite reported high unemployment rates. Darlene Miller, co-chair of the High-Tech Education Committee and president and CEO of Minnesota-based Permac Industries, communicated to President Obama the urgent need for workers with the

PARTNERSHIP

Right Skills Now was designed in partnership with NIMS, ACT and The Manufacturing Institute, the 501(c)3 affiliate of the National Association of Manufacturers. Inaugural program educational partners included Dunwoody College

NUTS AND BOLTS

Right Skills Now is a 16- to 24-week hands-on training program that provides industry-demanded, competency-based skills and credentials needed for the machining industry. The focus of the program is on nontraditional entrants (career switchers, underemployed and unemployed) and transitioning military personnel looking for fast-track skills training leading to immediate employment opportunities.

KEY ELEMENTS OF MODEL

- Industry-recognized credentials
- National Career Readiness Certificate
- Pathway to career in manufacturing
- Credit toward an associate/bachelor's degree
- Skilled labor pipeline for manufacturing businesses of varying size

right skills and talent to drive innovation and to keep up with demand in the manufacturing industry. For Permac Industries, the demand for skilled computer numeric controlled machinists was particularly strong. The Jobs Council charged Miller with finding solutions to address the skills gap facing her industry. She took the challenge to the National Institute for Metalworking Skills (NIMS) and the Manufacturing Institute, which together created a national fast-track manufacturing program to produce the needed credentialed talent.

of Technology and South Central Community College, both located in Minnesota. Right Skills Now programs have since spread across the country.

Key elements of the program include:

- **National Career Readiness Certificate:** Individuals interested in enrolling in a Right Skills Now program must first pass the ACT National Career Readiness Certificate Exam. The exam tests major employability skills demanded by American companies. After gaining certification, students register for the program at one of the nation's community colleges or technical schools offering the Right Skills Now program.

KEY:

A Apprenticeship

C Certification

CE Career Expo

CO Cooperative Education/Co-op

CR Credentials

CT Clinical Training/
Practicum

E Externship

H Hands-on Training

IT Industry Tour

I Internship

M Mentorship

OJT On-the-Job Training

OB Online and Blended
Classroom Training

- **NIMS Credentials:** At the culmination of each course, students complete performance and theory assessments to obtain four industry-recognized NIMS credentials.
- **Right Skills Now Certificate and College Credit:** Right Skills Now academic training provides students the knowledge and skills demanded by advanced manufacturing operations. Depending on the area of study, students receive up to 20 credits toward an associate or bachelor's degree and a Right Skills Now Certificate.
- **Career Counseling:** Schools guide students in the development of a professional portfolio (resume and sample classroom or lab project).
- **Paid, For-Credit Internship:** Students participate in a six- to eight-week internship at a Right Skills Now partner manufacturing company. As part of the internship, the intern completes identified learning objectives and receives a performance assessment from the company.
- **Mentorship and Career Exploration:** At Permac Industries, interns are placed in the company's Quality Lab and work one on one with skilled computer numeric control machinists who serve as their

mentors. Interns learn about the types of machined parts Permac produces while also exploring advanced manufacturing career paths — from quality technician to purchasing manager.

“At Permac, we do not measure the success of the program just in monetary returns. The rewards are evident in the smiles of Right Skills Now graduates who are growing the business, challenging staff to approach problems in innovative ways, and mentoring future students on the benefits of program participation and pursuing a career in manufacturing.”

— Darlene Miller, President and CEO, Permac Industries

PROGRAM BENEFITS, RESULTS AND OUTCOMES

For the student, the Right Skills Now program benefits include:

- **Attainment of the Academic, Personal, Career and Technical Skills Needed To Land an Immediate Entry-Level Manufacturing Job:** Right Skills Now is designed as a full-time program to ensure that students qualify for financial aid while in the classroom and at their internship site.
- **Access to In-Demand Jobs:** Individuals enrolled in the program pay tuition fees (depending on school location) and in return have immediate access to skilled manufacturing jobs. For students at Dunwoody College of Technology, for example, the Right Skills Now placement rate is almost 100 percent.
- **Being on Track to a Well-Paying Job with Opportunities for Advancement:** The average starting salary for Right Skills Now graduates at Dunwoody College of Technology is \$18 per hour. According to the latest Precision Machined Products Association (PMPA) research, the opportunities for advancement may result in pay of up to \$34 per hour.

For the business, the Right Skills Now program benefits include:

- **An established pipeline of qualified, skilled and credentialed individuals to meet employer hiring needs,** thereby reducing the time and effort wasted on unqualified or uninterested candidates.



A Permac Industries employee and Right Skills Now program graduate.

- **A cadre of dedicated interns** who have demonstrated their eagerness to learn new skills; are able to add value from day one on the job; and contribute to company growth, productivity and competitiveness.
- **Improved employee morale** and emphasis on approaching problems in new and innovative ways.

- **Opportunities for mentoring** entry-level colleagues.
- **Reduced employee turnover.**
- **Employees with NIMS-credentialed, transportable skills** in high demand by employers.

■ SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

The Right Skills Now program is nationally recognized as a fast-track solution to providing high-skilled, credentialed talent for the shop floor in less than six months. Right Skills Now partners are dedicated to expanding the model to close the advanced manufacturing talent skills gap even further. In July 2015, the PMPA Educational

Foundation announced grant opportunities to cover the cost of credentialing incurred by educational institutions. As part of the announcement, PMPA awarded grants to Ohio's Lorain County Community College and Stark State College to develop Right Skills Now programs.

■ WORDS OF WISDOM

To develop a fast-track training program, the Right Skills Now program partners recommend:

To Companies:

- Establish a relationship with a local technical or community college to create the program.
- Commit to consistently hosting interns and hiring program graduates.
- Engage fellow businesses in supporting the program.

To Technical or Community Colleges:

- Establish a full-time internship program. This will enable participants to qualify for financial aid, making the program more affordable. At Dunwoody College of Technology, students are required to complete (at a minimum) a six-week internship with 30 hours of work per week.

- Work directly with invested employers to place interns and program graduates, rather than outsourcing through recruiting agencies.
- Include a prerequisite skills assessment, such as the ACT National Career Readiness Certificate Exam, to ensure that students have the aptitude necessary to succeed in a given career area.

Note of caution: Fast-track programs are not recommended for occupations, including careers in health care, that have state laws regulating the hours needed to complete a program or gain a certification.

INFORMATION, TOOLS AND RESOURCES

- **Right Skills Now** <http://rightskillsnow.org>
- **How To Join the Right Skills Now Initiative** <http://rightskillsnow.org/action>

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Interactive Skills and Career Development for the Advancement of Frontline Entry-Level Health Care Workers

MODEL SUMMARY

The School at Work (SAW) program is a blended adult education and career development program designed to equip frontline, entry-level health care employees with the skills needed to advance in the industry. Over the course of six months, SAW participants, led by a coach, learn and apply life management and employment skills (reading, math, writing, communication, etc.) that are critical to their success in the health care industry. Participants simultaneously define their career goals and develop a career and learning plan that outlines the training and education necessary to meet their goals.

BACKGROUND

The SAW program was developed as a series of four projects between 1998 and 2000 with the goal of increasing education for noncollege-educated adults. The Commonwealth of Kentucky provided funding for the program, and partners included Jefferson Community & Technical College and Catalyst Learning. Jefferson Community & Technical College developed the curriculum and led student instruction while Catalyst Learning provided employer recruitment and arranged the facilities needed to deliver instruction directly to the worksite. The success of the SAW Kentucky projects demonstrates the power of employer support for educating noncollege-educated adults and employee interest in participating in personal skills development and that technology is an effective means of providing adult education.

Building upon the Kentucky SAW projects, the U.S. Department of Labor (DOL) Employment and Training Administration expressed interest in applying the model in a multistate, sector-specific environment. In 2002, the School at Work: Building a Career Ladder in Healthcare program was born. The program was designed to provide low-wage workers in entry-level hospital positions the training, educational opportunities and support to upgrade

KEY ELEMENTS OF MODEL

- Mentorship
- Self-confidence
- On-the-job training
- Common employability skills
- Gateway toward future health care credentials and postsecondary degrees

“Who touches and impacts the patient? It’s our frontline co-workers. Who has one of the largest impacts on patient experience? Again, it’s the frontline co-workers. When we invest in these co-workers, we enhance the learning and productivity of the organization.”

— Sister Claudia, RSM, specialist, Mercy Talent Development and Optimization Division

their skills and provide pathways to higher-paying health care positions. Examples of entry-level positions include food services, housekeeping and serving as administrative associates. Maryland’s Anne Arundel Community College developed the health care-specific curriculum. Catalyst Learning recruited employers and provided the technology services needed to distribute the curriculum. The model blends multiple types of interactive learning — from interactive videos, which feature group exercises, to online training and instruction modules — with support from adult education experts and coaches from the hospital staff to teach the necessary skills for career advancement for entry-level employees.

KEY:

A Apprenticeship

C Certification

CE Career Expo

CO Cooperative Education/Co-op

CR Credentials

CT Clinical Training/
Practicum

E Externship

H Hands-on Training

IT Industry Tour

I Internship

M Mentorship

OJT On-the-Job Training

OB Online and Blended
Classroom Training

■ PARTNERSHIP

Key SAW partners include Catalyst Learning, hospitals and health systems that offer the SAW program, and in

■ NUTS AND BOLTS

Health care is a field in which people with different skill levels work side by side — an ideal environment for work-and-learn programs. The SAW curriculum teaches participants the life management, medical terminology, patient safety, and workplace communication and common employability skills needed for upward mobility. It can be effective for health care systems of any size. Among the health systems using the model, for example, is a national hospital system — Mercy health care system — which includes 32 acute care hospitals, four heart hospitals, two children’s hospitals, three rehabilitation hospitals, one orthopedic hospital and nearly 700 clinic and outpatient facilities.

A designated employee leads the program at each hospital and serves as the coach for the SAW program. The coach is typically a human resources team member or a rising supervisor within the hospital. The coach supports



program recruitment through communication about the program to frontline supervisors and managers. These supervisors and managers provide justification for the nomination of an individual to the SAW program. After nomination, the applicant must agree to complete the six-month program and pass the entrance test.

Over the course of six months, a cohort, typically of 10 participants, completes the SAW program. The cohort

meets as a group with their career coach once a week for two hours. During the first hour, coaches guide students through online interactive videos, group activities, group discussions and individual exercises within their workbook. The second hour of the class is dedicated to the development of a career and learning plan.

This SAW program includes:

- **Learning, Skills and Self-Reflection:** SAW participants complete health care career development coursework and group learning, which includes mastering communication in the workplace.
- **Development of a Long-Term Career and Learning Plan:** Students begin the career identification process by completing a self-reflection questionnaire with 286 questions. The questionnaire helps SAW participants determine whether they would be better suited for technical or nontechnical school and provides job recommendations, gives an overview of daily job tasks and responsibilities for recommended jobs, and details the skills and knowledge necessary to succeed in those jobs.
- **Job Search Support:** A career coach helps identify future openings within the health care system in the recommended job areas. The coaches also help the participants identify local schools that provide continuing education needed to secure a job in a given preferred job area.
- **Development of SMART Goals:** Working with their career coach, SAW participants develop achievable goals that align with their chosen career path. They also identify the potential hurdles in meeting these goals and develop strategies to address and mitigate these risks.
- **Time Management Skills:** SAW participants receive the training needed to manage the demands of going to school while working. Time management is essential for SAW graduates as they pursue the education needed to achieve their career goals.

PROGRAM BENEFITS, RESULTS AND OUTCOMES

SAW participant benefits and outcomes include:

- **Improved Self-Confidence.**
- **Preparation for Continuing Education and Career Advancement:** Through training and support, program participants gain the confidence to advance in their careers. For example, a graduate at Mercy reports the program provided her the tools, confidence and skills to obtain her GED and go on to nursing school to become a registered nurse.
- **Mentorship:** SAW career coaches serve as the participants' mentors and help guide them in developing a plan to meet their career goals. Prior SAW graduates often become career coaches.
- **SAW Graduation Ceremony:** Most SAW programs end with a graduation ceremony attended by family members as well as members of the health care system management team. This celebration provides SAW graduates the opportunity to share their success with their family and fellow co-workers.

SAW employer benefits and outcomes include:

- **Reduced Employee Turnover:** At Tri-Health Inc. in Cincinnati, OH, turnover was 5.7 percent for SAW participants versus 19 percent for non-SAW participants annually.
- **Reputation as Employer of Choice:** By investing in employee development programs like SAW, Yale-New



2013 Norton Hospital SAW graduation (Louisville, KY).

Haven Hospital in New Haven, CT, has strengthened its reputation as employer of choice.

- **Improved Employee Engagement:** Health care systems report that employees who have completed the program are more engaged, leading to improvements in employee performance and work productivity.
- **Support for Health Care Safety Practices and Patient Satisfaction:** Frontline workers have more face time with patients than many in leadership positions in the hospital, allowing the SAW participants to contribute substantially to both patient safety and satisfaction.
- **Succession Planning:** The SAW program includes a tool that health care systems use to track the participants' success in continuing education, advanced placement and retention rates.
- **Program Applicability to Clinical, Nonclinical Support and Clerical Health Care Areas:** As designed, the program is flexible and can be adapted to a range of health care areas.

SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

The Commonwealth of Kentucky and DOL grants, as well as the option to offer a free trial of the program to willing employers, were essential to getting the program up and running. The SAW health care program is now in its 13th year and has been financially self-sustaining since July 2005. Revenue is generated from health care employers that wish to make the SAW career development system available to their employees. Funding streams within a health care system include an operating budget, internal foundation or partnership with a local public workforce system.

The Catalyst Learning team believes the keys to their success are employer support, a cohort model centered on small in-person group meetings at the work site, and a dedicated and trained coach/facilitator. The team works



Some of the 60 employees who have graduated from School at Work and gone on to achieve their goals with Yale-New Haven Hospital (New Haven, CT).

closely with SAW customers to provide support for return on investment analysis, using the Kirkpatrick four levels of evaluation model. Through the SAW Success Tracking system, customers are able to track student completion rates, knowledge mastery, and the number of students enrolling in local colleges and attaining promotions.

■ WORDS OF WISDOM

Words of wisdom for businesses and industries interested in creating a similar program include:

- **Make It Simple:** Employers do not have the resources to manage a complicated program. Their purpose is to produce goods and services and manage an appropriately skilled staff to support those efforts, not to manage a complex and time-intensive training program.
- **Keep It Fresh:** Regular updates and product and process improvements are important. Catalyst Learning is actively engaged in updating the materials to align with user feedback and changes in the health care system. The Catalyst team is currently working to make the content available in multiple formats to expand how the training is used within the industry.

INFORMATION, TOOLS AND RESOURCES

- **Catalyst Learning Blog**
<http://catalystlearning.com/blog>
- **School at Work — Catalyst Learning**
<http://catalystlearning.com/products/school-at-work>

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Descriptions of Common Work-and-Learn Models

A Glossary of Key Terms

Following are descriptions of the most common and effective work-and-learn models that are a part of business and industry programs nationwide.

Apprenticeship

An apprenticeship is a unique, flexible training system that combines job-related technical instruction with structured on-the-job learning experiences. It provides 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, technical schools, community colleges, and/or institutions employing distance and computer-based learning approaches. The goal is to provide workers with advanced skill sets that meet the specific needs of employers. In many cases, these programs provide apprentices the opportunity to simultaneously obtain secondary and postsecondary degrees, as well as credentials issued by third-party industry organizations. (Source: U.S. Department of Labor)

Career Fair, Career Expo, Job Fair

A career fair, also called a career expo or job fair, is an event held for employers and recruiters to meet with potential job candidates. Industry representatives set up exhibition booths — usually at a secondary or postsecondary institution — where students and job seekers can find information about different career fields, training opportunities and jobs currently available. Career fairs give employers an opportunity to interact with future job candidates and make direct contact with students who are making decisions about what education, training and career to pursue. Quality career fairs offer hands-on activities to participants, allowing them to see firsthand what a job in the industry entails.

Clinical Training/Practicum

Clinical training combines classroom learning with supervised hands-on immersion experiences in specific fields, mostly in industries that involve human services. In health fields, clinical training is founded on actual observation and lab instruction and/or treatment of patients, as distinguished from theoretical or experimental training. The training is usually highly specialized and includes coursework specific to performing functions and tasks in an actual workplace. (Sources: Siemens Clinical Training & Continuing Education; Clinical Training Institute)

Cooperative Education/Co-Op

Cooperative education is the integration of classroom theory with practical work experience, through which students alternate attendance at school with periods of professional employment. At the high school level, the periods of classroom and work-based experience are usually half-days. In higher education, the alternation is most often on a longer time scale. Cooperative education programs enable students to apply technical skills already acquired through the education institution in a real-world workplace setting. Traditionally, cooperative education has been used to aid a student's transition from school to work, while providing participating employers an opportunity to attract, evaluate, train and ultimately employ a ready source of educated and skilled employees. (Sources: Center for Manufacturing Excellence, University of Mississippi; University of Cincinnati)

Externship

An externship is typically a training program offered by educational institutions and private businesses that gives students brief practical experiences in their field of study and insight and knowledge in a particular career field.

Often shorter term than internships, externships are intensive career learning experiences that typically range from two days to two weeks. Although more immersive and structured than job shadowing, these experiences provide the opportunity for students to see firsthand the work activities and responsibilities in various professions and industries. The experience should provide the learner a greater sense of the knowledge, skills and attributes of people who thrive within that given career pathway and industry sector and a complete experience of day-to-day work life.

Hands-On Training

Hands-on training provides student learners an opportunity to use their hands to perform tasks. This training aims to simulate conditions that are as close as possible to real work conditions while avoiding the risks commonly associated with a new employee. In hands-on training, participants typically have the opportunity for repeated practice.

Industry Tour

Companies offer guided tours of their facilities to let students, parents and the general public witness firsthand the day-to-day operations of the business. Typically lasting up to two hours, tours are led by knowledgeable staff members who show and describe the companies' processes, products and protocols, as well as point out the skills and training needed for different jobs. Quality industry tours typically result in greater awareness of the company and the industry and increased engagement with the local community, schools and future employees.

Internship

An internship is a formal program that provides practical experience for learners in an occupation or profession, during which the learner is immersed in a work situation for a limited period of time. Internships can be paid or unpaid and usually accompany or relate to academic coursework or training. A quality internship provides the learner an increasingly thorough grasp of the career field, extensive experience in specific job functions, application of education and training to specific duties, and a feel for what it is like to work on a daily basis in the industry. While not always intended to result in employment at the sponsoring company, internships help employers expose potential workers to their workplace and industry and recruit, screen and test-fit future job candidates before they are hired full time.

Job Shadowing

Job shadowing is a work experience option through which students learn about a job by walking through the working day as a shadow to a competent worker. The job shadowing work experience is a temporary, unpaid exposure to the workplace in an occupational area of interest to the student. Students witness firsthand the work environment, employability and occupational skills in practice, the value of professional training, and potential career options. Job shadowing is designed to increase career awareness, help model student behavior through examples, and reinforce for the student the link between classroom learning and work requirements. Almost any workplace is a potential job-shadowing site. (Source: Paris, K., and Mason, S. (1995). *Planning and Implementing Youth Apprenticeship and Work-Based Learning*. Madison, WI: University of Wisconsin, Center on Education and Work)

Mentorship

Mentorship is the coupling of a novice with an older, more experienced professional wherein the expert shares knowledge and experience with the novice over the course of time. Mentorship can be either formal or informal and can happen face to face; online; or in conjunction with other work-and-learn opportunities, such as internships and job shadowing. Mentorships help mentored youth improve their overall academic achievement and develop the necessary skills to enter or continue on a career path. They also provide guidance for decision making. Quality mentorships usually involve mentee training and alignment to the company's culture and goals.

On-the-Job Training (OJT)

OJT is training by an employer that is provided to a paid participant (either an incoming or incumbent employee) while engaged in productive work in a job that provides knowledge or skills essential to the adequate performance of the job. OJT is usually limited in duration, as appropriate to the occupation for which the participant is being trained, taking into account the content of the training, the prior work experience of the participant and the service strategy of the participant, as appropriate. (Source: Workforce Investment Act)

Pre-Apprenticeship

Pre-apprenticeship is defined by the Employment and Training Administration as “a program or set of strategies [that is] designed to prepare individuals to enter and succeed in a Registered Apprenticeship program and has a documented partnership with at least one, if not more, Registered Apprenticeship program(s).” Since the pre-apprenticeship model is meant to prepare learners to enter a registered apprenticeship, a quality model provides sufficient applied academic training, as well as industry-based technical skills training and practice, to ensure that students transition successfully into an apprenticeship.

Registered Apprenticeship

A registered apprenticeship encompasses the details and benefits listed in the “Apprenticeship” definition. Additionally, it meets national apprenticeship standards outlined by the registration process with the U.S. Department of Labor (DOL) Office of Apprenticeship or through a state apprenticeship agency. Upon completion of a registered apprenticeship program, participants receive a portable credential (provided by DOL or the state apprenticeship agency) that certifies occupational proficiency as a journey worker for the selected occupation. For more information on the DOL registered apprenticeship program, please visit: www.dol.gov/apprenticeship. (Source: U.S. Department of Labor)

Returnship

A returnship is an internship specifically designed for older professionals who have been out of the workforce for an extended period of time to re-enter a career. In many cases, they are designed to help these individuals refresh their skill sets and learn new technologies before returning as full-time employees. Often lasting around 10 weeks, a returnship provides individuals with an opportunity to sharpen their skills in a given career path or pursue new areas of expertise in a work environment that may have changed significantly since their last experience as an employee. Returnships also give employers the opportunity to screen returning experienced applicants before hiring them full time. (Sources: Goldman Sachs; CareerBuilder)

RESOURCES

- **21st Century Competency-Based Apprenticeship Resources**
<http://bit.ly/1RcO4Uh>
- **Georgetown University Center on Education and the Workforce: *Learning While Earning: The New Normal***
<http://bit.ly/1XJMXzw>
- **National Network of Business and Industry Associations: Common Employability Skills**
<http://bit.ly/1KCBUUP>
- **National Network of Business and Industry Associations: Grads of Life ROI Calculator**
<http://bit.ly/1X6yKMP>
- **McGraw-Hill Construction Report: *Construction Industry Workforce Shortages***
<http://bit.ly/1NesrCd>
- **Change the Equation: *Work-Based Learning: An Employer's Guide***
<http://bit.ly/1jDn6du>
- **U.S. Department of Labor Office of Apprenticeship**
www.dol.gov/apprenticeship

Contributors

The National Network acknowledges the contributions of the following companies, associations and educational institutions whose time, ideas and feedback made this guidebook possible.





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