

MOVING APPRENTICESHIP INTO MANUFACTURING'S FUTURE:

INDUSTRIAL MANUFACTURING TECHNICIAN

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PARTNERSHIP ORIGINS OF NEW APPRENTICESHIP

Manufacturing in the Midwest continues to evolve. Firms increasingly rely on highly specialized and flexible processes, deploying new technology that redefines workers' jobs and the skills needed for them. In Milwaukee, the Wisconsin Regional Training Partnership (WRTP)/BIG STEP has spearheaded the creation of a new registered apprenticeship in response to these dynamic forces. Industrial Manufacturing Technicians (IMT) are now working and being trained at firms across the upper Midwest. The success of this apprenticeship derives directly from the WRTP/BIG STEP's long-standing and deep relationships with manufacturing firms and labor unions built over the course of two decades. The success also owes to the long tradition of apprenticeship in Wisconsin and the ways this project has built from the existing model. This paper offers the story of this apprenticeship innovation which is remaking apprenticeship for the new and rapidly evolving manufacturing sector.

The IMT is the product of long-standing collaboration of labor and management leaders in Milwaukee's manufacturing sector. Founded more than two decades ago, the Wisconsin Regional Training Partnership (now called WRTP/BIG STEP), has worked directly with industry leaders to build training, modernization, staff recruitment and development strategies to answer the pressing needs of area manufacturers. WRTP/BIG STEP staff bring years of manufacturing experience and expertise and rely on information and insight gathered annually on industry needs. The annual industry needs assessment directly engages manufacturing leaders to identify emerging issues and strategize on solutions to industry trends. WRTP/BIG STEP developed the IMT in response to issues identified in that process.

In 2011, staff at the partnership realized that they were hearing consistently about a need for skills inside plants throughout their network. Inside plants, the job titles were inconsistent, but the skills needed were consistent. Over the course of more than a year of meetings, staff worked with industry leaders to hone in on the issue and to carefully identify the skills needed. This process helped industry leaders realize that, despite greater flexible specialization inside firms, the skills in short supply were similar across firms. As the shared skill need became better defined, WRTP/BIG STEP began to see ways that apprenticeship – with its applied model of learning – could be the answer to industry needs.

ABOUT COWS

COWS is a nonprofit think-and-do tank, based at the University of Wisconsin-Madison, that promotes "high road" solutions to social problems. These treat shared growth and opportunity, environmental sustainability, and resilient democratic institutions as necessary and achievable complements in human development. Through our various projects, we work with cities around the country to promote innovation and the implementation of high road policy. COWS is nonpartisan but values-based. We seek a world of equal opportunity and security for all.

COWS

BUILDING THE
HIGH ROAD

Connecting with leaders in apprenticeship from the Bureau of Apprenticeship Standards in the Wisconsin Department of Workforce Development, the partnership began to build a new apprenticeship to meet the shared industry need.

WRTP/BIG STEP identified and defined the Industrial Manufacturing Technician (IMT), which encompasses unique job titles in each firm, but responds to the common and shared skill need. This approach allows for “dual classification” of participating workers, meaning that they retain unique firm occupational titles alongside the IMT when in the apprenticeship and at the journey level. Once the IMT was identified and agreed upon by industry leaders, the next step was to build a new manufacturing apprenticeship that would take production workers to a higher level of skills to fill that need. Soon after the IMT was registered in the state system, the IMT was registered with the US Department of Labor (DoL) as well.

Skill concerns in manufacturing are familiar – especially given the aging of the manufacturing workforce and often diminished training infrastructure inside and outside firms. The Manufacturing Institute’s 2015 Skills Gap Report, for example, found that 54 percent of manufacturer respondents report a shortage of skilled production workers today, and 63 percent expect one by 2020. Even so, enrollments are down in technical schools and community colleges’ Manufacturing Technology programs over the last decade. The IMT responds to the manufacturing skill gap by building the skills of workers already inside manufacturing firms. The IMT gives those workers a stronger base of skills, allows them to work in more skilled positions, and provides the foundation for further advancement into even more skilled positions like maintenance or electrical/mechanical positions.

The IMT Registered Apprenticeship is an innovation in apprenticeship, an approach to contextualized training with more than 100 years of success in Wisconsin. WRTP/BIG STEP leveraged their own knowledge of issues in the manufacturing workforce, their relationships with firms and with state apprenticeship leaders, and their own understanding of worker training in order to build a robust partnership around this innovation. The IMT enrolled its first apprentices in February 2013 and has seen strong growth since then.

WHAT IS WRTP/BIG STEP?

Since the early 1990s, WRTP/BIG STEP has worked at the critical intersection of manufacturers’ needs and community opportunity. WRTP/BIG STEP helps labor and management leaders to come together and build solutions to industry problems. Key initiatives have included training for current workers inside key industries and new projects to develop the workers of tomorrow. WRTP/BIG STEP has become nationally renowned for strong industry and community connections and innovative programming to build bridges to opportunity inside industries and from the community into these jobs.

A key tool of WRTP/BIG STEP is its annual “industry needs assessment” of manufacturing, which provides the pulse of the region’s leading manufacturers. This annual process helps reveal emerging problems and opportunities in the industry and hones WRTP/BIG STEP programming. WRTP/BIG STEP is industry-led, worker centered, and community focused. And it is making a difference in Milwaukee.

IMT APPRENTICESHIP DESIGN: ADAPTABLE FOR FIRMS AND TRAINERS

The IMT Registered Apprenticeship is a DoL-registered, employer-based program which builds skills of manufacturing workers. Compared to traditional manufacturing apprenticeships, the IMT is shorter and provides a step up from a production job. For employers, the hallmark of the IMT Registered Apprenticeship is its adaptability to unique firm production processes and its ability to quickly increase skills of manufacturing workers. Its adaptability derives from a combination of on-the-job learning and related classroom training that takes, on average, 18 to 24 months to complete. The program consists of 2,736 hours of on-the-job learning and 264 hours of related instruction over two semesters.

Firms structure their IMT initiatives with on-the-job and related learning that best supports their production processes. Related instruction requirements are met by private providers or by local technical or community colleges. The related instruction often aligns with national Manufacturing Skills Standards. The Milwaukee Area Technical College, for example, offers two courses each semester that are aligned to Manufacturing Skills Standards Council (MSSC) courses. In the first semester, the college offers Industrial Manufacturing 1 and Industrial Math for the Trades. In the second semester it offers Industrial Manufacturing 2 and Communications for Apprentices. These courses deliver content aligned with the MSSC safety, quality, manufacturing processes, and maintenance modules. Delivery modes are flexible as well. The “classroom” training can be taken online or through other distance learning methods.

Practical on-the-job learning takes place through the daily interaction between an apprentice and his/her co-workers. IMT apprentices operate industrial production-related equipment, work with manufacturing-related tools, and perform work processes related to a wide variety of manufacturing settings. Involvement in these activities teaches apprentices to set up, operate, monitor, and control production equipment and helps improve manufacturing processes and schedules to meet customer requirements.

The flexibility of the IMT Registered Apprenticeship’s training delivery method allows firms to customize the program to their own production needs. Consequently, the training requires a collaborative partnership between employers, employees, and their representatives. Employers pay apprentices wages for on-the-job training. Depending on the firm, wages can also be paid for classroom or other related training. The quality of the training is held to a high standard, but the modes of delivery (private provider or community college), the number of apprentices in a firm, and structure and timing of classes are unique to each firm. As a result, the cost of the program can vary quite substantially across firms. For some smaller firms, program costs are prohibitive and WRTP/BIG STEP is working to find external funding sources to support apprenticeship for them.

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PROFILE: HAYES PERFORMANCE SYSTEMS, WI

HAYES is a specialty brake-system manufacturer serving bicycle, motorbike, snowmobile, ATV, UTV and defense vehicles. In 2012, the company needed a solution to serious skill needs in their workforce. They turned to the IMT registered apprenticeship. Its first program enrolled workers and successfully graduated one apprentice in March 2015. Currently, the program has seven apprentices enrolled. The next program round targets an additional 10-15 experienced participants in the hope that they will use the program to transition into maintenance positions or as a foundation to move onto the electrical mechanical apprenticeship.

The IMT program at Hayes Performance Systems focuses on assembly and machine operator on-the-job learning and employs a self-paced MSSC program for the related classroom instruction. Compared to other more traditional manufacturing apprenticeships, the IMT apprentices at Hayes are extremely diverse: 73 percent of the initial IMTs were non-white and 55 percent were women. Leaders from both labor and management on the project report that the joint labor-management apprenticeship steering committee has proven to be a fertile forum to promote broader and critical labor-management discussions. More generally, the “apprenticeship is part of getting people involved” and appreciated by Hayes leaders for being part of creating a learning and skills environment at the company.

BRANDI DUNHAM was the first woman selected to register for an 18 month Industrial Manufacturing Technician (IMT) Registered Apprenticeship and became the first female IMT Journey worker in the nation! After holding a job as a bank teller for 9 years, she began a new career with Hayes Performance Systems, a company represented by the United Steelworkers of America. She credits her time in the apprenticeship with increased skills and knowledge, especially math, blueprint reading, and learning how to use different tools. Brandi was promoted to a Safety Inspector as a result of her new IMT Journey Worker status. While Brandi was the first female IMT journey level worker in the nation, she's no longer unique at her worksite. Another female IMT apprentice has recently received her journey status at Hayes Performance Systems.



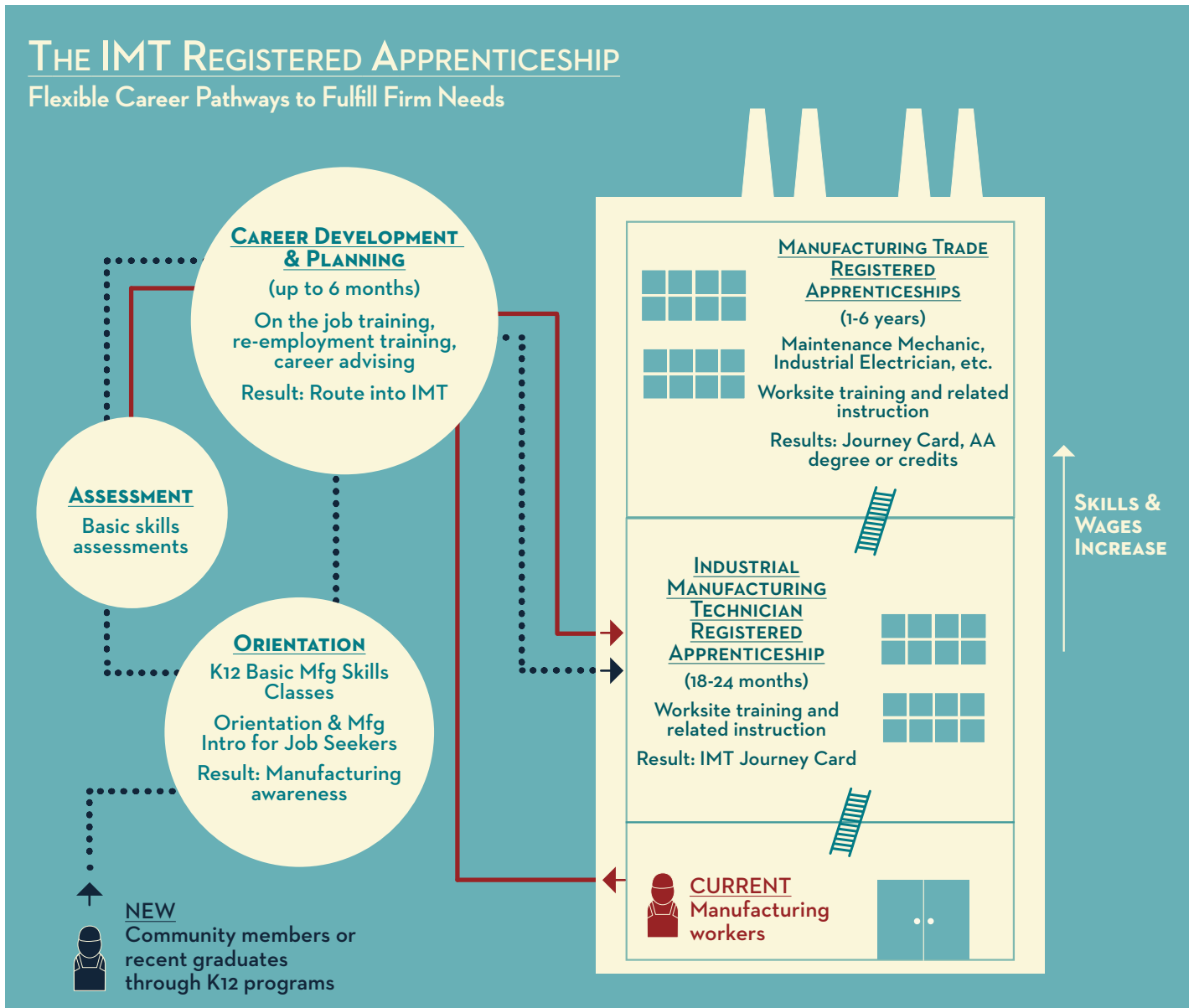
Workers and their representatives provide feedback from the shop floor regarding the day-to-day training needs of apprentices and their impact on productivity. Labor and management leaders reflect on shop floor issues, learn from programs at other companies, and then collaborate to tailor the firm-specific training schedules around the identified needs. As such, the apprenticeship program serves to raise productivity and efficiency while providing workers with transferable skills. The program also creates a space for labor and management to exchange information, collaborate to solve problems together, and to innovate. This can have positive spillover effects on the firm as well.

A NEW APPRENTICESHIP RUNG ON THE MANUFACTURING CAREER LADDER

A generation or two ago, workers could take their high school diploma, secure an entry job in manufacturing and find a reliable route to more skilled positions over time. The ability to move up in manufacturing was fostered by highly demarcated job titles, by on-the-job training and firm-based learning systems, and long-term apprenticeship for very skilled positions. The dramatic restructuring of manufacturing across the last thirty years has left firms leaner and more productive, with fewer job titles/classifications, fewer internal training resources, and less investment in traditional highly skilled manufacturing apprenticeships. The productivity increases of new systems are welcome and essential to retaining the United States manufacturing base, but the loss of training infrastructure poses a serious threat to workers and firms, and the communities that depend on the manufacturing economy.

The IMT helps reestablish a middle rung in the manufacturing career ladder. Production workers with some experience are ready to build skills with the on-the-job and related instruction. Their employers can count on greater skill and commitment from those in the apprenticeship. When workers get their IMT journey card, they are on a strong foundation to contribute to the company – training other workers or taking on more complex tasks. They are also able to take on more advanced training or even apprenticeship in maintenance or electrical mechanical occupations. This is the structure of the program: the IMT can offer the first step in the development of highly skilled maintenance workers.

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The figure above shows the context surrounding the IMT Registered Apprenticeship. First, notice that WRTP/BIG STEP has established routes into manufacturing for community residents, displaced workers, and youth coming out of the K12 system. That work involves outreach, orientation, assessment, and manufacturing awareness and career planning. That infrastructure supports new workers as they consider careers in manufacturing. Further, that work allows WRTP/BIG STEP to help fill the openings that IMT apprenticeships may create. Current workers in manufacturing may also use career development and assessment as their on ramp into the IMT registered apprenticeship. Inside the firm, labor and management work together to build systems so that workers can access the IMT and successfully complete it. The career development and training provides a foundation for further manufacturing skills gained in the IMT. The IMT is a first step up in skills. Workers can move up further, via other registered apprenticeships in maintenance and electrical work, for example.

BUILDING IMT APPRENTICESHIPS

Successful implementation of an IMT registered apprenticeship program requires identifying an employer and working with that firm and worker representatives to check the alignment of the IMT to the skill needs inside the firm. Once a firm can see the way IMT responds to skill needs, the employer must be ready and willing to fully participate in the program. This requires determining the system that will be used to select and support apprentices and further careful attention to covering implementation-related costs like lost production times for training workers and trainers. Labor and management buy-in to the project is critical to help structure and support the apprenticeship.

WRTP/BIG STEP is also an essential partner in the project. As an industry-led intermediary, WRTP/BIG STEP brings perspective and experience from other facilities that helps employer and unions customize their approach. Further and equally important, WRTP/BIG STEP has a strong understanding of the structure of the IMT as well as relationships with federal and state apprenticeship regulators to ensure that firm's program meets requirements for certification while remaining responsive to the needs of the facility and its workers. Also, WRTP/BIG STEP helps secure public, private, and philanthropic resources to build the model and to extend it through partners throughout the region. While a new IMT registered apprenticeship is rooted in each firm at the shop floor level, WRTP/BIG STEP is essential to the existence and the extension of the model. WRTP/BIG STEP identifies opportunities for disseminating the IMT, helps customize it to new situations, and supports firms as they make their way through the system.

The IMT is an important response to needs in manufacturing, and firms embrace it. But they will not develop the program in a vacuum. WRTP/BIG STEP provides the infrastructure to support and extend apprenticeship in manufacturing.

The IMT model might seem like a straightforward project – an identified job and a training system to meet it. It emerged because of the context of partnership. Without the partnership of industry leaders – both management and labor – and the intermediary they have built, the IMT would not be designed or expanded. Industry leadership is essential to every step – from identifying the shared need across diverse firms, to helping convince partners to get on board with the model. WRTP/BIG STEP draws on the long experience of staff who are knowledgeable about labor relations, collective bargaining, education agencies, the apprenticeship system and the MSSC training process. This infrastructure and knowledge has been critical to the success of the project.

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PROFILE: RENAISSANCE MANUFACTURING GROUP, WI

RENAISSANCE MANUFACTURING GROUP is a caster of multi-ferrous metals serving heavy truck, automotive, and industrial clients. The company turned to the IMT Registered Apprenticeship to develop a pipeline for future higher skilled positions and to develop front-line workers into higher technology occupations. RMG offered the program to all interested employees, WRTP/BIG STEP administered the MSSC aligned portion of the training and Waukesha County Technical College provided the remaining classroom instruction.

The first apprenticeship cohort at RMG enrolled 12 apprentices and nine of those received their journey card. The second group currently still in class enrolled 12 with nine currently still participating in the program. As is the case across most IMT programs, the population of apprentices is very diverse with 62 percent being non-white and 14 percent female. Labor is involved in every step of the training process, from selection of apprentices to review of progress.

CASSANDRA PATTERSON has 15 years of service in the company, she was working on the shop floor in molding as an Operator and a Core Setter, and was just promoted to Team Lead with a wage over \$21 per hour. In April of 2014, she enthusiastically entered the new Industrial Manufacturing Technician Registered Apprenticeship at RMG and with the Waukesha County Technical College. Cassandra says, "I entered the apprenticeship because I love to learn and being invited to learn more about my work was an exciting opportunity. Any time I can increase my knowledge I get excited and jump at the chance." A year later, Cassandra has successfully completed all four Manufacturing Skills Standards Council Certified Production Technician Modules in Safety, Quality, Maintenance and Production. As a result, she is now cross-training in Quality and Maintenance in the molding shop. "I've been given the chance to work in many new departments as a result of the IMT apprenticeship. It has allowed me to figure out what I enjoy doing for the company. I hope to eventually focus on Maintenance, now that my apprenticeship is completed."



IMT APPRENTICESHIP: PROGRAM GROWTH AND DIVERSITY OF APPRENTICES

The IMT apprenticeship fills a manufacturing skill gap and increases the pipeline of highly qualified and diverse individuals prepared to enter into skilled occupations in manufacturing. Additionally, current efforts to expand the utilization of the IMT Registered Apprenticeship increases the knowledge base among employers and unions regarding the value of a shorter-term apprenticeships, strengthens labor-management relations, and connects local workforce investment systems to high performance manufacturing training strategies.

Early signs indicate that the IMT is succeeding on each of these goals. Since enrollment into the apprenticeship program started with two companies in Wisconsin in mid-2013, eight more companies in Wisconsin and six in Minnesota and Michigan adopted the program by 2015. Total enrollment across all firms rose rapidly from 6 apprentices in 2013 to 176 in 2015. This is their most rapid expansion of any manufacturing apprenticeship program in Wisconsin's history. The IMT apprenticeship dropout rate is 24 percent, low compared to 34 percent in other manufacturing apprenticeships.

The IMT Registered Apprenticeship is also making manufacturing skills broadly accessible to a diverse population. Of the 167 IMT apprentices, 60 percent are people of color and half are women. That's impressive, especially compared to traditional industrial apprenticeship programs which, since 1995 in Wisconsin, have been 96 percent white and 96 percent male.

The enthusiastic take-up by firms across the manufacturing spectrum also highlights the IMT Registered Apprenticeship's success in filling manufacturers' training needs without disrupting production processes. The continued support by organized labor for the program and the low dropout rates also underscore its success in meeting workers' training needs and helping them progress along their career ladders in promising and high-paying economic sectors.

The success of the pilot program has laid the groundwork for its imminent expansion to Northeastern Illinois, Pennsylvania, Indiana, Ohio, and Kentucky. The IMT apprenticeship is on target to register 1,450 new IMT apprentices across these eight states, eventually producing at least 700 Journey Worker IMTs.

"I've been given the chance to work in many new departments as a result of the IMT apprenticeship. It has allowed me to figure out what I enjoy doing for the company."

- Cassandra Patterson

In some firms, joint IMT apprenticeship committees have created a space in which labor representatives and management have collaborated to improve the design of the IMT apprenticeship, but in doing so they have improved overall labor-management relations and production processes as well.

IMT EXPANSION SUPPORT STRUCTURE

The IMT Registered Apprenticeship was grown in Wisconsin. The context – a long-standing successful labor management partnership for training in the region and 100 years of experience with apprenticeship in the state – provided the infrastructure that made the genesis possible.

The first site of expansion occurs within firms. But even here the experience and knowledge of WRTP/BIG STEP and union partners is critical to expanding the program. For expansion of the program across the eight state region, WRTP/BIG STEP is working with union partners, with the AFL-CIO Working for America Institute, and with Jobs for the Future. In the expansion, WRTP/BIG STEP relies on its track record of success, its relationships with labor and management leaders, and its capacity to train and work with union and management leaders in building new programs.

Formal and informal union support for the IMT program within individual firms has also been important for its successful implementation and rapid diffusion. In particular, union support ensures that the firm-specific design of the program is responsive to worker feedback as well as to lessons learned from IMT programs at other employers that the union covers. Union engagement helps ensure that workers get practical transferable skills. And in partnership with management, union leaders develop strategies to implement the apprenticeship and navigate resulting productivity improvements.

In some firms, joint IMT apprenticeship committees have created a space in which labor representatives and management have collaborated to improve the design of the IMT apprenticeship, but in doing so they have improved overall labor-management relations and production processes as well. In some cases, the benefits from both have been so great that it has enabled the firm to strategically reorient its production to lower volume, more skill-intensive and higher margin products. In an environment in which U.S. companies are forced to compete on innovation, these added benefits from union-supported IMT registered apprenticeship programs can be the critical difference between economic success and failure.

PROFILE: OCEAN SPRAY

OCEAN SPRAY is an agricultural cooperative of more than 700 grower families. The cooperative produces juices, sauces, fresh fruit, and a range of fruit flavored snacks. Ocean Spray turned to the IMT Registered Apprenticeship program to upgrade the skills of front line production workers and prepare them to advance to higher skilled occupations within the facility. Based on its traditionally progressive attitude to employee training (“shame on us if we do not take advantage and train our employees for the betterment of them as well as for us”), Ocean Spray offered the IMT opportunity to all employees regardless of job classification.

The WRTP/BIG STEP provided trainers for the MSSC training portion and all other remaining classroom training was provided by Gateway Technical College. 34 workers enrolled in the IMT Registered Apprenticeship. They came from diverse areas inside the plant, including operations, material movement, and warehouse. Of enrolled apprentices, 24 percent were non-white and 12 percent were female. In November 2016 22 achieved journey status.

There is ongoing discussion of another round of IMT training. A joint labor-management committee was involved in the structuring and operation of the program from day one and determined posting procedure, selection process, and wage progression.

BRIAN ANDERSON began his career at Ocean Spray ten years ago. Prior to working at Ocean Spray, Brian had been dislocated as production worker at American Motors (later Chrysler Corporation). After that job, he worked at various manufacturers in the Kenosha/Racine area. Brian never had the opportunity to work toward advancing with a manufacturer until Ocean Spray chose to sponsor Industrial Manufacturing Technician Apprentices. When the opportunity was first posted in the plant, Brian jumped at it as he recognized it as a pipeline into the maintenance department at Ocean Spray. Brian feels the training has been exceptional and looks forward to the opportunity for advancement at Ocean Spray that a journey card will provide.



IMT APPRENTICESHIP: SUCCESS AND LESSONS

The IMT Registered Apprenticeship is a model for building skills in manufacturing. As an apprenticeship, the IMT engages firm and union leaders in all aspects of the project from validating and customizing program design to delivering on-the-job learning and engaging educational partners. But unlike older traditional manufacturing apprenticeships, the IMT model is easily customized and responsive to unique firm needs and notably shorter as well. It establishes a new rung on the ladder in manufacturing. For some workers, it will provide a skill base and standard of living for a career. For others, the IMT will be a stopping point on the way to greater skills in manufacturing.

The program appeals to diverse workers across a wide range of firms, suggesting that IMT can be an engine for skills and opportunity in manufacturing. As manufacturing continues to restructure, IMT is a practical model that suggests a new frontier for labor, business and community work to strengthen the sector.

Key lessons learned through the process of developing and supporting the expansion of the IMT include:

INDUSTRY-WIDE TRAINING INNOVATION REQUIRES INDUSTRY-WIDE LEGITIMACY AND KNOWLEDGE

WRTP/BIG STEP took on the job of identifying, defining, and helping partners see the shared skill needs across the industry. Diverse employers needed similar skills – but each employer is focused narrowly on internal positions and job titles. It requires an organization with knowledge across firms to see what problems are shared. The rapid expansion of the IMT program owes directly to the fact that WRTP/BIG STEP was able to identify, generalize and translate industry needs. And WRTP/BIG STEP has the experience and connections with the public training and apprenticeship system to help usher firms through what can be a daunting set of issues. The intermediary role is a critical support to firm take-up.

PROGRAM FLEXIBILITY IS CRITICAL TO EMPLOYER AND EDUCATOR BUY-IN

The IMT Registered Apprenticeship identifies and trains for the common skills needed. But the IMT apprenticeship can also be customized for each firm. Different employers will take slightly different approaches to the project though all workers who reach journey level will have an industry recognized skill. The project is general enough to respond to an industry problem, but flexible enough respond to the specific needs of firms. Likewise, the apprenticeship is flexible with regard to the approach of education partners but equally standardized on the skills that need to be delivered. The IMT has balanced flexibility and standards in ways that work for all partners.

NEW APPRENTICESHIPS CAN ANSWER SKILL NEEDS IN INDUSTRIES AND INCREASE DIVERSITY OF THE SKILLED WORKFORCE IN MANUFACTURING

Often in thinking about apprenticeship, there is consideration of how to diversify existing apprenticeships (an enormous issue) and the development of apprenticeship in new industries. The IMT is a hybrid of these two approaches. The IMT is a new and more accessible model for registered apprenticeship in manufacturing – a sector with a fading tradition of long-term apprenticeship. The IMT provides a middle rung on the way up the manufacturing career ladder and in providing that step, responds to new skill needs of firms, and works for a more diverse manufacturing workforce.

FIRMS ALONE WON'T JUST BUILD THESE PROGRAMS AND BUILDING THEM REQUIRES INSIDE KNOWLEDGE OF BOTH THE INDUSTRY AND THE TRAINING SYSTEM

As a model of training, registered apprenticeship requires more of employers than standard train-then-work models of education and training. Apprenticeship must be embraced by a firm because the firm must invest in the apprentices and the training design for the program to work. That means deep and broad industry knowledge is required. But apprenticeship needs to serve industry, not just a firm. And apprenticeship needs to relate to broad public system regulating the approach and providing training. The training needs to be generally relevant, not narrowly customized. That means that industry partnerships, like WRTP/BIG STEP are essential to help seed and nurture the program. Apprenticeship exists in a context and extending models will require considering that context. Going forward, apprenticeship funding streams need to be attentive to this and explicitly fund the intermediary role as essential to program design and expansion.

UNIONS ARE CRITICAL PARTNERS REPRESENTING WORKER INTERESTS, WORKING INSIDE PLANTS TO ADAPT THE TRAINING, AND WORKING ACROSS INDUSTRY TO EXTEND THE PROGRAM TO NEW FIRMS

Unions have been essential partners in every phase of the development and expansion of the IMT. They have been part of identifying shared needs across industry, building support for workers inside firms, and helping spread the knowledge of the program to new firms. This is functional and critical infrastructure that should be acknowledged and supported by funding streams.

CONCLUSION

The IMT Registered Apprenticeship is a promising innovation. It is growing rapidly across manufacturing in the Midwest. Firms are building the skills they need for productivity. Workers are building the skills they need for opportunity and advancement. The route to skills is working for women and people of color and diversifying the industry as it promotes skills. All of these are important outcomes for the industry, for workers, and for the community. WRTP/BIG STEP has been essential to this success. Moving apprenticeship into manufacturing's future will require strong programs but also strong intermediaries that can help labor and management identify and solve problems.

PARTICIPATING EMPLOYERS AND LABOR PARTNERS IN THE DEVELOPMENT OF IMT

Brady Corporation

GE Healthcare

Harley Davidson Motor Company

International Association of Machinist and Aerospace Workers (IAMAW)

International Association of Sheetmetal Air Rail & Transportation Workers (SMART)

International Brotherhood of Electrical Workers (IBEW)

John Crane Orion

John Deere

Master Lock

Masterson

Milwaukee Cylinder

Milwaukee Forge

Milwaukee Gear Incorporated

Ocean Spray Cranberries

Pure Power Incorporated

Spincraft Inc.

SPX Waukesha Transformer Solutions

United Auto Workers (UAW)

United Steelworkers (USW)

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