

EQUITY IN APPRENTICESHIP

CASE STUDY

MANUFACTURING PATHWAYS IN MILWAUKEE

Bringing Skills and Equity to Manufacturing's Future

Laura Dresser and Walker Kahn

EQUITY IN APPRENTICESHIP is a report series from COWS at UW-Madison. It highlights programs that extend occupational opportunity to historically marginalized groups, especially people of color and women. The series consists of four case studies and an overview document with policy and practice principles for equity in apprenticeship.

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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.

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Our four case studies of apprenticeship programs span the country and industries. The Worker Education and Resource Center (WERC) in Los Angeles has become highly adept at preparing health care workers who share a cultural affinity with LA's patient populations. The Industrial Manufacturing Technician (IMT) program is the product of collaboration between labor and management leaders in Milwaukee's manufacturing sector and has created a new rung in the ladder in production jobs. In California, the Joint Workforce Initiative in the South Bay Valley Transit Authority has developed a web of apprenticeships and advancement opportunities. Montana's Tribal College Apprenticeship case study offers a look at how apprenticeship plays out in rural areas and the key issues that new partnerships face as they take on equity. The series concludes with Policy and Practices for Equity in Apprenticeship which generalizes lessons for the field.

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Authors

Laura Dresser and Walker Kahn

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EQUITY IN APPRENTICESHIP

A NEW MANUFACTURING APPRENTICESHIP

Although the 21st Century has challenged and transformed American manufacturing, the sector remains a leading employer and a pillar of the national economy. Manufacturing firms have added jobs since the depths of the recession, and the aging of the manufacturing workforce is also creating new demand for workers. While employment in manufacturing is expanding, jobs and careers in the sector have been repeatedly remade by the rapid changes in technology and organization that characterize modern flexible production. Recession, reorganization, layoff, and plant closings have reduced training infrastructure and the job ladder systems that once defined the industry. Old systems of advancement have disappeared even as firms realize they need workers with more skills. The Manufacturing Institute's 2015 Skills Gap Report found that 54 percent of manufacturer respondents report a shortage of skilled production workers today, and 63 percent expect a shortage by 2020.

Apprenticeship is a tool to answer the needs of the industry.

A city defined by its manufacturing roots, Milwaukee has been at the center of these trends. As the industry faces global competition and rapid technological change, the Wisconsin Regional Training Partnership/BIG STEP (WRTP/BIG STEP) is working with labor and management leaders to meet industry skill needs while building connections to and opportunity for the central city community. The Industrial Manufacturing Technician Registered Apprenticeship (IMT) is the answer they developed to meet the current need. The apprenticeship is designed to build the skill demands industry needs. At the same time, the IMT is extending opportunity to people of color, women, and other workers who historically have not had a direct route to better manufacturing jobs.

IMT HISTORY

For more than two decades, labor and management leaders in Milwaukee's manufacturing hub have worked together to solve workforce development problems. WRTP/BIG STEP facilitates this collaboration by creating collaborative spaces for labor and management leaders to work together, marshaling public training and education resources, and by expanding opportunities for current and future workers. One of WRTP/BIG STEP's major initiatives is to expand equity in manufacturing employment by increasing the access of central city residents to these jobs. The organization's mission is:

"By being industry led, worker centered, and community focused, WRTP/BIG STEP helps under-employed, under-served, and under-represented individuals succeed in well-paying careers while exceeding industry's workforce needs."

The IMT's success is grounded in WRTP/BIG STEP's deep relationships with manufacturing firms and labor unions, their driving concern of building opportunity for "under-employed, under-served, and under-represented" workers, and the long tradition of apprenticeship in Wisconsin. This paper offers the story how

equity is built into this apprenticeship innovation as it responds to the evolving manufacturing sector.

A New Training Approach for Production Workers

WRTP/BIG STEP developed the IMT directly in response to industry needs. During their 2011 annual assessment of industry needs, WRTP/BIG STEP staff found that a shortage of skilled workers and training opportunity was an issue across the sector. They confirmed this through their ongoing engagement with manufacturing leaders, and identified a common problem: although job titles vary, skillsets needed remain the same. In different plants, job titles like “Production Technician” covered a wide range of skills and requirements, but the fundamental skillsets that were in demand were consistent: there were fundamental core skills that production workers needed to be effective employees and to progress in their careers. In 2011 and 2012, WRTP/BIG STEP staff worked with industry leaders to identify these in-demand skills and create training programs necessary to develop them. This process helped industry leaders realize that despite greater specialization within firms, the skills that were in-demand 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 help solve the industry’s problem. WRTP/BIG STEP worked with Wisconsin’s Bureau of Apprenticeship Standards to build a new apprenticeship program that could meet the shared needs of the industry.

The IMT addresses the manufacturing skills gap by improving the skills of workers already inside the manufacturing industry. IMT apprentices focus on inspection, repair, mathematics, quality assurance and control, preventive maintenance, blueprint and schematic reading, inventory management, equipment testing, and manufacturing processes. For many production workers, training in this modern manufacturing

skillset is simply unavailable before the advent of the IMT.

The IMT creates a middle step in the manufacturing career ladder. While manufacturing has long hosted a small number of apprentices and journey-level workers in very skilled positions (maintenance and tool and die, for example), there is a large gap separating the production workforce from getting to those opportunities. That’s where the IMT Apprenticeship comes in. As Mark Kessenich, President & CEO of WRTP/BIG STEP, puts it: “If you’re lucky to be in a shop that offers maintenance apprenticeships, one spot will open every few years, and one hundred other people from the shop will also apply. If you get it, great. But what about the rest of the workforce?” The IMT brings necessary skills to the average production worker and provides them with opportunities to advance beyond their current position. It is a shorter-term apprenticeship that provides training in 18 months to two years, an attractive feature for employers and production workers alike.

The IMT was a step toward re-establishing and re-orienting manufacturing training opportunities in ways that enable the participation of younger and more diverse workers who are the majority of manufacturing production workforce, but were historically excluded from the best training and career opportunities. Both employers and unions see the value of shorter-term apprenticeships, as it enables workers’ advancement in their fields and is a solution to employers’ skill needs. They also note that the program has strengthened labor-management relations and connected local workforce investment systems to high performance manufacturing.

Greater Equity

The IMT improves access to good jobs for people of color and women workers. These once “non-traditional” workers now make up a significant

share of Milwaukee's production workforce, but the most highly skilled workers still tend to be older, white, and male. Manufacturing's advanced registered apprenticeships (e.g. maintenance or electrical/mechanical) are geared towards people deeply familiar with industrial trades. Opportunities to enter these apprenticeship programs are limited, and they are generally the domain of white men. WRTP/BIG STEP developed the IMT in response to growing demand in the manufacturing sector for workers with the skills necessary to troubleshoot at a high level, understand the lean manufacturing model, and efficiently adapt to new work processes. The IMT also diversifies the skills training pipeline, and helps individuals from underrepresented groups meet the needs of manufacturing employers while preparing themselves to enter the higher-skilled occupations in manufacturing.

As IMT apprentices learn skills and take advantage of new opportunities, they share their experiences with friends and family, and help recruit other people into the program. According to Rhandi Berth, WRTP/BIG STEP's Director of Industrial Initiatives, the IMT program in a manufacturing facility provides for greater diversity, developing on-the-shop floor training experts and a more highly skilled workforce "because employers choose their most skilled workers, those with longer work histories are the first selected for IMTs. As vacancies happen, this provides opening for greater diversity of people training for their IMT."

EQUITY IN THE STRUCTURE OF IMT

Apprenticeship overview

The IMT is a Department of Labor-registered, employer-based apprenticeship which builds the skills of manufacturing workers. As defined by the U.S. Department of Labor, Registered Apprenticeships are employer-driven training programs that combine on-the-job learning with related classroom instruction to increase an



MOVING APPRENTICESHIP INTO MANUFACTURING'S FUTURE: INDUSTRIAL MANUFACTURING TECHNICIAN

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For a more general overview of the IMT, read this brief at www.cows.org.

Just as the IMT apprenticeship was developed to address industry needs, increasing equity in manufacturing employment is a necessary step to solving the industry's skills shortage, and has been a focus since the beginning of the project. The solution responds directly to the framework that defines WRTP/BIG STEP: industry-led, worker-driven, community-focused. Attention to access and opportunity for non-traditional workers in the program is built in to every aspect of the IMT.

apprentice's skill level and wages. They are proven solutions for businesses looking to recruit, train, and retain highly skilled workers. Apprenticeship is a flexible training strategy that can be customized to meet the needs of every business, and can be integrated into current training and human resource development strategies. The IMT consists of 2,736 hours of on-the-job learning and

264 hours of related instruction over two or more semesters of classroom instruction. Compared to traditional manufacturing apprenticeships, the IMT is shorter and acts a step up from a production job. For employers, the hallmark of the IMT is its adaptability to unique firm production processes and its ability to quickly increase skills of manufacturing workers. Its adaptability is credited to a combination of on-the-job learning and related instruction that takes, on average, 18 to 24 months to complete.

The flexibility of IMT training allows firms to customize the program to their production process and the needs of their employees. Consequently, the program requires collaboration and partnership between employers, employees, and training providers. Employers pay apprentices wages for on-the-job training, and some also pay wages for classroom training. The quality of the training is held to a high standard, but the modes of delivery (community college and/or private provider), the number of apprentices, and structure and timing of classes are unique to each firm. As a result, the cost of the program can vary significantly: for some smaller firms, program costs can be prohibitive, but WRTP/BIG STEP works to find external funding sources to support apprenticeship for them.

The IMT reestablishes a middle rung in the manufacturing career ladder. It provides production workers with the experience and education necessary to further build their skills through more specialized on-the-job training and classroom training. When workers qualify for their IMT journey card, they have a strong foundation of skills and are prepared to contribute to the company. Some become trainers, or take on more complex tasks. Others have their eye on more advanced training or even apprenticeship in maintenance, electrical,

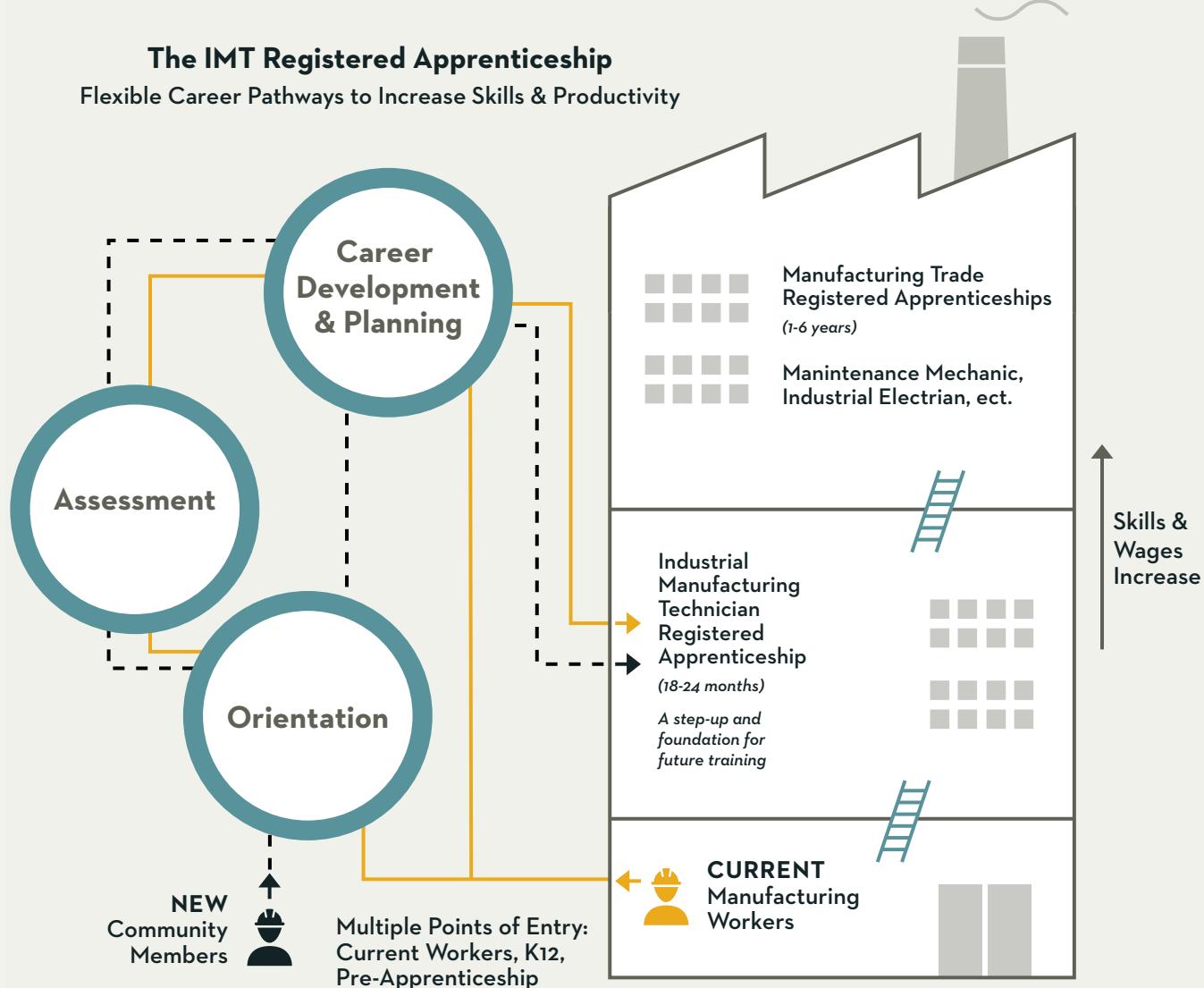
or mechanical occupations. The program is a first step in the development of highly skilled maintenance workers. As DeAnna Mullins, Human Resources Manager at Renaissance Manufacturing Group (RMG), put it: “You always hear those skilled trades people say, I’m a state-credentialed journeyman. And now we’ve got production people who can say, I’m a state-credentialed journeyman too.” (See Box 2 for more on the RMG story).

Worker Voices and Labor/ Management Partnership Shape the Program

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 work together to identify shop floor issues, learn from programs at other companies, and tailor training schedules to firm-specific needs. The program creates a space for labor and management to exchange information, solve problems together, and to innovate processes. This can have positive spillover effects for the entire firm. According to Kessenich, “As people begin their apprenticeships, they begin to engage with educational processes. Even going to parts of the plant that they’re not exposed to in their work, and learning about what other people are doing, they realize that there are new opportunities available to them. And there’s going to be an opportunity for mentoring processes where people will recognize workplace issues that can be worked on to prevent discrimination, even micro-discrimination. People will be given the opportunity not only to be better workers in their occupation, but to be valuable parts of their company.”

Structure of the Program: Start Up

Successful implementation of the IMT program requires that employer and worker representatives work together to align the



apprenticeship to the skills needed within the firm. Once an employer sees that the IMT responds to their deficit in certain skills, they must be ready and willing to fully participate in the program. This requires developing a system to select and support apprentices, with further attention to implementation-related costs. Employers are generally concerned about training impacting production, but the IMT model provides flexibility that empowers them to choose a scheduling response that meets their production imperative (for example, employers can schedule a class that meets between shifts). Buy-in to the project from both management and workers is critical to developing and supporting the program.

Structure of the Program: Recruitment into the IMT

The IMT is a new upskilling and training opportunity for production workers in the manufacturing sector. The apprenticeship creates an upward path for workers' skills, and the program is very attentive that selection for the apprenticeship is transparent and equitable. Some firms work in partnership with their unions on recruitment. DeAnna Mullins, RMG's director of Human Resources, identified the partnership between the company and United Steelworkers Local 3740 as key to developing the IMT the program and recruiting workers: "We don't have the HR resources to do this by ourselves,



Employer and Worker Perspective on IMT

DEANNA MULLINS

Human Resources Manager

LUES JIMENEZ

CNC Machining Team Lead

Renaissance Manufacturing Group, WI

Renaissance Manufacturing Group (RMG) 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.

RMG has had 3 waves of IMT apprentices since 2013, and a total of 24 people have enrolled in the program, 70 percent of whom are women or people of color. Labor is involved in every step of the training process, from selection of apprentices to review of progress.

DeAnna Mullins, Human Resources Manager at RMG, developed the company's IMT in partnership with United Steelworkers Local 3470. With help from WRTP/BIG STEP, they enrolled the first group of apprentices in 2014. RMG's workforce is extremely diverse, and the company's first IMT class reflected that: 62 percent of the apprentices were non-white and 14 percent were female. For Mullins, the IMT program has been a huge success for RMG and the employees:

"Before the IMT, there was no focus on bringing training to your average production worker. You had apprenticeship programs for some people, but not for your average production worker. If you needed a machinist, you hired a machinist who was already trained. Today, manufacturers are all competing for the same workforce, and there's just not enough skilled workers to go around. As an industry, there hasn't been enough focus on developing the production workers' skills, but as manufacturing becomes more complex and sophisticated, so does our need to train our employees."

"We're a foundry. We typically don't require a high school diploma, and in the past, new hires started off swinging hammers and breaking off parts. Now, we want to get people into apprenticeship training. Our sales pitch is that if you're a lower-senior employee, your IMT journey card will give you an opportunity to get a better job, not just here but anywhere. Nobody can take it away from you."

Our production workforce is close to 50 percent minority, so the population we draw on is already diverse. But that makes the IMT even more important, because the program gives our employees the opportunity to develop skills that they may not have gotten in previous jobs or at other manufacturers.

The IMT gives us at Renaissance the opportunity to show to production workers that we are interested in developing their skills and their aptitudes. The program helps us identify people who were a good fit for more advanced training, people who we would've missed otherwise.

Having more skilled production workers improves our business. The more skilled your workers are, the better your quality, the better your performance on the floor, and the better your workplace safety. All around, your metrics and performance improve with the skill of your workers. So I swear by the IMT. It is a wonderful program and a great opportunity for Renaissance to improve the skills of the workers on the production floor."

Lues Jimenez started at RMG in an entry level position in the foundry, but he wanted to work his way up in the company. The IMT Apprenticeship Program made that possible. "You have to keep perfecting yourself, making yourself better. I wanted a better future; a better career." The skills Lues learned in the IMT, especially the skills he acquired in on the job training, transferred to new positions as he advanced at the company: "*I went to the machine shop; a lot of the material we covered carried over to my new position – the hydraulics, the maintenance, repairing, blueprint readings, and precision measurements. It all came into play at the machine shop.*"

RMG is investing in Lues, and the skills he's developed makes the company stronger, safer, and more efficient. During IMT training, he gained certification in OSHA 10 and First Aid CPR. These certifications and ongoing training are important in today's workforce environment. As Lues points out, "*It's going to help you get into the new positions opening up. I have options now.*" Joe Nicosia, Manufacturing Industry Coordinator at WRTP/BIG STEP added, "*We all thought highly of his ambition to complete the apprenticeship program.*"

Married for thirty-one years with three grown kids, Lues had something to prove. "*I wanted to show my kids you're never too old to learn. You can't lose anything, you can only gain. Knowledge is power.*" Currently, Lues is CNC machining team lead at RMG. Asked about the IMT Apprenticeship Program, he said, "*I would recommend it for anyone who wants to learn and gain the knowledge and experience.*"

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Successfully recruiting production workers into the program means successfully extending opportunity to women and people of color.

but the union works with us to pick people who are best qualified for the program...They know their members better than we do, in many cases. They know their aspirations and interests. And when we were putting the IMT classes together, they'd identify candidates. They worked with HR, and they were a very strong force in helping the program be a success."

Successful recruitment of production workers into the program means successfully extending opportunity to women and people of color. Initial recruitment when apprenticeship is introduced to a firm can be challenging, as the preconception that apprenticeships are the domain of white men is still pervasive in many industries. This understanding of apprenticeship is rooted in experience in manufacturing – white male workers are the dominant demographic who are in apprenticeships or working as journeymen.

In the IMT, the first cohort of workers accepted into the program helped change the face of apprenticeship. Role models, like Brandi Dunham and the women at Hayes Performance Systems (see Box 1 to learn more about Hayes) are vital for expanding opportunities. According to Berth, this happens because “apprentices encourage other people to apply to the program, either people they work with on the shop floor or people they know in their communities. They talk to their friends, and they deliver that one-to-one communication that’s so hard to reproduce without a personal relationship.” In Dunham’s experience, the difference between being recruited by a manager and a peer made all the difference: “The lady who presented the IMT to me was my supervisor at the time. She took me under her wing, and told me I was going to do great things. When the IMT pilot program started

at Hayes, we were only allowed two slots, and she actually chose me for one of them. I wasn’t so sure I wanted to do it, but she encouraged me. It just goes to show, you can have a white-collar person from Human Resources say, ‘You should do the IMT,’ and it doesn’t mean that much. But someone like me can say ‘You should do the IMT’ and people realize, ‘Oh my god, she did this! I used to work with her on the floor, and now she has her own office. Maybe it’s time that I try something different.’ That’s what people trust, and what they look for.” This is an important method of keeping diversity in the IMT ranks. Early participants recruit future classes, and as the program becomes established within firms, these networks change the face of manufacturing apprenticeship.

And while the apprenticeship has been focused on incumbent workers, some employers recently partnered with WRTP/BIG STEP on a pilot project to use the IMT as a recruiting tool. In recruitment materials, employers guaranteed that new hires would be enrolled in the IMT apprenticeship and promoted the program as “a fast track to great career pathways in the industrial trades.” Initial reports suggest that the IMT might be a highly effective recruitment tool. According to Berth, offering an apprenticeship vastly improved the quality of the pool of applicants: “the caliber of the candidates that came were much higher. I’ve been in this industry for 23 years, and I was just blown away. People who were already working in the industry in lower-wage jobs saw it as an opportunity to advance. People who knew what apprenticeship was, and wanted the opportunity to learn, they sought this out. It’s an enticing opportunity.”

Berth sees this as an important lesson for firms



Apprentice Perspective

BRANDI DUNHAM

Former IMT Apprentice

Hayes Performance Systems

Hayes Performance Systems 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. With the help of WRTP/BIG STEP and the United Steelworkers

of America, they turned to the IMT registered apprenticeship. Hayes has had two waves of IMT apprenticeship trainees: one apprentice in 2013, and eight in 2014. Of these apprentices, 89 percent have been women and/or people of color. Hayes actively encourages production employees who succeed in the IMT program to move into more advanced training, often in electrical or mechanical maintenance.

The IMT program at Hayes focuses on assembly and machine operator on-the-job learning and employs either regular community college courses or a self-paced MSSC program for the related classroom instruction, depending on the trainees' schedules and learning styles. The IMT apprentices at Hayes are extremely diverse: 73 percent of the IMT apprentice trainees were people of color and 55 percent were women. Leaders from both labor and management report that the joint labor-management apprenticeship steering committee has proven to be a productive forum to promote broader and critical labor-management discussions. Managers at Hayes also appreciated how the program helped create an environment through the whole company that fostered learning and skills.

Brandi Dunham was the first woman selected to register for an 18 month IMT 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.

Brandi credits her time in the apprenticeship for her increased skills and knowledge, especially of math, blueprint reading, and learning how to use different tools. But the IMT also radically changed Brandi's

career trajectory. In the four years since she completed the program, she has been promoted from

“Now I'm focused on my future, and I'm in position to pursue my goals.

Apprentice Perspective

entry level production to First Piece Inspector, to Lead Quality Inspector, to her current position overseeing the managing the Quality Department and overseeing all of Hayes' inspectors. She's also taken on other training opportunities since finishing the IMT, and she's enrolled in a business management program at Concordia University:

If you want your company to succeed, everyone has to succeed together. Investing in employees through shorter-term apprenticeship programs like the IMT doesn't just help employees, it helps the whole company. It helps everyone.

was my on-the-job training.

My IMT training took me from learning assembly to working in the quality department and learning first piece inspection. Now I oversee the whole quality department and all inspectors. I have a lot to thank the program for. It's helped me expand not only my technical skills, but also my understanding of everything in manufacturing.

After the IMT, I took the initiative to pursue more training and education. I'm also starting my associate's degree in business management, and I'm actually looking forward to it. If you'd asked me four years ago, I would have told you I'm never going to try college again, it's just too much. With the IMT program, I realized that it's not that bad! I started looking into programs, and I found one where I get credit for on-the-job work I'm already doing.

When I started at Hayes, I was just trying to provide for my family. Now I'm focused on my future, and I'm in position to pursue my goals. I'm going to school. It's all worked out for me. I'm not going to say it works that way for everyone. But I tell everyone they should keep an open mind to apprenticeship programs. They help you expand your horizons."

Brandi was the first female IMT Journey level worker in the nation, and she's become a leader in her workplace and a role model for other women in the larger community:

"When I started the IMT, I was new to manufacturing, and I needed to learn general information for day-to-day tasks. In the classroom training, I learned the mathematics that I needed for blueprints and the other important supplemental skills like Red Cross first aid training. But what I enjoyed the most during IMT apprenticeship, and where I learned the most,

"People at Hayes have seen me succeed with IMT training, and it makes them more comfortable with it. They think, "If Brandi can do it, I can do it too!" I always encourage women to do the IMT. Everyone always asks me, "Brandi, what do you think? Should I do the IMT?" I tell them that they should take advantage of any apprenticeship program that's offered at any point in time.

I was on a career panel for high school girls about apprenticeships and college, and I told them that women these days should really think about manufacturing. Too many women think it's dirty, that it's hard labor, and that it just isn't for them. And the reality is that some manufacturing is like that, but not all of it. I'm a good representative of what a career in manufacturing can be. These high school girls can look at me and realize, she doesn't get dirty, and she gets her nails done every week.

The IMT is for everyone. Some women might shy away from factory work, but when you can see someone like you doing it, and you can talk to people who've experienced it, and you have feedback from a network of people that can help you and explain it to you, it can help."

Other women from the company followed Brandi into the IMT program at Hayes, and the company has been able to expand its pipeline of skilled workers. Brandi sees this as a win-win for employers and employees:

"With manufacturing, it's hard to find good work. Turnover rates are high, especially in entry level positions. It's hard to find good employees. But when companies invest in their employees, their employees invest in them. When you train them to do a great job and know what they're doing, you're going to have better results for the company as a whole. The IMT isn't just about employees. If you want your company to succeed, everyone has to succeed together. Investing in employees through shorter-term apprenticeship programs like the IMT doesn't just help employees, it helps the whole company. It helps everyone."

At Hayes, we have men and women of every ethnicity. It's not just about a specific group of people, it's about being whole. For any one person to succeed, we all need to succeed. The IMT is the type of investment that starts that.

“ *The IMT is for everyone. Some women might shy away from factory work, but when you can see someone like you doing it, it can help.*

"We see this as a huge opportunity for employers to improve recruitment by communicating that they're going to make sure workers are trained and they'll give a credential to prove it. It's a major incentive. People want to be able to grow in their jobs, and they want to be invested in. There's this incredibly diverse workforce out there that wants to be invested in."

- Rhandi Berth, Director of Industrial Initiatives, WRTP/BIG STEP

as they approach recruitment and training of production workers: "We see this as a huge opportunity for employers to improve recruitment by communicating that they're going to make sure workers are trained and they'll give a credential to prove it. It's a major incentive. People want to be able to grow in their jobs, and they want to be invested in. There's this incredibly diverse workforce out there that wants to be invested in."

Structure of the Program: Training

Practical on-the-job learning takes place through the daily interaction between an apprentice and their 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.

Related instruction requirements are met by local technical or community colleges and/or private providers. The related instruction must align with national Manufacturing Skills Standards Council (MSSC). The Milwaukee Area Technical College, for example, offers two courses each semester that are aligned to 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 awareness modules. Delivery modes are flexible as well: "classroom" training can be taken online or through other distance learning methods to fit apprentices' learning style and/or schedule.

Structure of the Program: Supporting Workers as they Move Back into Training

The IMT provides a route back into training for a diverse workforce, but this may be intimidating to workers whose school days are long behind them. In firms that have developed the program, however, pioneers into the program open doors for non-traditional workers to take part in the IMT in its second or third apprenticeship cohort. The idea of heading into the classroom is less daunting when co-workers and friends have successfully completed the program.

DeAnna Mullins, HR Manager at RMG, is eloquent about this change: "In the beginning it was really tough to even get people to try the program. They were worried, 'Oh my gosh, it's going to be tough. It's going to be like going back to school. There's going to be homework, and there's going to be math. I have to do this on my

own time, and I won't get paid, and I still have to work.' But people from that first class went back to the production floor and they shared their experiences and got other people involved. They talked it up." Word of mouth is critical in recruiting for the program she points out: "You're going to have a certain segment of employees who are never going to want to do this, it's not their thing. They come to work, they put in their hours, and they go home. And that's OK! But you've got other people who are interested, only they're a little intimidated. And they're the ones you've got to figure out how to get them to the next level. They're the ones you're hoping that the people currently in the program are talking to, and there will be enough interest for them to give it a shot."

Equity in Results

The IMT apprenticeship has made credentialed skills training available to dozens of production workers since the launch of program. The program launched in Wisconsin in 2013 with just a handful of apprentices. The growth of the program has been dramatic. To date, 124 IMT apprentices have enrolled in Wisconsin; on average, 25 new apprentices begin the IMT each year. That growth is the most rapid expansion of an apprenticeship in manufacturing the state has ever seen.

IMT apprentices are diverse, which is clear in Table 1. Of the 124 IMT apprentices in Wisconsin,

34 percent have been people of color and 14 percent have been women. Further, 12 percent of all IMT enrollees have previously had a felony conviction. The table shows also that these diverse IMT apprentices are very likely to finish the program as well. Of the 124 workers who started the program, just 14 (11 percent) left the program without completing it. Of workers with previous felony convictions, 87 percent have either received the IMT Journey card or are still training. Of the 17 women who have enrolled in the IMT, only one left the program without completing it. Eight women have received their journey cards and another eight are still in training. Among people of color in the IMT program, 86 percent have received their journey card or are still training, while for Caucasian trainees, 90 percent have either received their journey card or remain in training.

The impressive diversity and completion rates of the IMT become much more apparent when IMT enrollees are compared to those in other industrial apprenticeships. Table 2 shows active apprentice trainees in Wisconsin in the year 2016 for the IMT and for all industrial apprenticeships.

Table 2 makes clear that the IMT apprenticeship is enrolling substantially more women than other more traditional industrial apprenticeship programs. In 2016, Wisconsin had some 2265 workers registered in all industrial apprenticeships. With 76 apprentices, the IMT

Table 1 IMT COMPLETION RATES BY APPRENTICE CHARACTERISTICS, TOTAL (PERCENT)

| Total | # of Apprentices | IMT Journey | Still Training | Left program |
|-------------------|------------------|-------------|----------------|--------------|
| | 124 | 46 | 64 | 14 |
| People of Color | 42 | 12 (29%) | 24 (57%) | 6 (14%) |
| Caucasian | 82 | 34 (41%) | 40 (49%) | 8 (10%) |
| African American | 24 | 4 (17%) | 17 (71%) | 3 (13%) |
| Hispanic | 8 | 3 (38%) | 3 (38%) | 2 (25%) |
| Male | 107 | 38 (36%) | 56 (52%) | 13 (12%) |
| Female | 17 | 8 (47%) | 8 (47%) | 1 (6%) |
| Felony Conviction | 15 | 3 (20%) | 10 (67%) | 2 (13%) |

Source: WRTP/BIG STEP Administrative Data on IMT Registrants

accounted for a tiny sliver -- just 3.3 percent -- of Wisconsin industrial apprentice participants. But the IMT accounts for one in five of women in the state's industrial apprenticeships: of the 60 women in industrial apprenticeships, 12 were in the IMT. Both Maintenance Mechanic or Industrial Electrician programs are more than three times the size of the IMT; even so, the IMT has 4 times as many women as either of those programs (12 women in IMT, just three women each in Maintenance and Industrial Electrician).

The IMT is also performing much better than other industrial apprenticeships for people of color. While the IMT accounts for just 3.3 percent of all industrial apprenticeships in the state, it accounts for more than one-in-four workers of color in all industrial apprenticeships (21 of the 82 apprentices of color in the state are in the IMT). And while the Maintenance

Mechanic and Industrial Electrician Program are both more than three times larger than the IMT, the IMT has more workers of color enrolled (21) than either of those programs (with 8 and 5 workers of color enrolled, respectively). The existing industrial apprenticeships are substantially more white and male than the IMT program. Because the IMT is designed to be a launching pad into further training, in time the diversity of IMT journey level workers may help increase diversity in these more intensive (and traditional) industrial apprenticeships.

Taken together, these statistics demonstrate that the IMT is a dynamic and effective program that is building skills and opportunity for a pool workers -- women and people of color -- who have not traditionally found avenues for advancement through the existing industrial apprenticeships in the state.

EXPANDING OPPORTUNITY INTO THE FUTURE

The IMT Registered Apprenticeship began in Wisconsin, where over 100 years of labor management partnership on apprenticeship training provided the infrastructure that made this project possible. The success of the program is evident in its rapid growth and the satisfaction of leaders – from labor and management –

and workers who now hold journey cards that demonstrate their skill.

At the center of this innovation is WRTP/BIG STEP's focus on addressing the needs of industry, workers, and community, simultaneously and together. The IMT is more flexible than

| 2016 | Apprentices | Average Age | Average Education | Women | Men | White | People of Color |
|---------------------------------------|-------------|-------------|-------------------|----------------|-------------------|-------------------|-----------------|
| All Industrial Apprenticeships | 2265 | 32.4 | 12.7 | 60 (3%) | 2205 (97%) | 2183 (96%) | 82 (4%) |
| IMT | 76 | 39.9 | 12.4 | 12 (16%) | 64 (84%) | 55 (72%) | 21 (28%) |
| Maintenance Mechanic | 315 | 34.3 | 12.5 | 3 (1%) | 312 (99%) | 307 (97%) | 8 (3%) |
| Industrial Electrician | 306 | 34.1 | 12.7 | 3 (1%) | 303 (99%) | 301 (98%) | 5 (2%) |

Source: Department of Workforce Development, Characteristics of Active Apprentices, by Trade (January 1, 2018)



PRE-APPRENTICESHIP FOR MANUFACTURING IN WISCONSIN

Not everyone is ready for employment in the manufacturing sector or enrollment in the IMT. To make quality careers in manufacturing accessible to more people, the WRTP/BIG STEP has developed Wisconsin's first registered pre-apprenticeship for manufacturing. This pre-apprenticeship

training is different than standard pre-employment training: it is prior-to-hire training that is aligned with an apprenticeship program, not just a job. WRTP/BIG STEP develops its pre-apprenticeship training in partnership with companies that commit to hire trainees into both a job and an apprenticeship upon their successful completion of the training. The training itself is developed by the WRTP/BIG STEP in partnership with individual employers to not only to meet their skills needs and production standards, but to prepare workers for the requirements of apprenticeships and apprenticeship-conducive occupations. The Wisconsin Department of Workforce Development and WRTP/STEP worked together to certify this new pre-apprenticeship program, because they share the belief that quality occupations and quality skills can and should be built into industrial training.

traditional apprenticeship – and that is essential to its success with firms. It can be customized to meet specific needs and be responsive to local context. It is shorter in length, making it more accessible to the diverse workers in frontline production jobs across the industry. It was developed as a means of building the skills of existing workers and the most significant growth of the program is in training for workers already employed in manufacturing firms. But recently, a company posted jobs that would start workers out in the IMT Apprenticeship: a recruitment strategy that pulled in a very strong pool of candidates.

Equity is built into the IMT. It produces greater opportunity for skill development for diverse manufacturing workers. The analysis of the

project data clearly shows the IMT's special attention to equity in every stage of the project. The IMT supports manufacturing as it moves into the future and it helps make sure that people of color and women are an increasing part of that future.

PARTICIPATING EMPLOYERS AND LABOR PARTNERS IN THE DEVELOPMENT AND IMPLEMENTATION OF THE INDUSTRIAL MANUFACTURING TECHNICIAN APPRENTICESHIP

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

MASTERTON

MILWAUKEE CYLINDER

MILWAUKEE FORGE

MILWAUKEE GEAR INC

OCEAN SPRAY

PURE POWER INCORPORATED

SPINCRAFT INC

SPX WAUKESHA TRANSFORMER SOLUTIONS

UNITED AUTO WORKERS (UAW)

UNITED STEELWORKERS (USW)

MATZEL

HAYES PERFORMANCE

SACO

ARIENS

WELDALL

TECHNIPLAS

VOLLRATH

RMG

MacLEAN-FOGG

