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Manufacturing Renaissance

## **Manufacturing Connect:** *Connecting to Careers and College Through Advanced Manufacturing*

**Introduction:** Manufacturing Connect (MC) is a program of Manufacturing Renaissance, a not-for-profit corporation based in Chicago. Manufacturing Renaissance has a 30 year history of deep engagement with the manufacturing sector. It is recognized internationally for its vision and expertise. Its Manufacturing Connect program was developed in the context of the founding of a public high school—Austin Polytechnical Academy—in the Austin community on Chicago’s far West Side.

This community has similar characteristics to other inner city communities of color throughout the country. The MC program promotes multiple pathways for success for the students in careers and college. It is not a traditional vocational program but prepares students for leadership and careers in all aspects of manufacturing including production, management, ownership, and careers related to manufacturing outside the firm. MC sees a program in secondary education as part of an articulated educational system that is continued in post-secondary education and on-going education within the firm. Ideally, its themes are developed in the elementary school system. We are confident that this approach to education can lead to reconnecting marginalized communities with the regional manufacturing sector as well as create the conditions for attracting companies to a community.

Recently, the US Department of Labor awarded Manufacturing Connect \$2.7 million as part of its high school redesign initiative. We were one of 24 school programs that received grants out of applications by more than school districts around the country. The MC has been recognized nationally and internationally as a pioneer in developing innovative approaches to re-connecting public schools with the critically important manufacturing sector. Recently the International Machine and Technology Show—the premier international trade show for advanced manufacturing—held a 5K Walk/Run to benefit Austin Polytech and donated \$20,000 to the school in light of the Manufacturing Connect program.

**History:** For the last 15 years there has been a “skills gap” in the Chicago region. Recently, *Crains Chicago Business* estimated that 20,000 jobs in manufacturing are going unfilled in the Chicago region. The Chicago Manufacturing Renaissance Council (CMRC) was formed, in part, to address this reality that undermines the competitive capacity of our region’s manufacturing companies and denies students throughout the region from securing available career paths. In 2005, the Chicago Manufacturing Renaissance Council was challenged by Arne Duncan, the CEO of Chicago Public Schools (CPS), to start a school in the Austin community that would have a deep linkage to the manufacturing sector. The Austin community faces many challenges typical of inner cities and low income communities throughout the country with high rates of poverty and unemployment and with a low performing K-12 public school system. Manufacturing Renaissance, on behalf of the Chicago Manufacturing Renaissance Council, rose to the challenge and submitted a proposal to the Board of Education that was accepted. The design of the program was shaped by a deep knowledge of best European practice. The school opened in 2007 with a freshman class. We designed it as a public school rather than as a charter or contract school.

**Performance:** Over the last seven years, we have designed and built the Manufacturing Connect program in the context of serving those Austin Polytech students interested in learning about careers in advanced manufacturing. We have built the road as we traveled and produced results and an approach that is nationally recognized. Manufacturing Connect is a program works with about 70 percent of Austin Polytech students, a small school which currently has about 160 predominantly low-income and African-American students. Despite the small scale, the results are significant.

- **55 area manufacturing companies** partner with MC to provide students with work-based learning experiences throughout high school through job shadowing and internships, as well as full-time, career-track jobs after high school.
- 50% of Austin Polytech's 274 graduates or 135 students over four graduating classes were participants in the Manufacturing Connect program.
- Since 2011, MC has made **36 full-time job placements** for APA graduates in manufacturing averaging **over \$12/hour plus benefits**, including one graduate who now makes nearly \$75,000 a year. Some students have gone on to college to study engineering. Some students have returned to MC staff for assistance after facing the difficulties of college including its cost. Other students have returned to us after recognizing the value of their exposure to manufacturing during high school.
- **120 students have had 200 paid internships and summer jobs** at manufacturing companies around the West side and the broader Chicagoland area. 47% of our students have had a paid work experience in high school—nearly twice the national average.
- MC raised **over \$150,000 in private investment** to install the **WaterSaver Faucet Manufacturing Technology Center**, a National Institute for Metalworking Skills (NIMS) accredited, state-of-the-art machining facility at Austin Polytech.
- **181 students have earned 261 machining credentials** from the NIMS demonstrating their qualifications to potential employers. In 2013, **APA was the #1 NIMS program for high school students in Illinois**. In 2013, 16% of all NIMS credentials earned in the City of Chicago were earned in this facility.
- Our program is NIMS accredited. One of our students—Kenney Plymouth—won the SkillsUSA State Championship for programming CNC machines in 2013; and recently in 2014 Neopatra Hawkins won first place in the CNC turning competition held by the Tooling & Manufacturing Association and NIMS—the only woman to place first out of 100 students in the region.
- MC is working with nine APA students to start a **student-run manufacturing business, MECH Creations**, to help students gain experience to what it takes to start and run their own business in their own community.
- Students who join the MC program can earn dual credit with Daley College—the center for manufacturing in the City Colleges of Chicago.

- Recently, the MC program was awarded \$2.7 million by the US Department of Labor High School Redesign Program—one of 24 grantees out of 400 applicants nationwide.

The Manufacturing Connect program is a success story and represents promising practice in building private/public partnerships in public education; in connecting a school and its students to the regional manufacturing economy; in linking reform in education to the economic development of a community, and in offering multiple pathways of success for students including those that come from troubled school districts. These pathways can include:

- Exposure to the variety of careers possible in the manufacturing sector including skilled production, white collar careers, management, ownership, and careers outside the factory including research, engineering, legal and financial services, and policy;
- An introduction to engineering and manufacturing related programs in community and four-year colleges and universities;
- Leadership training, acquisition of work-readiness skills, and exposure to entrepreneurship;
- Opportunities for job shadowing, internships, and summer jobs;
- Opportunities for career jobs following high school and college graduation;
- Opportunities for tuition re-imbursement for a college education by employers; and
- Opportunities to earn college credit while in high school.

**A Public School Program:** Manufacturing Connect partners with public schools and public school systems. This program can be the foundation for an entire school or a program within a school. Our partners in the public school system are responsible for academic performance as well as social and emotional support. Performance expectations for our Manufacturing Connect program must be based on the general performance in the school district. Working with public schools, we can begin to build an educational infrastructure that can connect the students and adults in the community with the regional manufacturing sector, and, in some cases, serve as a key factor in recruiting companies to locate production in the community. A rich Manufacturing Connect program can expand opportunities for the school, the students, and the broader community.

**Rebuilding Communities Through Education:** MC has developed an evening program for adults at Austin Polytech. These adults secure NIMS credentials and are connected with employment opportunities. Additionally, Manufacturing Renaissance designed a program for men returning to the community from prison in partnership with NIMS and the Safer Foundation. These men received initial training in prison that was continued when they were released. In the first cohort, 100% of the men secured jobs and there was over 80% retention after 90 days. With the beginning of an educational infrastructure linked to advanced manufacturing in place, Manufacturing Renaissance is now recruiting companies to bring production and jobs back to the West Side of Chicago. We recently secured the first formal agreement to bring manufacturing jobs to the West Side and are in discussions with 11 other companies.

**A Development Plan:** This first phase can take up to 6 months and includes the following general features. The cost of developing a plan depends on the specific circumstances of the interested school district and school.

1. Discussion and planning with the leaders in the district and the local secondary school system;
2. In-depth research on the regional manufacturing sector and the identification and recruitment of manufacturing partners;
3. Outreach to area community and four-year colleges and universities identifying partners and options.
4. Identification and outreach to funding sources for the school;
5. Identification of potential personnel to fill the following positions;
  - A. Program Director
  - B. Industrial Coordinator
  - C. Youth Outreach coordinator
  - D. Technical instructors
6. The development of a three year MC Operating Plan including objectives, programs, staffing, budget, and revenue streams.

**Conclusion:** MC represents an approach that is anchored in best European practice and premised on a deep understanding of the needs of 21<sup>st</sup> Century manufacturing. We work with public schools recognizing that the challenges faced with the skills gap require a scale of approach that is only possible through public education. We can connect students in even the most difficult academic and community circumstances with multiple pathways for success in modern manufacturing including

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*“The CNC machine is like a playground for my mind, if I can think it, I can make it. Manufacturing Connect helped me discover that.”* Rene Kenney Plymouth Jr., APA Student, Class of 2014

*“Manufacturing Connect showed me what is possible for my career. I can be an engineer and I can own my own manufacturing company and be a leader in my community.”* Neopatra Hawkins, APA Student, Class of 2014

*“Austin Polytech and Manufacturing Connect was the correct fit for a strategic partnership with their work at the high school level during the day along with transitional individuals in the evening. We look forward for these individuals to take advantage of our tuition reimbursement program to further their education. We have had great success with the individuals we have hired from their program.”* - Julio Martinez, Plant Manager for Kay Manufacturing

A recent 3 minute video by the AFL-CIO on Austin Polytech is worth watching:

<https://www.youtube.com/watch?v=LzhPfgZum0&feature=youtu.be>

So is a 5 minute video by the American Federation of Teachers featuring AFT President Randi Weingarten's visit to the school:

<http://www.aft.org/newspubs/news/2013/012213chicago.cfm>

Recently, *Yes Magazine* featured our program: <http://www.yesmagazine.org/commonomics/chicago-s-manufacturing-renaissance>