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# The Hidden Innovation Infrastructure: Insights from Gateway Technical College

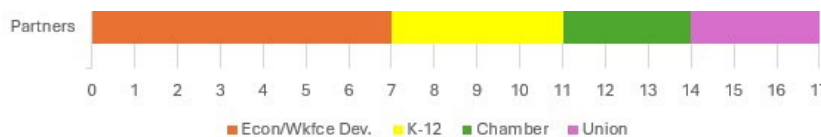
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Community colleges and their technician programs play an important and sometimes overlooked role in supporting regional economic development. In this five-year research study funded by the US National Science Foundation Advanced Technological Education (NSF ATE) program, Rutgers' Education and Employment Research Center (EERC) sought to examine how eight leading colleges engaged in economic development through innovations in their technician education programs and to better understand and highlight these models. In addition to the eight college case studies, the project included interviews of 23 NSF ATE awardees, a survey of technician employers, and related labor market research. This brief describes the approach of Gateway Technical College, one of eight community colleges to participate in this study.

**PROGRAMS** | The study focused on two of Gateway's technical education programs:  
*Program 1: Welding*      *Program 2: Advanced Manufacturing Technology*

**PARTNERS** | Gateway Technical College's programs of focus benefit from partnerships with many regional employers and a diverse set of regional economic development organizations.

## REGIONAL ECONOMIC DEVELOPMENT PARTNERS



This figure shows the breakdown of Gateway's partners by organizational type. It offers a glimpse into the composition of

actors in the regional economic development ecosystem. Seventeen economic development partners were identified for the survey. Two interviews were conducted: one with the Racine County EDC and the other with the Kenosha Area Business Alliance.

## EMPLOYER PARTNERS

Two employer partners were interviewed: one each from the appliances and razors industries. Gateway's employer partners reported long-standing relationships with Gateway that were critical to the regional technician pipeline and their own competitive standing.

## EMPLOYER PARTNERS, CONTINUED

**Industry 4.0 training: Meeting the needs of a diverse regional manufacturing industry.** Gateway developed and incorporated Industry 4.0 training into their curricula to meet the needs of both global companies new to the area and longtime regional businesses. Gateway's Industry 4.0 courses became required by regional businesses for employment and advancement opportunities, establishing minimum training standards for the region. One business partner described their work with Gateway as "groundbreaking" and key to their firm becoming industry leaders in the Midwest.

### **PROGRAM HIGHLIGHTS** | Building a regional technician pipeline.

Gateway had more K-12 partners than any other college in the study sample. The college's work with K-12 institutions was noted as important by college leadership and the college's partners in not only building the region's technician pipeline but also in inspiring the next generation's interest in a new and exciting technology-enabled era of manufacturing.

**Partnering with the state on dual credit.** Gateway partners with high schools in its districts with state funding via Act 59 (CTE Incentive Grants). Through this partnership, high schools offer students a Gateway Industry 4.0 certificate and receive reimbursements for monies spent on CTE (~\$1000/student), which they can reinvest in their CTE programs. For Gateway, these partnerships align with the college's curriculum for more dual credit opportunities and strengthen the potential pipeline of future students.

**Integrated pathways for manufacturing jobs.** Gateway supports its high school partners in investing in industry-grade equipment for Industry 4.0 training. Gateway co-locates with one of its high school partners, offering Gateway-taught courses to high school students and operating an official Gateway center by night. Through its partnerships and programs, Gateway uniquely builds a network of integrated pathways for local students with multiple off-ramps into the regional manufacturing industry.

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**PROGRAM STRENGTHS** | Gateway reflected some of the best practices for strong and lasting employer partnerships, strategic K-12 engagement, and inclusion through community access.



#### **STRONG EMPLOYER PARTNERSHIPS**

Gateway's employer partnerships stand out in their strength and tenure. These employer partners collaborate on curricula and provide funding for the college's equipment and scholarships.



#### **STRATEGIC K-12 ENGAGEMENT**

Using both public and private funds, Gateway partners with K-12 institutions to provide younger students with exposure to and opportunities for engagement with advanced manufacturing. This helps build a regional pipeline of technicians.



#### **INCLUSIVE COMMUNITY ACCESS**

Gateway provides its community members access to its facilities, and college faculty visit community centers. In addition, the college engages criminal justice-impacted individuals through partnerships with correctional facilities.

**KEY ROLES AT GATEWAY** | Gateway’s programs are workforce-oriented—particularly its manufacturing-focused offerings, which are a long-standing element of the college’s work and receive active support from senior leadership.

**Senior Leadership Roles**

- |  |   |
|--|---|
| 1. President   | 4. Dean, School of iMET, VP, Academic Affairs                         |
| 2. VP, Workforce   |   |
| 3. Dean, Manufacturing and Engineering / MEIT Technologies | 5. Assoc. Dean, Manufacturing Engineering and IT / Assoc. Dean, SMEIT |

**Program-Related Roles**

1. Welding Instructor; Division Chair, Welding/HVAC/Facilities
2. Advanced Manufacturing Instructor
3. Employment Specialist
4. Former student working at partnering employer

**ECONOMIC DEVELOPMENT ACTIVITIES** | Gateway engages in many of the activities identified as important for community college engagement in economic development through its technical education programs. Strength was demonstrated in education and training activities and business support activities.

**Education & Training Activities**

- |   |   |
|---|---|
| ➤ Hands-on learning                     | ➤ National credentialing/industry certification         |
| ➤ Club/maker space                      |   |
| ➤ Work-based learning (apprenticeships) | ➤ Updated curriculum aligned with jobs                  |
| ➤ Grants for equipment                  | ➤ Regionally aligned program with local workforce needs |
| ➤ Dual enrollment                       | ➤ Industry advisory boards                              |
| ➤ BA pathway                            | ➤ Program job fairs/online matching with employers      |
| ➤ Credit for prior learning             | ➤ On-site visits, employer visits                       |
| ➤ Short-term training/bootcamp          |   |

**Business Support Activities**

- Small business incubator and assistance
- Incumbent worker/customized training
- Establishment of facilities for use by local companies
- Tech. transfer & applied research

**Regional Engagement Activities**

- Participates in local economic planning/policymaking
- Participates in state/regional boards
- Assists in attracting employers to region

**DATA SOURCES** | These findings are based on a five-year study conducted by the Rutgers University Education and Employment Research Center in partnership with the National Science Foundation. As part of that study, the EERC team:

**Selected**

**8**

Best-in-class community colleges for intensive study.

**Conducted**

**79**

Interviews with college administrators, faculty, and staff

**Conducted**

**31**

Interviews with colleges’ employer & regional ED partners

**Surveyed**

**84**

Regional ED partners of the colleges, with a 37% response rate

## About the Authors

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## The Education and Employment Research Center

Rutgers' Education and Employment Research Center (EERC) is housed within the School of Management and Labor Relations. EERC conducts research and evaluation on programs and policies at the intersection of education and employment. Our work strives to improve policy and practice so that institutions may provide educational programs and pathways that ensure individuals obtain the education needed for success in the workplace, and employers have a skilled workforce to meet their human resource needs. For more information on our mission and current research, visit [smlr.rutgers.edu/eerc](http://smlr.rutgers.edu/eerc).

### EERC Areas of Focus

Community College  
Innovation



Student Choices  
and Pathways



STEM and Technician  
Education



Noncredit Education and  
Non-Degree Credentials



Education and Labor  
Market Connections



## Rutgers School of Management and Labor Relations

Rutgers School of Management and Labor Relations (SMLR) is the leading source of expertise on the world of work, building effective and sustainable organizations, and the changing employment relationship. The school consists of two departments—one focused on all aspects of strategic human resource management and the other dedicated to the social science specialties related to labor studies and employment relations. In addition, SMLR provides many continuing education and certificate programs taught by world-class researchers and expert practitioners. For more information, visit [smlr.rutgers.edu](http://smlr.rutgers.edu).

## National Science Foundation

The US National Science Foundation (NSF) is an independent federal agency that supports fundamental research and education across all fields of science and engineering. In Fiscal Year 2022, its budget was \$8.8 billion. NSF funds research in all 50 states through grants to nearly 2,000 colleges, universities and other institutions. Each year, NSF receives more than 50,000 competitive proposals for funding and makes about 12,000 new funding awards. With a focus on two-year Institutions of Higher Education (IHEs), the Advanced Technological Education (ATE) program supports the education of technicians for the high-technology fields that drive our nation's economy. The program involves partnerships between academic institutions (grades 7-12, IHEs), industry, and economic development agencies to promote improvement in the education of science and engineering technicians at the undergraduate and secondary institution school levels. The ATE program supports curriculum development; professional development of college faculty and secondary school teachers; career pathways; and other activities. For more information, visit National Science Foundation's Advanced Technological Education program: [atecentral.net/about](http://atecentral.net/about)

