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# The Hidden Innovation Infrastructure: Insights from Columbus State Community College

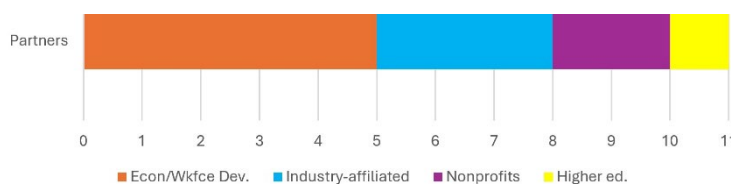
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Community colleges and their technician programs play an important and sometimes overlooked role in supporting regional economic development. In this five-year research study funded by the US National Science Foundation Advanced Technological Education (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 Columbus State Community College, one of eight community colleges to participate in this study.

**PROGRAMS** | The study focused on two of Columbus State Community College's programs:  
*Program 1: Electro-mechanical Engineering Program 2: Electric Engineering Technology*

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

## REGIONAL ECONOMIC DEVELOPMENT PARTNERS



The figure offers a glimpse into the composition of actors in Columbus State's regional ecosystem. The college works with 11 key partners to accomplish its regional economic development goals.

The figure shows the breakdown of those partners by organizational type, including economic/workforce development entities, industry-affiliated partners, nonprofits, and a higher education organization.

## EMPLOYER PARTNERS

Two employer partners were interviewed, representing the metal industry and the healthcare research and development industry.



Metal



Healthcare Research & Development

## EMPLOYER PARTNERS, CONTINUED: NURTURING A REGIONAL RESPONSE TO INDUSTRY NEEDS

**Honda & the MMWS program.** Columbus State has a long-standing working partnership with a large regional employer, Honda, collaboratively developing programs to meet the company's changing needs; further, the college has transformed that partnership into the Modern Manufacturing Work-Study (MMWS) program, which now works with several regional manufacturing companies to place students with employers for hands-on work experience.

**Intel & Industry 4.0 training.** Columbus State has taken its deep partnerships with employers and developed a broader, regional strategy to serve industry needs, including the semiconductors industry. The college is leading an Intel-funded grant at the state level to develop the training infrastructure required for Intel's move to Ohio. Columbus State has also been a leader in integrating Industry 4.0 elements to meet changing technology needs in manufacturing.

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**PROGRAM HIGHLIGHTS** | Columbus State is a strategic convener of regional industry leaders, employers, and colleges.

**Convening industry.** Columbus State hosts a President's Workforce Advisory Council, which brings together leaders across the region's major industries and largest employers to meet talent needs and craft career pathways for students.

**Convening employers.** Columbus State, through its Modern Manufacturing Work-Study program, engages employers in the regional manufacturing industry and places students with them for hands-on work experience.

**Convening colleges.** Through its leadership of the Ohio Semiconductor Collaboration Network, Columbus State guides colleges' curriculum development for the semiconductor industry. Separately, the college also helps colleges develop learn & earn models.

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**PROGRAM STRENGTHS** | Columbus State reflected some of the best practices for long-tenure employer partnerships, state-level leadership, and community college collaboration:



### DEEP EMPLOYER PARTNERSHIPS

Columbus State has a deep, long-standing partnership with Honda. The depth and strength of that relationship allowed the college to create the MMWS program to engage more regional employers.



### STATE-LEVEL LEADERSHIP

Columbus State leads several efforts at the state level, including an Intel-funded grant to help Ohio build necessary training infrastructure. The college also helps lead an effort to spread learn & earn models in Ohio colleges.



### COMMUNITY COLLEGE COLLABORATION

Many of Columbus State's leadership roles involve engaging other colleges, including leading the Ohio Semiconductor Collaboration Network in partnership with Intel and the Ohio Association of Community Colleges.

**KEY ROLES AT COLUMBUS STATE** | Columbus State’s programs engage program-related roles as well as senior leadership roles. The college has also established a dedicated project manager role for its MMWS program, which places students with regional employers for hands-on work experience. Notably, Columbus State is the only college that has an *Executive in Residence* role; the person interviewed in this role was previously an employee at Honda.

**Senior Leadership Roles**

- 1. Chair, Engineering and Transportation Technology
- 2. Director, Partnerships and Programs

**Program-Related Roles**

- 1. Professor, Mechanical and Electro-mechanical Engineering
- 2. Faculty, Engineering and Technology
- 3. Project Manager, MMWS Program
- 1. Academic Advisor
- 2. Career Counselor
- 3. Executive in Residence, Office of Talent Strategy

**ECONOMIC DEVELOPMENT ACTIVITIES** | Columbus State implements through its technical education programs many of the activities identified as important for community college engagement in economic development. Strength was demonstrated in education and training, with important complementary involvements in business support and regional engagement activities.

**Education & Training Activities**

- Hands-on learning
- Work-based learning (learn & earn model)
- Grants for equipment
- Dual enrollment
- BA pathway
- Credit for prior learning
- Updated curriculum aligned with jobs
- Regionally aligned program with local workforce needs
- Industry advisory boards
- Program job fairs/online matching with employers

**Business Support Activities**

- Incumbent worker/customized training
- Technology transfer/applied research

**Regional Engagement Activities**

- Participates in local economic planning/policymaking
- Leading/coordinating other colleges on industry needs
- Lead regional organizations or convene regional stakeholders
- Assisting in attracting employers to the 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:

<i>Selected</i>	<i>Conducted</i>	<i>Conducted</i>	<i>Surveyed</i>
<b>8</b>	<b>79</b>	<b>31</b>	<b>84</b>
Best-in-class community colleges for intensive study	Interviews with college administrators, faculty, and staff	Interviews with colleges’ employer & regional ED partners	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)

