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# The Hidden Innovation Infrastructure: Insights From Pima Community College

Alysa Hannon, Allison Forbes, Michelle Van Noy, Marilyn Barger, Justin Vinton, Anjali Srivastava, and Sam Scovill

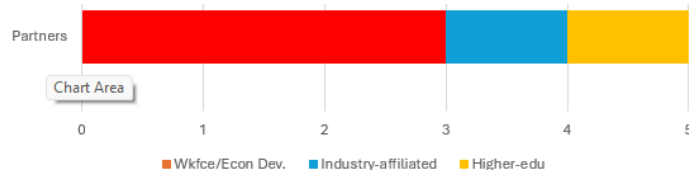
Community colleges and their technician programs play an important and sometimes overlooked role in supporting regional economic development. In this five-year research study funded by the US National Science Foundation Advanced Technological Education (NSF ATE) program, Rutgers' Education and Employment Research Center (EERC) sought to examine how eight leading colleges engaged in economic development through innovations in 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 Pima Community College, one of eight colleges to participate in this study.

**PROGRAMS** | The study focused on two of PCC's technical education programs:

*Program 1: Automated Industrial Technology (AIT)    Program 2: Welding*

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

## REGIONAL ECONOMIC DEVELOPMENT PARTNERS



PCC works with five key partners to accomplish its regional economic development goals. These include economic/workforce development entities,

an industry-affiliated partner, and a higher education organization. In-depth interviews were conducted with three of Pima's partners, signaling deep relationships. Interviewees included Sun Corridor, Southern Arizona Manufacturing Partners (SAMP), and Pima County One-Stop.

## EMPLOYER PARTNERS

Pima Community College works closely with many regional employers across a variety of industries.

Three key industries include the metal industry, defense, and construction.



## EMPLOYER PARTNERS, CONT'D: RESPONDING TO STATE AND REGIONAL MANUFACTURERS

**State level: AATN & the AIT program.** PCC engages in the state-level response to the needs of manufacturers through its participation in Arizona's Advanced Technology Network (AATN). As an extension of that work, Pima offers the Automated Industrial Technology (AIT) program, which seeks to prepare students for advanced manufacturing jobs of the future and intentionally aligns with national NIMS certification requirements.

**Southern AZ manufacturing partners.** One of PCC's key partners is SAMP, Southern Arizona Manufacturing Partners. Pima County's Community & Workforce Development department employs a liaison who coordinates among SAMP, Pima Community College, and local high schools to meet SAMP's talent needs. PCC meets with SAMP monthly and coordinates with both SAMP and Pima County on programs like their CNC operator program, which is WIOA-funded through the county.

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**PROGRAM HIGHLIGHTS** | Strategic partnership with the public sector.

PCC works with an array of public and quasi-public agencies across a variety of goals and workstreams.

**Regional talent pipeline.** PCC partners with SAMP, the county, and local high schools to meet the talent needs of regional manufacturers and provide Pima residents pathways to jobs. Different types of public funding are leveraged to do this work.

**Serving vulnerable workers.** PCC co-locates with the county One-Stop to serve vulnerable students with wraparound services, and nontraditional students, including adult learners and incumbent workers, with designated funding opportunities.

**Regional ED strategy.** PCC collaborates actively with the regional quasi-public economic development agency Sun Corridor. PCC partners with Sun Corridor on attracting new businesses to the region by showcasing the talent infrastructure PCC has built.

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**PROGRAM STRENGTHS** | PCC reflected some of the best practices for public sector partnerships, a regional, college-led vision, and ecosystem-building strategies.



### **PUBLIC SECTOR PARTNERSHIPS**

PCC partners with Pima County, including with the county One-Stop, which co-locates at the college to directly serve vulnerable and nontraditional students with wraparound services and targeted funding.



### **REGIONAL, COLLEGE-LED VISION**

PCC has articulated an intentional approach to the economic development of its region. Prior to the growth of its manufacturing sector, the college has insisted on high-wage pathways and a collaborative approach to industry.



### **ECOSYSTEM-BUILDING STRATEGIES**

PCC partners with regional industry associations (e.g., SAMP) and other Arizona community colleges to develop and implement responsive programs. PCC works with Mesa and Estrella Mountain colleges through AATN and its AIT program.

**KEY ROLES AT PCC** | PCC’s programs engage program-related roles as well as senior leadership roles. Significant senior leadership roles were tasked to speak to the programs under study, indicating the programs’ significance within the college and their integration in the college’s broader footprint.

PCC senior leadership roles involved include both a [Dean of Workforce Education](#) and a [Vice Chancellor of Workforce Development and Innovation](#).

**Senior Leadership Roles**

1. Dept. Head, Machine Tool Technology
2. Dean, Applied Technology
3. Dean, Workforce Education and Continuing Education
4. Vice Chancellor, Workforce Development and Innovation

**Program-Related Roles**

1. Instructor, Machine Tool Technology / Machining Faculty
2. AIT Program Advisor
3. Student, working at partnering employer
4. Former Student, partnering employee

**ECONOMIC DEVELOPMENT ACTIVITIES** | PCC implements, through its technical education programs, many of the activities identified as important for community college engagement in economic development. Strength was demonstrated in all three types of activities.

**Education & Training Activities**

- Hands-on learning
- Club/maker space
- Work-based learning (learn & earn model)
- Grants for equipment
- Dual enrollment
- BA pathway
- Short-term training (< 1 yr.)/bootcamp
- Noncredit-to-credit pathways
- Updated curriculum aligned with jobs
- National credentialing/industry certification
- Regionally aligned program with local workforce needs
- Industry advisory boards
- Community job fair/expo
- Program job fairs/online matching with employers
- Hiring majority of program faculty from industry
- Credit for prior learning

**Business Support Activities**

- Small business incubator/assistance
- Incumbent worker/customized training
- Establishment of facilities for use by local companies
- 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
- Assist 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:

**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

**Alysa Hannon** is a researcher at the Education and Employment Research Center at the Rutgers School of Management and Labor Relations.

**Allison Forbes** is Senior Vice President at the Center for Regional Economic Competitiveness (CREC).

**Michelle Van Noy** is the Director of the Education and Employment Research Center at the Rutgers School of Management and Labor Relations.

**Marilyn Barger** is the Senior Educational Advisor at Florida Advanced Technological Education Center of Excellence (FLATE).

**Justin Vinton** is a researcher at the Education and Employment Research Center at the Rutgers School of Management and Labor Relations.

**Anjali Srivastava** is a former researcher at the Education and Employment Research Center at the Rutgers School of Management and Labor Relations.

**Sam Scovill** is a former researcher at the Education and Employment Research Center at the Rutgers School of Management and Labor Relations.

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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).

