RUTGERS–NEW BRUNSWICK
Education and Employment Research Center
School of Management and Labor Relations

The Hidden Innovation Infrastructure (HII) Project

NCATC – September 19, 2025

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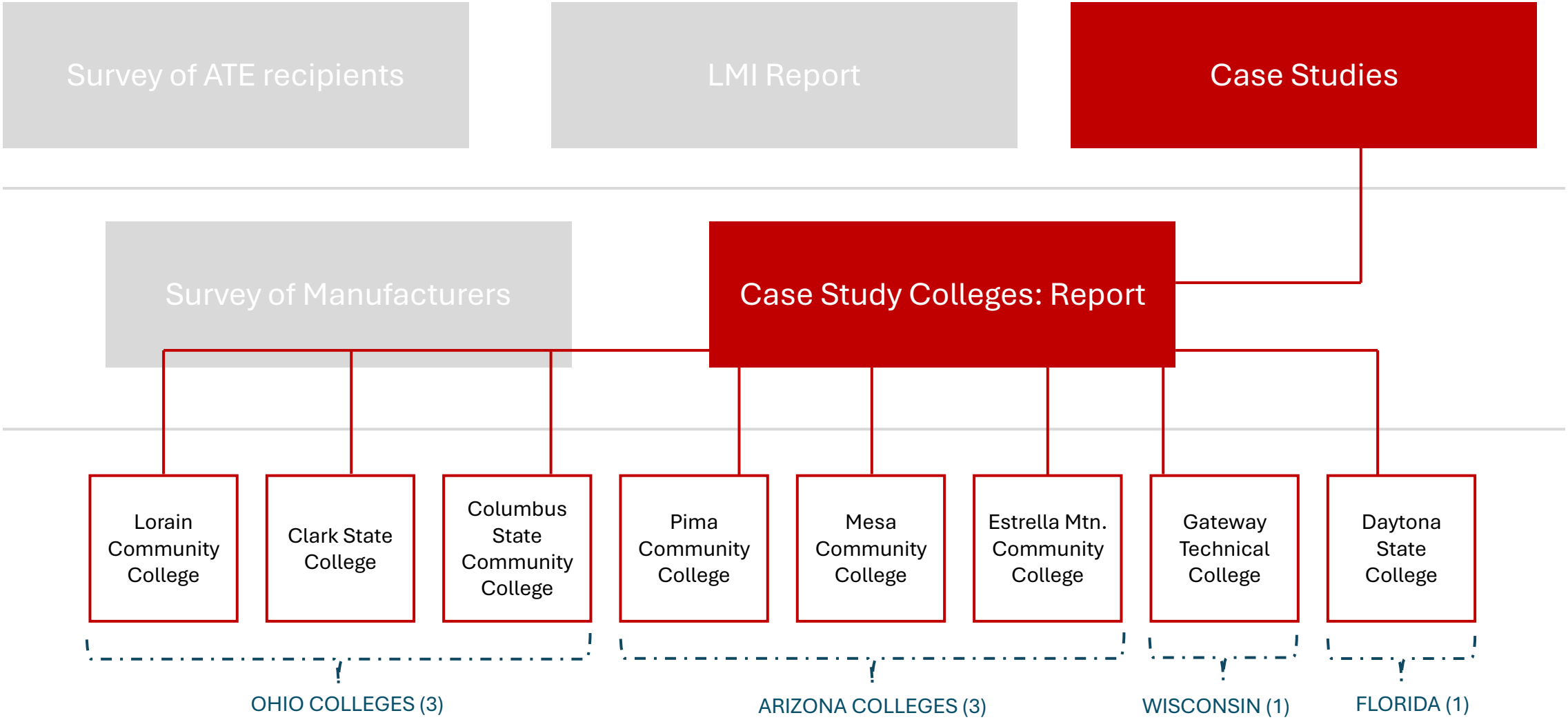
HII: The Case Study Colleges



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HII: The Case Study Colleges

AGENDA

1. Introduce report
2. Highlight major findings
3. Introduce two tools for practitioners

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HII Case Study Colleges: Final Report, Structure

September 3, 2025

The Hidden Innovation Infrastructure Project: Understanding the Economic Development Role of Technician Education in the Changing Future of Work Final Report *DRAFT*

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This research was led by Rutgers EERC with funding from the NSF Advanced Technological Education program.

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- Introduction / Our Approach
- Chapter 1
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HII Case Study Colleges: Final Report, Audiences

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Recommendations for Action for:

1. NSF ATE Program Administrators
2. NSF ATE PIs at Colleges (Community College Practitioners, writ large)
3. Community College Leadership
4. Employers
5. Regional and State EDOs

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Three Major Chapters:

CHAPTER 1 | College Activities and Strategies

CHAPTER 2 | Employer Contributions

CHAPTER 3 | Ecosystems Analysis

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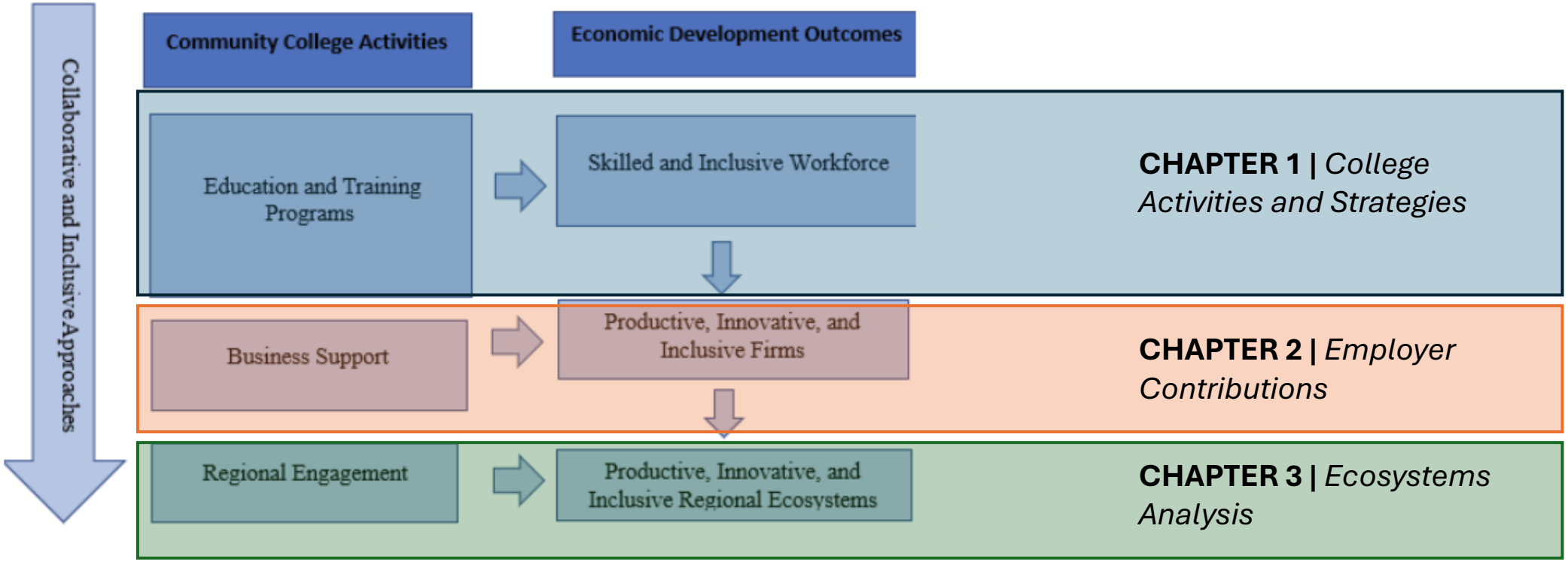
HII Case Study Colleges: Final Report, Structure

HII Conceptual Model for Community College Engagement in Economic Development



HII: The Case Study Colleges

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2. Highlight major findings
3. Introduce two tools for practitioners

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HII Case Study Colleges: Major Findings

Chapter 1 | College Activities and Strategies

Structure of Chapter 1

- Activity Type 1: Education & training
- Activity Type 2: Business support
- Activity Type 3: Regional engagement
- Internal Dynamics: College roles
- External Dynamics: Partnerships

Summary: *Using the HII conceptual model as a foundation, this chapter examines in detail the activities of colleges across three activity types, and the internal and external dynamics which shape the colleges' activity footprints.*

Some Chapter 1 Insights:

- ✓ Many college ED activities extend from the curricula of their manufacturing-related technician education programs.
- ✓ Education and training, business support, and regional engagement activities are strategically linked; work-based learning is a critical activity, linking colleges with their ED ecosystems.
- ✓ Colleges spend significant resources building partnerships with employers; inter-college partnerships are also very important.
- ✓ Programs can be institutionalized through a variety of roles.
- ✓ Inclusivity was a priority; partnerships with community-based organizations are important for college linkages to communities.

Data Sources: *79 interviews with college administrators, faculty, and staff; site visits.*

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HII Case Study Colleges: Major Findings

Chapter 2 | Employer Contributions

Structure of Chapter 2

- Key Theme 1: College responsiveness
- Key Theme 2: The division of training responsibilities
- Key Theme 3: Contributions to the industry & region
- Key Theme 4: Strong partnerships
- Key Theme 5: College-facilitated collaboration

Summary: *This chapter reviews five key themes on the colleges' role(s) in economic development from the perspectives of the colleges' employer-partners.*

Some Chapter 2 Insights:

- ✓ Employers viewed colleges as responsive and providing valuable skills foundations.
- ✓ Employers sought general industry-relevant skills; as trust was built, colleges took on more specific skilling.
- ✓ Some employers can take an industry perspective on skill building; larger firms have capacity for more regional approaches.
- ✓ Strong, long-tenure college-employer partnerships strengthened industry orientation to skill building for the whole region.
- ✓ Colleges facilitate firm-to-firm connections and collaboration.

Data Sources: *20 employer-partner interviews.*

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HII Case Study Colleges: Major Findings

Chapter 3 | Ecosystems Analysis

Structure of Chapter 3

- Introduction; Survey & Interview Findings
- The Typology: Four approaches
- Reflection: Implications for ATE
  - Industry-responsive approaches
  - Community-responsive approaches

Summary: *This chapter characterizes the regional ecosystems in which community colleges operate and the perspectives reflected in them on effective role(s) for colleges in economic development.*

Some Chapter 3 Insights:

- ✓ Four approaches to ED for colleges were identified across three levels of engagement: (I) Student-responsive, (II) firm-responsive, (III) 2 regional approaches: industry-responsive and community-responsive.
- ✓ The approaches reflect both functional interdependencies & different strategic orientations for colleges to their ED ecosystems.
- ✓ As the importance of workers' skills has increased, so has the importance of colleges as regional players and curators of regional labor markets.
- ✓ Industry-responsive approaches center a market coordinating role for colleges and community-responsive ones, an advocacy role with a focus on gains for workers.

Data Sources: *11 regional economic development partner interviews; partner survey; college faculty, staff, administrator interviews.*

HII: The Case Study Colleges

AGENDA

1. Introduce report
2. Highlight major findings
3. Introduce two tools for practitioners
   - Checklist
   - Typology

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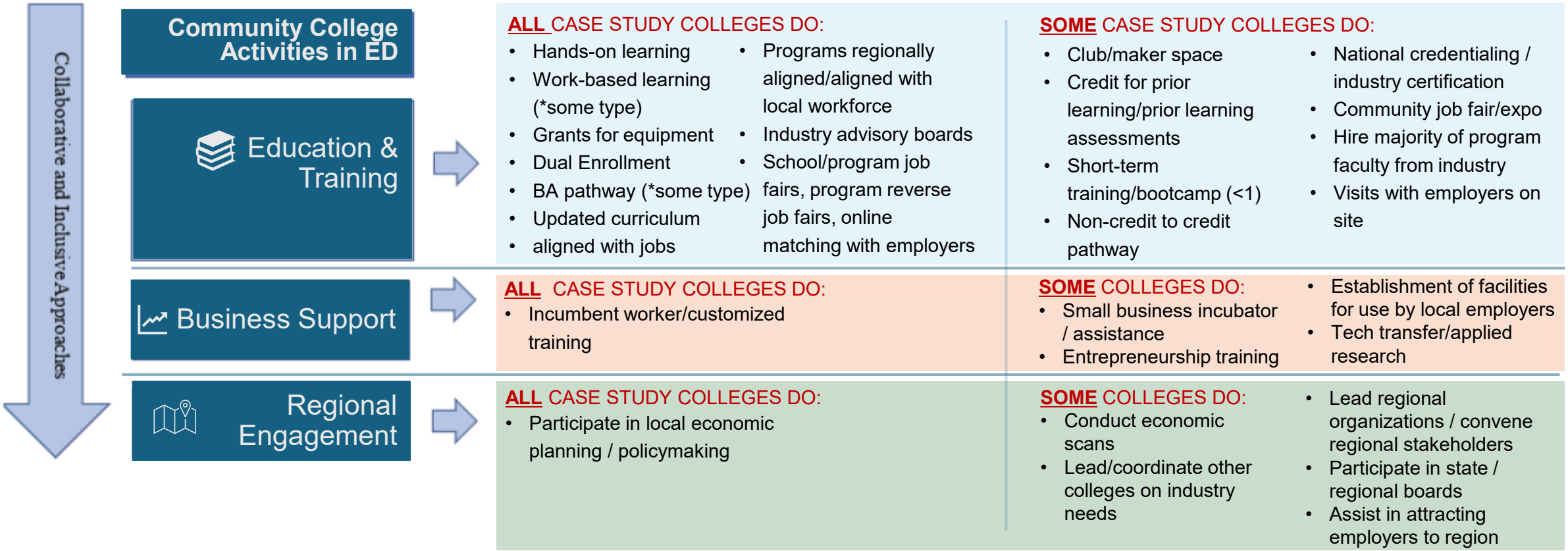
HII Case Study Colleges: Tools for Practitioners

Tool 1: Activities Checklist

HII Conceptual Model for Community College Engagement in Economic Development



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HII Case Study Colleges: Tools for Practitioners

Tool 1: Activities Checklist

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EDUCATION AND EMPLOYMENT RESEARCH CENTER

ISSUE BRIEF | May 2025

Activities Checklist for Community Colleges in Economic Development

The Rutgers University Education and Employment Research Center (EERC) in partnership with the National Science Foundation Advanced Technical Education (NSF ATE) program, investigated the role of community colleges in economic development through their administration of technical education programs.

One finding of this research is that community colleges engage in all three types of activities that have been identified as important for community college engagement in economic development:

Education & Training | Business Support | Regional Engagement

CHECKLIST FOR COMMUNITY COLLEGE ENGAGEMENT IN ECONOMIC DEVELOPMENT :

What follows is a checklist of the activities the eight community colleges in our sample -- all national leaders in administering technical education programs -- implemented, organized by type of activity and whether all or some colleges implemented the activity.

EDUCATION AND TRAINING

ALL COLLEGES DO...	Yes, we do this too!	No, we don't do this currently.
Hands-on learning	☐	☐
Work-based learning (*some type)	☐	☐
Grants for equipment	☐	☐
Dual enrollment	☐	☐
BA pathway (**some type)	☐	☐
Updated curriculum aligned with jobs	☐	☐
Regionally aligned, developed programs / courses, and programs aligned with local workforce	☐	☐

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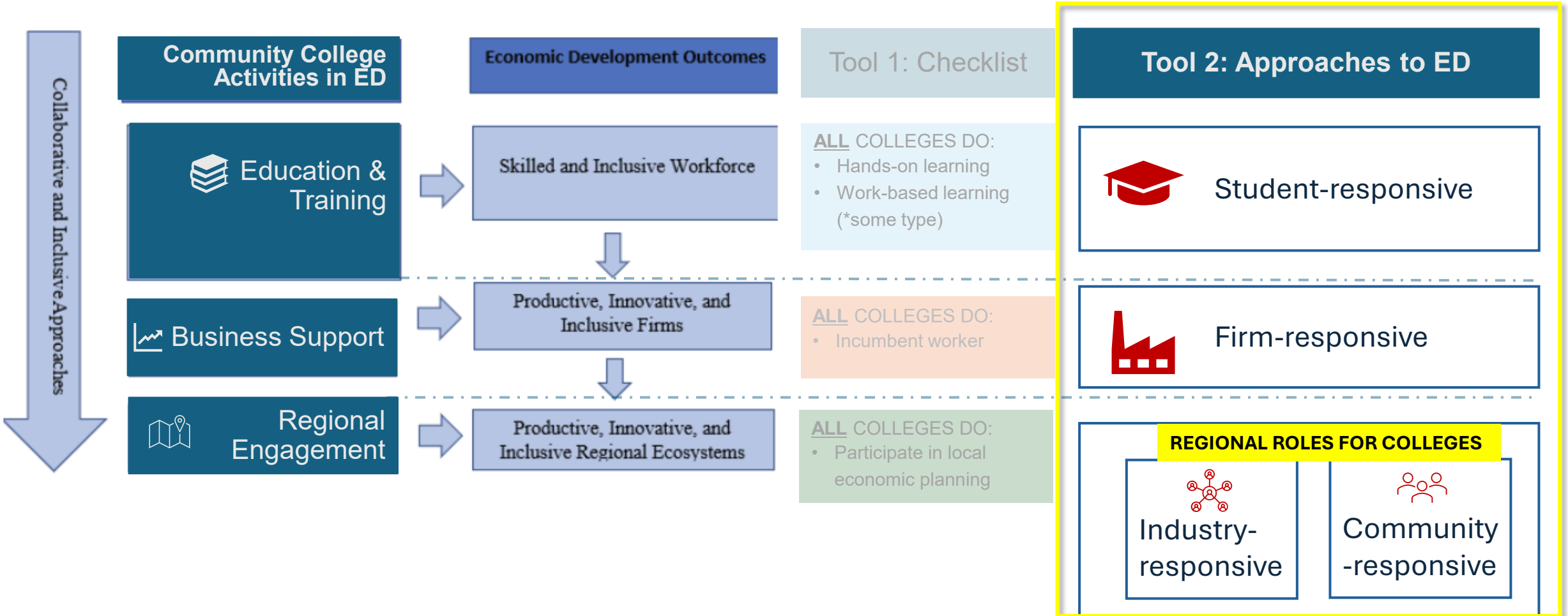
HII Case Study Colleges: Tools for Practitioners

Tool 2: Typology of Approaches

HII Conceptual Model for Community College Engagement in Economic Development



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HII Case Study Colleges: Tools for Practitioners

Tool 2: Typology of Approaches

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EDUCATION AND EMPLOYMENT RESEARCH CENTER

ISSUE BRIEF | May 2025

Community College Approaches to Economic Development

The Rutgers research team investigated the role of community colleges in economic development through the lens of technical education programs. We found that, through these programs, colleges implement a wide array of economic development activities and strategies across a variety of workstreams. Based on those activities, we identified four approaches to economic development for community colleges which highlight how colleges respond to their multiple audiences. Colleges respond to the needs of their students, local employers, the regional industry, and the local community.

These approaches represent overlapping functions of colleges; most colleges implement all four approaches in different ways. These approaches can also represent *how* colleges implement their various activities in their regional economic development ecosystems. As colleges have taken on more regional roles, industry-responsive and community-responsive approaches as well as their respective activities have become increasingly important.

FIRM-RESPONSIVE APPROACH

This approach centers individual firms as job creators, and responsiveness by the college to the voiced needs of employers with ad-hoc, highly customized programs.

STUDENT-RESPONSIVE APPROACH

This approach centers the individual student as the primary audience for the college, and a focus on enrolling as well as graduating students from their programs.

REGIONAL ROLES FOR COMMUNITY COLLEGES IN ECONOMIC DEVELOPMENT

INDUSTRY-RESPONSIVE APPROACH

ROLE OF COLLEGE: Market-coordinating
KEY PARTNER: Industry associations

This approach centers the regional industry, and a coordinated response to regional needs which considers matches between local firms and workers.

COLLEGE ACTIVITIES *in industry-responsive approach*

- Prioritize transferability of skills among firms in regional cluster
- Coordinate with other colleges (curricula, industry engagement)
- Facilitate linkages between firms within industry
- Consider regional industry processes (not just firm needs) in investment strategy (e.g., tech equipment)

EMPLOYER ACTIVITIES *in industry-responsive*

- Prioritize transferable credentials
- Contribute to/use shared, industry assets (e.g., adaptable

COMMUNITY-RESPONSIVE APPROACH

ROLE OF COLLEGE: Power-balancing
KEY PARTNER: ED organizations

This approach centers the local community and regional labor market, and the use of the college's position to generate gains for workers as well as better matches between local firms and workers.

COLLEGE ACTIVITIES *in community-responsive approach*

- Advocate for higher wages / skills investments
- Integrate wrap-around services via partnership with public sector
- Target underrepresented groups via partnership with community organizations
- Engage community in strategic planning

ED PARTNER ACTIVITIES *in community-*

- Support alignment of strategy between colleges and public sector agencies

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HII Case Study Colleges: Tools for Practitioners

Tool 2: Typology of Approaches

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EMPLOYER ACTIVITIES *in industry-responsive approach*

- Prioritize transferable credentials
- Contribute to/use shared, industry assets (e.g., adaptable curriculum for industry-wide use)
- Coordinate needs with other local firms, institutionalize coordination via college-hosted assets (equipment, facility)
- Participate actively in college-led efforts (advisory boards etc.)

COMMUNITY-RESPONSIVE APPROACH

ROLE OF COLLEGE: Power-balancing
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ED PARTNER ACTIVITIES *in community-responsive approach*

- Support alignment of strategy between colleges and public sector agencies
- Elevate importance of hiring and wage commitments made by firms
- Facilitate investments by the state in regional capacity of colleges

HII: The Case Study Colleges

Questions

- [Greg] How does the role of community college technician education in regional economic development interact with credit-noncredit dynamics and structures?
- [Mereb] How are colleges working to keep skills apace with fast-moving technological developments in manufacturing?
- [Alysa] How do colleges balance shorter term needs of firms or industries with longer-term needs of students/workers/the region?

Thank you!