

IMPROVING LABOR MARKET OUTCOMES



THE ASPEN INSTITUTE
COLLEGE EXCELLENCE PROGRAM

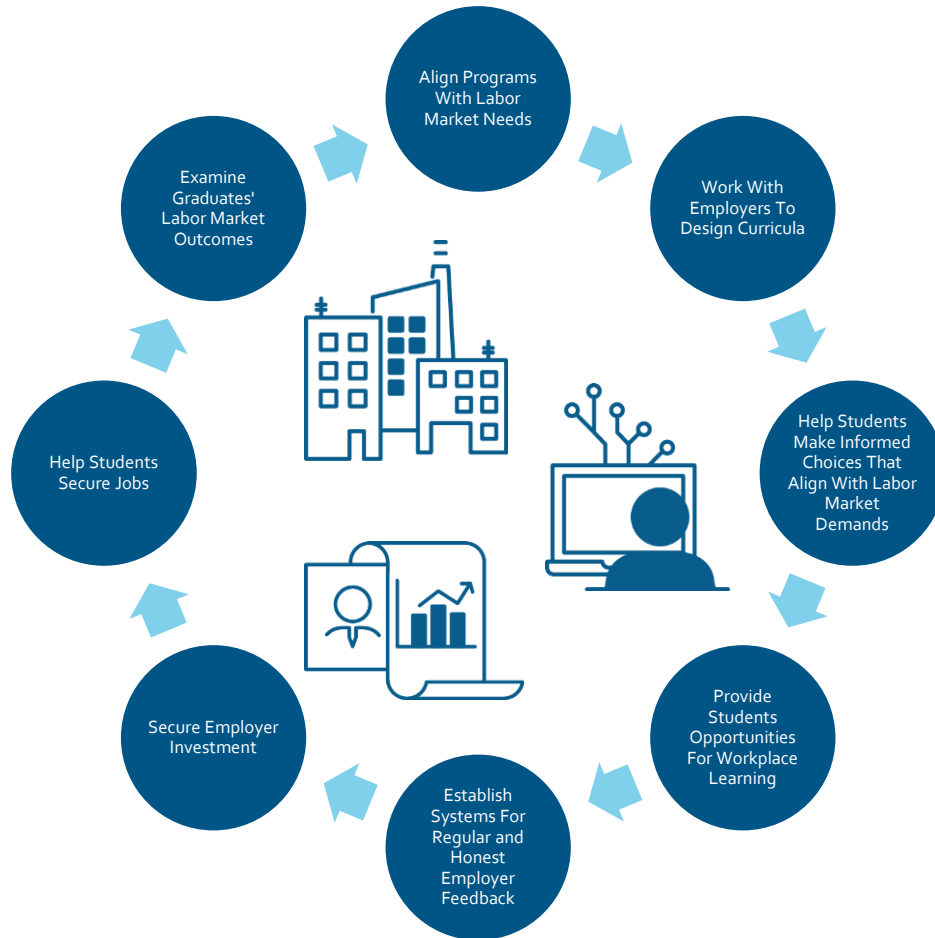
LEADING FOR COMMUNITY COLLEGE EXCELLENCE: CURRICULAR RESOURCES

FACILITATOR'S GUIDE

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OVERVIEW



Though the United States has arguably the most dynamic and accessible college and university system in the world, future demand for workers with the skills and abilities provided by postsecondary education is projected to outstrip supply.¹ Economists debate the extent and nature of the “skills gap,” but there can be little doubt that the long-term economic and social health of the country is closely tied to the educational attainment of its citizenry.

¹ Carnevale, A. P., Smith, R., & Strohl, J. (2013, June). *Recovery: Projections of jobs and education requirements through 2020*. Washington, DC: Georgetown University, Center on Education and the Workforce. Retrieved from <http://cew.georgetown.edu/recovery2020>

Recent national and state-level efforts to increase college graduation rates aim to close the skills gap. The attention to college completion is well justified: Evidence overwhelmingly shows that, on average, college credentials have significant value in the labor markets.² The wage premium earned by college graduates—which is today at an all-time high when compared to those who only graduated high school—strongly suggests that employers value the skills that come with completing a college degree or certificate.

But, increasingly, it is clear that simply raising graduation rates alone will not be enough to deliver what students and employers need. In survey after survey, employers cite gaps among college graduates in basic skills they need for workplace success.³ And while most students benefit from their degrees, there is evidence that some provide more limited labor market value.⁴ The fundamental but thorny challenge that lies at the core of what community colleges today face is how to increase degree completion and, at the same time, make sure that the degrees students complete have enduring labor market value after they leave.

To ensure real student success, a community college must fix as its “North Star” a definition of success that extends beyond “completion” or “graduation” alone. Real success involves producing graduates who are truly prepared for what comes next, as evidenced by what they accomplish after leaving the institution. For some students, that means entering the workforce directly with a credential of enduring market value, reflected in their earnings following graduation. For others, it means transferring to a university and successfully completing their baccalaureate degree (and perhaps graduate degrees) before (re)entering the labor markets. Regardless, exceptional community colleges align programs with good post-graduation opportunities, ensure that students have the broad and specific skills they will need after graduating, regularly check to make sure that the intended student outcomes are in fact achieved after graduation, and use systematic feedback from employers and university partners to update and improve their programs.

This module explores how community college leaders can improve students’ labor market outcomes by working internally (with the campus faculty and staff) and externally (in partnership with employers). Of course, labor market outcomes—that is, the rate of employment and accompanying earnings of college graduates—reflect only part of the value conferred by higher education. Most policymakers and individuals recognize that, although higher education may provide immeasurable value in terms of personal growth, civic engagement, and a host of other positive outcomes, it is also *an investment*—one that everyone hopes will pay off for students in terms of employment and earnings, and for entire communities in terms of economic strength and quality of life.

The module begins by exploring the factors that contribute to the growing need to ensure that degree production is better aligned with labor market needs: not enough degrees are being produced in fields where the need is greatest and the value is highest. Though labor market needs differ across communities, this is both a national and a regional problem. Next, the module details and provides concrete examples of eight core practices that exceptional community colleges have used to achieve high levels of student success:

- **Align programs with labor market needs** by examining data and holding conversations with employers

² Carnevale, A. P., Jayasundera, T., & Cheah, B. (2012, August). *The college advantage: Weathering the economic storm*. Washington, DC: Georgetown University, Center on Education and the Workforce. Retrieved from <https://cew.georgetown.edu/collegepayoff>

³ Cortright, J. (2005, December). *The young and the restless in a knowledge economy*. Cleveland, OH: CEOs for Cities. Retrieved from http://www.ceosforcities.org/pagefiles/CEOs_YNR_FINAL.pdf

⁴ PayScale. *The most underemployed majors*. Retrieved from <http://www.payscale.com/data-packages/underemployment/most-underemployed-majors>; Abel, J. R., Deitz, R., & Su, Yaqin. (2014). Are recent college graduates finding good jobs? *Current Issues in Economics and Finance*, 20(1). Retrieved from http://www.newyorkfed.org/research/current_issues/cizo-1.pdf; Schneider, M. (2014, May). Are graduates from public universities gainfully employed? Analyzing student debt and gainful employment. *Education Outlook*. Washington, DC: American Enterprise Institute for Public Policy Research. Retrieved from <http://www.aei.org/publication/are-graduates-from-public-universities-gainfully-employed-analyzing-student-loan-debt-and-gainful-employment/>

- **Work with employers to design curricula** to ensure they are aligned to needed job skills
- **Help students make informed choices that align with labor market demands** as they choose their pathways
- **Provide students opportunities for workplace learning** through apprenticeships, internships, and cooperative education
- **Establish systems for regular and honest employer feedback** on program quality
- **Secure employer investment** in equipment, scholarships, and other resources tied to student success
- **Help students secure jobs and careers** with good wages
- **Examine graduates' labor market outcomes** to assess effectiveness of programs in delivering skills aligned to jobs with good wages and make changes when weaknesses are identified

LEARNING OBJECTIVES & OUTCOMES

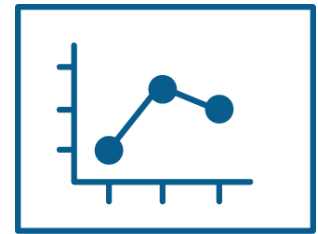
After completing this module, participants will be able to:

- Define the need for colleges to improve labor market outcomes for their students.
- Examine and articulate strategies that community colleges can use to increase workforce outcomes for their students.
- Analyze case studies to understand how a community college can develop a “collective impact” approach with employers that leads students to jobs with family-sustaining wages.

PRE-READING

- Aspen Institute, College Excellence Program. (2015). From college to jobs: Making sense of labor market returns to higher education. Retrieved from: <https://www.aspeninstitute.org/publications/labormarketreturns/>
- Aspen Institute, College Excellence Program. (2015). Innovation & focus to meet labor market demands: A case study of Lake Area Technical Institute. Appendix A of this module.
- Aspen Institute, College Excellence Program. (2014). Using labor market data to improve student success. Retrieved from <https://dorutodpt4twd.cloudfront.net/content/uploads/files/content/docs/pubs/LaborMarketDataGuide.pdf>
- Helmer, M. (2013, February). Helping adult learners navigate community college and the labor market. Workforce Strategies Initiative at the Aspen Institute. Retrieved from <http://www.aspeninstitute.org/publications/helping-adult-learners-navigate-community-college-labor-market>
- Jobs for the Future & Credentials That Work. (2011, September). Aligning community colleges to their local labor markets.

KICK-OFF ACTIVITY



KICK-OFF ACTIVITY: LABOR MARKET DATA PULSE CHECK.....25 MINUTES

1. Using the Poll Everywhere software—or some other form of electronic polling—pose a series of questions to the group and allow them to vote using their phones:
 1. What is the *most frequently used* source of data regarding the labor market success of your students?
 - a. Curriculum advisory committees
 - b. Faculty knowledge of how students are doing
 - c. Post-graduation student surveys
 - d. Employer feedback
 - e. Pass rates on state/industry licensure/certifications
 - f. Employment and wage data on students following completion
 - g. Other
 2. What is the *best* source of information on the labor market success of your students?
 - a. Curriculum advisory committees
 - b. Faculty knowledge of how students are doing
 - c. Post-graduation student surveys
 - d. Employer feedback
 - e. Pass rates on state/industry licensure/certifications
 - f. Employment and wage data on students following completion
 - g. Other
 3. Students at my college use accurate labor market data regarding job demand and wages in our region when making decisions on their program of study.
 - a. Strongly agree
 - b. Mostly agree
 - c. Neutral
 - d. Mostly disagree
 - e. Strongly disagree

4. **Decisions regarding new program offerings and program discontinuation at my college are made primarily on the basis of enrollment demand.**
 - a. Strongly agree
 - b. Mostly agree
 - c. Neutral
 - d. Mostly disagree
 - e. Strongly disagree

 5. **Decisions regarding new program offerings and program discontinuation are made substantially on the basis of regional labor market demand and wage data.**
 - a. Strongly agree
 - b. Mostly agree
 - c. Neutral
 - d. Mostly disagree
 - e. Strongly disagree

 6. **For our transfer students, strong labor market outcomes are as important as baccalaureate completion.**
 - a. Strongly agree
 - b. Mostly agree
 - c. Neutral
 - d. Mostly disagree
 - e. Strongly disagree
2. **After participants have voted on all of the questions, discuss the results. Where are your colleges the strongest? The weakest? What are your initial thoughts on the role that the president may play in making decisions about how labor market data are used at the college?**

DEFINING THE PROBLEM



KEY LEARNING

College is viewed as the gateway to a well-paying job, but too few students (1) successfully complete college, and (2) graduate with credentials that employers demand. Understanding the magnitude and source of these problems is the first step in designing solutions.

Overall Degree Production Lags Behind Labor Market Needs: The Georgetown University Center on Education and the Workforce estimates that, by 2020, 65 percent of jobs will require a postsecondary credential.⁵ But the pace of degree attainment is slowing and will likely continue to slow as the country's demographics shift. Carnevale, Smith, and Strohl estimate that by 2020, the cumulative shortfall in degree production in the country will approach 20 million.

Graduates Need Degrees That Have Labor Market Value: Recent research points to important differences in the value of a postsecondary credential, based on degree level (associate's, bachelor's, etc.) and field of study (nursing, massage therapy, general studies, etc.). Most students, state officials, and community college leaders know that there are great divergences in labor market returns for different credentials. Although they can easily determine that nurses almost always earn more than hairdressers, they may not know that a radiation therapist with an associate's degree earns an average of \$75,000 per year, while a veterinary technician, who also needs an associate's degree, earns an average of only \$30,000.⁶

The Right Credential Doesn't Guarantee the Right Skills: Conferring more credentials in high-demand fields doesn't guarantee that graduates will land well-paying jobs. To improve economic conditions and help more students secure well-paying jobs, the skills embedded in credential programs need to align with employer expectations. Often, these needs extend beyond technical skills acquisition to meta-cognitive skills (critical thinking, problem solving) and so-called "soft skills" valued in professional settings (communications, teamwork).

⁵ Carnevale, A. P., Smith, N., & Strohl, J. (2013). *Recovery: Projections of jobs and education requirements through 2020*. Washington, DC: Georgetown Public Policy Institute, Center on Education and the Workforce. Retrieved from <https://georgetown.app.box.com/s/tllozxtopuz45hu21g6>

⁶ Aspen Institute, College Excellence Program. (2014). *Using labor market data to improve student success*. p. 5. Retrieved from <https://dorutodpt4twd.cloudfront.net/content/uploads/files/content/docs/pubs/LaborMarketDataGuide.pdf>

Too Many Credentials Fail to Provide Living Wage Salaries: Community colleges are in a unique position to ensure that students are prepared not just for any job, but for good jobs that offer wages and benefits beyond what high school graduates can earn. Recent analysis demonstrates that too often, community colleges fall short of their potential. Nationally, of the 15 career certificate programs with the highest enrollment, 10 have typical graduate earnings of \$18,000 or less—an indication that enrollment patterns within many career and technical programs are not aligned to the labor market returns students receive from those programs.

This variation in outcomes, combined with evidence that a large number of students enroll in programs of study with low relative earnings, underscores the importance of community colleges themselves looking at not just completion rates but labor market outcomes as well. Only then can everyone investing in and delivering higher education ensure that the focus on advancing graduation rates does not accelerate completion of large numbers of degrees and certificates that fail to provide graduates access to jobs with family-sustaining wages.

The following indicators can measure a college’s success in achieving strong labor market outcomes for students:

- Short-term labor market outcome for students: After 18 months, completers are employed with wages substantially higher than the average high school graduate in the region.
- Short-term labor market outcome for students: After 18 months, completers are employed with wages higher than their wages before beginning college.
- Long-term labor market outcome for students: After five years, completers are employed with family-supporting wages.

Colleges can also consider the following outcomes:

- The college is contributing to the competitiveness of the regional economy by filling existing skills gaps.
- The college is contributing to a better economic future for its students and the region by anticipating future workforce demands in the regional economy.
- The college is working with external partners to create pipelines that lead to equitable labor market outcomes for all students, including those who are underrepresented minorities.

Participants should keep these outcomes in mind as they work through the strategies in this module. Which strategies could contribute most directly to each outcome?

GROUP APPLICATION ACTIVITY: MAKING THE CASE.....45 MINUTES

1. **Participants will make the case for investing in the improvement of labor market outcomes for community college students to one of the following audiences: the board of trustees, faculty, or local employers. Assign one of the audiences to each table.**
2. **Allow participants 30 minutes to work in their group to build a five-minute case for improving labor market outcomes to their assigned audience, putting themselves in the role of a community college president. Participants can take notes on the Handout 1.**
 - **Board of trustees:** You as the president want to invest in a program that will provide your college with real-time employer demand data to help faculty and staff design programs that are responsive to your local job market and to help students make informed career and program choices. What case will you make to the board that this is a worthy investment?
 - **Faculty:** Your college is beginning to design and implement guided pathways. You are meeting resistance from faculty who are upset about the reduction in course choice for their students. How can you make a case for guided pathways through the lens of improving students’ labor market outcomes?

- **Local employers:** You have upcoming meetings with the CEOs of several local companies that employ your graduates. You've heard through the grapevine that most of these CEOs are content with their current relationship with the college. How can you make the case for the need to deepen and expand these partnerships in order to improve labor market outcomes for students?

Then, pair up groups who worked on different cases. Allow them time to briefly present their cases to one another, then bring the group back together to debrief.



MAKING THE CASE

Take 30 minutes to work in your group to build a five-minute case for improving labor market outcomes to your assigned audience, putting yourself in the role of a community college president.

Board of trustees: You as the president want to invest in a program that will provide your college with real-time employer demand data to help faculty and staff design programs that are responsive to your local job market and to help students make informed career and program choices. What case will you make to the board that this is a worthy investment?

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STRATEGIES TO IMPROVE LABOR MARKET OUTCOMES FOR STUDENTS



ALIGN PROGRAMS WITH LABOR MARKET NEEDS

KEY LEARNING

Today, there is a growing opportunity for colleges to access useful labor market data. Colleges can align their programs with labor market needs by:

- **Using proprietary databases** such as Emsi, PayScale, and Burning Glass to aggregate job postings from the Internet, providing colleges with a new window for understanding labor markets in their communities. These data sources can help colleges and their students better understand which credentials to create, expand, or contract based on the connection between certain credentials and the employment opportunities and wages those credentials might confer.
- **Developing trusted, regular lines of communication with employers in the region**, helping community college leaders understand whether projections based on data are accurate and stable across time. If the data show that the number of jobs is increasing, employers can distinguish whether that is likely to continue or if changes in the field are likely to interrupt that trend. And if trend lines suggest a reduction of jobs in a particular sector, employers can help college leaders understand how to revamp programs to respond to new technologies or products so graduates continue to have job opportunities.

Example: In response to significant student inquiry, Lake Area Technical Institute (LATI) looked into launching a veterinary technician program. A thorough review of the labor market, including examination of data from the state employment agency and conversations with regional employers, revealed two important insights: (1) demand was low

for traditional small animal veterinary technicians, and (2) there was a strong need for expertise working with large animals. The college decided not to pursue a new veterinary technician program, even though such a program would have been directly responsive to student demand. Instead, LATI enhanced an existing agricultural program with an option to focus on working with large animals.⁷

GROUP DISCUSSION: DILEMMAS OF A COLLEGE PRESIDENT.....30 MINUTES

1. Assign each table group one of the following scenarios, also listed on Handout 2. Allow time in small groups for participants to read their assigned scenario and discuss possible solutions. Remind participants to focus their conversation on the role of the *president* in their situation by considering the following questions:

- What should be the role of the president in this situation?
- What are the right kinds of questions the president should be asking, and to whom should these questions be addressed?
- How can the president help the college understand the “why” in dealing with this issue?
- In what ways should the president help the college keep the end goal in mind?
- Should the president be thinking through issues of scale, resources, sustainability, and outcomes? If not, how does the president make sure these issues are addressed?

Scenario A: Regional Technical Community College has for years had strong enrollments in fields like cosmetology, home health, hospitality services, and office assisting. However, when the wage data of its graduates were examined 18 months after graduation, it was obvious that the average wages of graduates from these programs were close to minimum wage. Clearly students were being employed, and clearly there was strong student demand. If the college was to close these programs, enrollment at the college would drop (at least in the short term) and so might overall credential completions. But it is hard to defend offering programs that don’t pay graduates more than what recent high school graduates could earn in retail and fast-food jobs. What should Regional Tech’s president do?

Scenario B: Suburban State Community College has seen its state funding shrink dramatically over the last decade. This year the college expects to have another midyear reduction in state funds, and possible staff layoffs. The college can’t launch or expand career and technical programs that are needed in fields such health care and cybersecurity because of the college’s constrained capacity and the enormous expense of running such programs. There are thousands of vacancies for good jobs available in those fields, so employers are recruiting qualified workers from outside the region. Meanwhile, there are plenty of low-wage workers in the community who could and want to be trained for these jobs. Suburban State’s new president is trying to think of a strategy that will permit the college to offer high-wage, high-demand programs in the face of enormous funding reductions. What should the president do?

Scenario C: Rural Community College (RCC) is located in a community with a declining economy as well as a declining population. The local government, hospital, and school system as well as RCC are the region’s largest employers. Most other available employment is low-skill, part-time work. However, 90 miles away, across the state line, there is an economy that needs technical workers in logistics and instrumentation. These are fields where RCC might be able to launch new programs. But, in doing so, it is likely that the college will further exacerbate the outmigration of the community’s remaining talent. Also, it would be using state taxpayer money to support the economic growth of another state. What should RCC’s president do?

⁷ Aspen Institute, College Excellence Program. (2014). *Using labor market data to improve student success*. p. 8. Retrieved from <https://dorutodpt4twd.cloudfront.net/content/uploads/files/content/docs/pubs/LaborMarketDataGuide.pdf>

2. Bring the group back together for a quick debrief and share ideas. What common themes emerged? Where might the president experience resistance in these scenarios? From whom? How might the president use concepts from internal change management or collective impact to address these issues?

DILEMMAS OF A COLLEGE PRESIDENT



In small groups, read your assigned scenario and discuss possible solutions. Focus your conversation on the role of the *president* in the situation by considering the questions below.

Scenario A: Regional Technical Community College has for years had strong enrollments in fields like cosmetology, home health, hospitality services, and office assisting. However, when the wage data of its graduates were examined 18 months after graduation, it was obvious that the average wages of graduates from these programs were close to minimum wage. Clearly students were being employed, and clearly there was strong student demand. If the college was to close these programs, enrollment at the college would drop (at least in the short term) and so might overall credential completions. But it is hard to defend offering programs that don't pay graduates more than what recent high school graduates could earn in retail and fast-food jobs. What should Regional Tech's president do?

Questions to consider:

1. What should be the role of the president in this situation?
2. What are the right kinds of questions the president should be asking, and to whom should these questions be addressed?
3. How can the president help the college understand the "why" in dealing with this issue?
4. In what ways should the president help the college keep the end goal in mind?
5. Should the president be thinking through issues of scale, resources, sustainability, and outcomes? If not, how does the president make sure these issues are addressed?

Scenario B: Suburban State Community College has seen its state funding shrink dramatically over the last decade. This year the college expects to have another midyear reduction in state funds, and possible staff layoffs. The college can't launch or expand career and technical programs that are needed in fields such health care and cybersecurity because of the college's constrained capacity and the enormous expense of running such programs. There are thousands of vacancies for good jobs available in those fields, so employers are recruiting qualified workers from outside the region. Meanwhile, there are plenty of low-wage workers in the community who could and want to be trained for these jobs. Suburban State's new president is trying to think of a strategy that will permit the college to offer high-wage, high-demand programs in the face of enormous funding reductions. What should the president do?

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Questions to consider:

1. What should be the role of the president in this situation?
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5. Should the president be thinking through issues of scale, resources, sustainability, and outcomes? If not, how does the president make sure these issues are addressed?

WORK WITH EMPLOYERS TO DESIGN CURRICULA

KEY LEARNING

There are a number of ways that community colleges can engage employers in ensuring that the courses offered and skills taught in a given program align with industry needs. Often colleges will sponsor focus group meetings with company human resources specialists, hiring managers, and even with staffing agencies that are placing personnel in the industry sector where the program resides. Reviewing published skill standards with local employers through established curriculum advisory boards can help validate the need for specific competencies to be included in a new or revised program. Using these processes and recruiting full- and part-time faculty from within an industry to teach in or to help develop new programs is another option. In other instances, a college may establish more formalized industry sector partnerships to ensure that faculty and employers are in constant communication about the quality of programs.

Regardless of the method, a few principles should guide program development:

- Define a process for developing a curriculum that includes a very clear role and timeline for industry partners. Being clear about what you expect industry partners to do and when you want them to do it is essential to choosing and recruiting strong partners.
- Choose industry partners based on a commitment to provide the time and expertise you need from the right person (manager, director, engineer, etc.).
- Set timeline and expectations that reflect a reasonable compromise between urgency and patience, ensuring that community college staff and industry partners understand the reasons for the timeline.
- Ensure strong project management and communications by the community college, laying the groundwork for a strong long-term relationship with industry partners.
- Provide feedback to the industry partners, showing them how you followed through with the advice given.

Example: At Walla Walla Community College in Walla Walla, Washington, President Steve VanAusdle noticed an uptick in regional demand for workers trained to work in the energy industry, in particular with renewable resources. Rather than keeping the development of the program in-house, the community college called in an industry expert to work with the college on program development. Now, the college offers a two-year associate's degree in wind energy technology, with strong completion and labor market outcomes for graduates, so students enroll knowing that the skills they will acquire are aligned to industry needs.

GROUP DISCUSSION: KEY ACTORS.....20 MINUTES

1. Participants imagine that they are the president of a community college that wants to begin working with employers to create a new curriculum for one of their programs. Give each table the opportunity to select a field with which they are relatively comfortable or knowledgeable to use during this activity. Allow participants 15 minutes to talk at tables to discuss the following questions and record their answers on Handout 3:
 - In designing this curriculum, what unique strengths does the community college bring to the process? What unique strengths does the employer bring?

- Why should the college be invested in building this curriculum? Why should the employer be invested? What problems might this curriculum solve for each party?
 - In light of these strengths and interests, what might an ideal process look like for jointly building this curriculum?
 - At your college, who is best positioned to begin this process with the employers? How can you get them on board? Why would they be invested in this process?
 - As the president, what is your role in this process? How might the principles of collective impact help you think about this partnership? What components of internal change management would be helpful to think about here?
2. **Bring the group back together for a quick debrief discussion, focusing on how the principles of collective impact and internal change management might impact their actions in this scenario.**

KEY ACTORS



Imagine that you are the president of a community college that wants to begin working with employers to create a new curriculum for one of your programs. With your table group, select a field with which you are relatively comfortable or knowledgeable to use during this activity. Take 15 minutes to discuss the following questions.

In designing this curriculum, what unique strengths does the community college bring to the process? What unique strengths does the employer bring?

Why should the college be invested in building this curriculum? Why should the employer be invested? What problems might this curriculum solve for each party?

In light of these strengths and interests, what might an ideal process look like for jointly building this curriculum?

At your college, who is best positioned to begin this process with the employers? How can you get them on board? Why would they be invested in this process?

As the president, what is your role in this process? How might the principles of collective impact help you think about this partnership? What components of internal change management would be helpful to think about here?

HELP STUDENTS MAKE INFORMED CHOICES THAT ALIGN WITH LABOR MARKET DEMANDS

KEY LEARNING

Many students rely on colleges and universities to help them make well-informed choices about which program of study to pursue. Community colleges can use labor market demand data to help students choose and complete programs by:

- Providing students clear information about the net price and likely wages of different programs of study.
- Encouraging students to select a program of study as soon as possible after they enroll, which research suggests increases their chances of completing.⁸
- Creating clear program pathways to completion in fields with strong post-graduation outcomes.
- Incorporating labor market information into advising sessions is critical as students are choosing fields and pathways.

Example: At Walla Walla Community College, students meet with an adviser before each quarter’s registration. Those advisers provide many students with detailed printouts for each career that they are considering, including the job and wage prospects in that field and the courses they will need to take for that degree. At West Kentucky Community and Technical College, in Paducah, Kentucky, students discover similar information in their first-year experience class—now required for all students in their first semester—by working on a career exploration project. In the process of completing that project, students investigate career options (including job prospects and wage data), confer with their instructor about their proposed career choice, and develop the educational plan they will need to reach that goal.

GROUP DISCUSSION: MINDSET SHIFT.....15 MINUTES

1. **Many faculty and advising staff may still resist the idea of advising students to choose a specific guided pathway or career goal soon after they enroll. In small groups, have participants discuss the following questions:**
 - Why might a faculty member resist getting students to choose guided pathways or set career goals early in their college experience? What reasons might an adviser have? How can those concerns be addressed?
 - What mindset shifts are needed as faculty and staff are brought into the process of advising students to choose guided pathways or set career goals?
 - What is the role of the president in helping to create these mindsets? Consider the components of the framework for internal transformational change introduced in previous modules.

⁸ Jenkins, D., & Cho, S-W. (2013, winter). Get with the program...and finish it: Building guided pathways to accelerate student learning and success. In B. C. Phillips & J. E. Horowitz (Eds.), *New directions for community colleges*. (Special Issue: The College Completion Agenda: Practical Approaches for Reaching the Big Goal.) San Francisco, CA: Jossey-Bass. 2013(164): 27-35.

PROVIDE STUDENTS OPPORTUNITIES FOR WORKPLACE LEARNING

KEY LEARNING

By partnering with employers, community colleges can help students gain not just theoretical knowledge but also essential applied knowledge through part-time jobs, apprenticeships, cooperative education, or paid internships. Students gain exposure to their intended field of study before entering the labor market, have the opportunity to apply what they learned in the classroom, and understand the “soft” and “hard” skills needed to succeed in a work setting. Employers gain access to a lower-cost pipeline of talent and are able to communicate more directly with the community college about how well existing programs prepare students for the job, thus strengthening their future workforce.

Example: West Kentucky Community and Technical College offers the KYFAME program in advanced manufacturing technology on its campus. Students in the five-semester program attend classes two days a week, then participate in a paid apprenticeship with their sponsoring manufacturer for the other three days. Employers benefit from a pipeline of trained employees, and students graduate with an associate in applied science degree and work experience.

GROUP APPLICATION ACTIVITY: MAKING THE CASE FOR INTERNSHIPS.....20 MINUTES

1. Provide participants with Handout 4. Invite each participant to imagine being the president of a community college who is scheduled to meet with the manager of a large local manufacturing plant in a few weeks. For several years, the college has partnered with the company, which has offered feedback on the curriculum as well as on the quality of work from graduates that the company now employs. The president hopes to start a paid internship program with this company.
2. Give participants 10 minutes individually to think about how they would make the case for starting such an internship program. Then, have participants pair up, practice making their cases to one another, and provide feedback.

MAKING THE CASE: INTERNSHIPS



Imagine that you are the president of a community college and that you are scheduled to meet with the manager of a large local manufacturing plant in a few weeks. For several years, your college has partnered with the company, which has offered feedback on your curriculum as well as on the quality of work from graduates that the company now employs. You hope to start a paid internship program with this company.

Take 10 minutes individually to think about how you would make the case for starting such an internship program. Consider the potential value for the employer, the students, and the college. Then, pair up with a partner, practice making your cases to one another, and provide feedback.

ESTABLISH SYSTEMS FOR REGULAR AND HONEST EMPLOYER FEEDBACK

KEY LEARNING

Even if graduates with a certain degree remain in high demand, the skills needed for success in many fields are likely to change over time. By working in partnership with employers, community colleges can stay apprised of changes in the competencies employers require and adapt each program's curriculum accordingly. In some instances, information might lead a college to forgo opening a new program, instead incorporating specific new skills into an existing program. In other cases, it may require that a certain program completely overhaul the training to keep up with technological advances. And, finally, these conversations may make it clear that program quality is lacking.

Example: At LATI, industry advisors ensure that programs stay ahead of industry trends and give feedback on how LATI's graduates are faring in the workplace. When weaknesses are identified, faculty respond immediately: redesigning the agriculture program with a greater focus on precision technology; giving dental assisting students more practice taking impressions; teaching energy students not just how to operate hydroelectric equipment but also how to repair it; and adding conflict resolution training to the nursing program to smooth interactions between graduates and their colleagues. If industry experts suggest a new need based on area trends, LATI administrators analyze projections, focusing on whether not just enough jobs will be available but enough *good* jobs. They can build a new program in a year, as they have done recently with energy technology, entrepreneurship, and custom paint and fabrication.

GROUP DISCUSSION: REVAMPING THE INDUSTRY ADVISORY BOARD (20 MINUTES)

1. **Most career and technical education programs at community colleges have industry advisory councils, boards, or committees, made up of representatives from local employers. Show [this video](#) of Dr. Sheila Quirk-Bailey, President of Illinois Central College (formerly a Vice President at William Rainey Harper College), discussing the possible strengths and weaknesses of such advisory councils.**
2. **Then, allow participants 15 minutes in small groups to discuss the following questions:**
 - Think about the industry advisory councils at your college. What are their strengths? How could they be more helpful? What could be done to improve these councils?
 - Making some of the changes that Quirk-Bailey suggests might complicate relationships with donors in the short term. What arguments could you make to support the idea of "starting at ground zero again" every few years, as Quirk-Bailey suggests?
 - What might the role of the president be in improving industry advisory councils in order to facilitate better feedback on program quality?

SECURE EMPLOYER INVESTMENT

KEY LEARNING

As technology continues to advance, the costs associated with training increase. For example, students in an airplane mechanic program will get the most out of their classroom training by working on an actual airplane rather than a simulation. But lab space and equipment are expensive, and few community colleges can afford to buy and maintain these resources year after year. Here again, partnerships with employers can help the community college meet its goals. Employers have a vested interest in ensuring that students graduate prepared for the work, so employers are often willing to invest in the equipment necessary for community colleges to educate their future workers. Why? Because the costs associated with on-the-job training for full-time employees are steeper than the costs of investing in the equipment.

Example: At Indian River State College in Fort Pierce, Florida, the range of the technical programming is very broad, from entry-level skills training to highly sophisticated advanced technology programs. The college has special relations with the area's major employers, including the public utility company, the regional health care network (including area hospitals), biotechnology companies, and K-12 school systems. Faculty and trustees credit president Edwin Massey with generating generous contributions from industry, getting sectors to work together to design cutting-edge facilities that replicate the workplace, building partnerships, and not just responding to but also forecasting state and regional workforce needs. Notably, when Indian River buys land and constructs buildings, it not only builds for current needs but also reserves space to eventually train students for the jobs of the future, whatever they may be. The most impressive example of Indian River's vision regarding the workforce is its public safety complex, developed through collaboration with a broad range of public entities—including fire, police, corrections, and emergency management from multiple towns in multiple counties. It provides comprehensive, state-of-the-art programming that leads directly to employment.

GROUP ACTIVITY: PRE-MORTEM ANALYSIS.....20 MINUTES

Details about the pre-mortem analysis structure can be found in the module **Leading Internal Transformational Change**. If your group has not completed a pre-mortem analysis before, review the steps and rationale using the activities in that module.

1. **After participants read Gary Klein's article "[Performing a Project Premortem](#)" from the *Harvard Business Review*, Invite participants to take 20 minutes in table groups to conduct a pre-mortem analysis, using the scenario below and on Handout 5.**

Imagine that you are the president of a community college that is starting the process of building a public safety complex. There is a high demand in your region for firefighters and police officers, and your small programs are not meeting the demand. You hope to collaborate with local employers in order to create a large complex with state-of-the-art equipment that will allow you to triple the size of your fire and police programs, and successfully prepare all graduates for employment in a local fire or police department.

Assume that, five years from now, you have failed to achieve that goal.

2. Identify the likely major causes of that “mortality.” Focus on the partnership with employers and the employer investments needed to make this complex a success. What might happen that could derail the effort? Who are the actors? What are their motivations?
3. For each cause, delineate specific leadership strategies you will employ to anticipate and avert or address the challenges. Add more rows as needed.



PRE-MORTEM ANALYSIS

After reading Gary Klein’s article “Performing a Project Premortem” from the *Harvard Business Review*, work with your table group to complete the following pre-mortem analysis.

Imagine that you are the president of a community college that is starting the process of building a public safety complex. There is a high demand in your region for firefighters and police officers, and your small programs are not meeting the demand. You hope to collaborate with local employers in order to create a large complex with state-of-the-art equipment that will allow you to triple the size of your fire and police programs, and successfully prepare all graduates for employment in a local fire or police department.

Assume that, five years from now, you have failed to achieve that goal. Identify on the chart the likely major causes of that “mortality.” Focus on the partnership with employers and the employer investments needed to make this complex a success. What might happen that could derail the effort? Who are the actors? What are their motivations? For each cause, delineate specific leadership strategies you will employ to anticipate and avert or address the challenge.

Cause of “Mortality”	Leadership Strategy to Employ

HELP STUDENTS SECURE JOBS AND CAREERS WITH GOOD WAGES

KEY LEARNING

Colleges can use a range of strategies to support their students in attaining good jobs and careers with good wages.

- Career development centers can offer seminars and assistance in preparing a resume, applying for jobs, simulating job interviews, and provide training in “soft” or “professional skills” needed for employability.
- Cooperative education and apprenticeship programs often create a direct connection between students and their work experience employers, leading to immediate employment following graduation.
- Colleges can team with staffing agencies who will help to place graduates in employment and share with the college part of the placement fee the employer pays.

Example: At Indian River State College, students across the college participated in Employability Week—a week of programming that included job fairs, portfolio presentations, and an “employability module” embedded in courses for all CTE students that focused on soft skills ranging from tying a tie to building a portfolio and conducting an interview. As part of the week, students in the business department participated in a “reverse job fair,” where students wore business attire and presented tabletop projects to the guests, who were representatives from local employers. The business department followed up by polling the attendees to see how many students were invited in for an interview following the reverse job fair. Across the CTE programs at the college, the job placement rate is 95 percent.⁹

INDEPENDENT ACTIVITY: PRACTICE “AUDIT”.....30 MINUTES

1. **Provide participants with time to independently reflect on the following questions about their own college, using Handout 6. If they do not know the answer to a particular question, participants should consider where they might look for the answer and follow up once back at their institution.**
 - At what point do students at your college get career counseling? How often? What kind? How are career services integrated into academic advising?
 - What resources are available on your college’s website to support students in their job searches?
 - How many students at your college participate in workplace learning?
 - What labor market information tools has the college invested in? Who has access to these tools?
 - Which programs at your college have close relationships with employers? Which programs do not?
 - Who owns the process of students getting jobs?
2. **Once participants have had time for independent reflection, bring the group back together for a debrief. What is your college doing well? Where do you see the biggest opportunities for improvement? What is the role of the president in bringing about that change?**

⁹ Institutional data provided as part of a 2016 Aspen Prize site visit.

PRACTICE “AUDIT”



Take time to independently reflect on the following questions about your own college. If you do not know the answer to a particular question, consider where you might look for the answer and follow up once back at your institution.

At what point do students at your college get career counseling? How often? What kind?
How are career services integrated into academic advising?

What resources are available on your college’s website to support students in their job searches?

How many students at your college participate in workplace learning?

What labor market information tools has the college invested in? Who has access to these tools?

Which programs at your college have close relationships with employers? Which programs do not?

Who owns the process of students getting jobs?

EXAMINE GRADUATES' LABOR MARKET OUTCOMES

KEY LEARNING

Labor market outcomes analyses can help institutions understand how well their efforts in each of the steps listed above are working—and realign when necessary.

- **Monitor Outcomes.** How well have recent graduates fared in the labor market? Are there trends in success rates based on credential level, field of study, or skills acquired? What do trends in job growth indicate about skills or degrees that will gain (or lose) value in the coming years?
- **Modify Program and Course Offerings.** With basic information on recent graduates' labor market outcomes and trends in regional job growth, a community college can assess whether students have access to degrees that are in high demand and, equally importantly, whether existing programs teach the right skills. Are competencies missing from programs, and if so, what would it take to add those competencies? Does student enrollment demand map onto programs with the greatest labor market potential?

Example: Cabrillo College examined labor market data and determined that many medical assisting (MA) graduates were not employed. Program leaders then spoke with employers to assess demand for MA programs. They learned that the market was saturated because so many colleges were producing graduates, and that Cabrillo students lacked some professional skills that graduates of MA programs at other community colleges possessed. In response, the college reduced the size of its MA program and focused on improving quality, rather than increasing the number of graduates.¹⁰

GROUP APPLICATION ACTIVITY: GRADUATE SNAPSHOT.....30 MINUTES

1. Invite participants to consider the following scenario: You become the president of a community college and, two months after you assume office, the state releases data on the labor market outcome one and five years after graduation for each program at all of the state's community colleges. Below is a snapshot of your college's outcomes for five programs that can also be found on Handout 7.

¹⁰ Aspen Institute, College Excellence Program. (2014). *Using labor market data to improve student success*. p. 8. Retrieved from <https://dorutodpt4twd.cloudfront.net/content/uploads/files/content/docs/pubs/LaborMarketDataGuide.pdf>

Program	Award Level	Employed One Year After Graduation	Average Annual Wages One Year After Graduation	Employed Five Years After Graduation	Average Annual Wages Five Years After Graduation
Auto tech	Associate	74%	\$41,000	55%	\$47,000
HVAC	Certificate	90%	\$48,000	90%	\$57,000
Licensed Practical Nurse (LPN)	Associate	42%	\$38,000	84%	\$60,000
Massage therapy	Certificate	58%	\$14,000	56%	\$16,000
Vet tech	Associate	88%	\$26,000	82%	\$29,000

2. **At tables, participants will spend 20 minutes considering the answers to the following questions and then report out to the entire class:**
 - What concerns you the most?
 - What strengths do you see?
 - What additional information would you want to assess the patterns in the above data? How might you go about getting that information?

3. **Participants will next assume that they have gathered additional data about the massage therapy programs by tracking down students and speaking to employers and have found the following:**
 - Over 75 percent of students you have found in jobs are unhappy, working long hours, suffering from persistent injuries, and earning low wages.
 - Over 20 percent of graduates seem satisfied in their work and have higher wages. They are roughly evenly divided between students who have opened their own businesses and those who went on to get a physical therapy credential.

4. **Discuss with the whole group: What next steps might you take as the community college president?**

GRADUATE SNAPSHOT



You become the president of a community college and, two months after you assume office, the state releases data on the labor market outcome one and five years after graduation for each program at all of the state’s community colleges. Below is a snapshot of your college’s outcomes for five programs.

Program	Award Level	Employed One Year after Graduation	Average Annual Wages One Year after Graduation	Employed Five Years after Graduation	Average Wages Five Years after Graduation
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Vet tech	Associate	88%	\$26,000	82%	\$29,000

At your table, spend 20 minutes considering the answers to the following questions and then report out to the entire class:

What concerns you the most?

What strengths do you see?

What additional information would you want to assess the patterns in the above data? How might you go about getting that information?

Now assume you have gathered additional data about the massage therapy programs by tracking down students and speaking to employers and have found the following:

- Over 75 percent of students you have found in jobs are unhappy, working long hours, suffering from persistent injuries, and earning low wages.
- Over 20 percent of graduates seem satisfied in their work and have higher wages. They are roughly evenly divided between students who have opened their own businesses and those who went on to get a physical therapy credential.

What next steps might you take as the community college president?

BRINGING IT ALL TOGETHER



GROUP DISCUSSION: PARTNERSHIP JIGSAW.....20 MINUTES

1. **Allow participants time to review the Helmer article from the pre-reading:**
<http://www.aspeninstitute.org/publications/helping-adult-learners-navigate-community-college-labor-market>
2. **Split into groups of three to five participants. Each group will be assigned one of the partnerships on pages 3 and 4 of the Helmer article. In groups, discuss the following questions:**
 - What is the compelling need that the partnership seeks to address?
 - Now, think back to the initial development of the partnership. What data points do you think the partner organizations used to document the compelling need in their community?
 - What resources or areas of expertise do each of the partner organizations contribute? Hypothesize about the benefits that each organization receives from the partnership. What is each organization's vested interest in staying involved?
 - What might their common agenda look like, and how might they monitor their progress toward the partnership goals?

CASE STUDY: LAKE AREA TECHNICAL INSTITUTE.....50 MINUTES

Participants should read the LATI case study, *Innovation and Focus to Meet Labor Market Demands* (located in Appendix A), before working on this activity.

1. **If necessary, allow time for participants to review the case study. Then, allow 30 minutes in small groups to discuss the following questions, taking notes on Handout 8:**
 - Based on this case study, what do you know about LATI's prior experiences that might help them to solve this problem? Consider their experiences with both internal and external stakeholders.
 - Given the consistently low enrollment numbers over many years, why did LATI's leadership decide that closing the precision machining program was not an option? What factors would come into play at your institution?
 - How can an institution leverage its relationships with K-12 systems, industry, and other stakeholders and partners:
 - to increase student awareness of the career opportunities and benefits of an industry sector?
 - to develop creative or nontraditional approaches to organizing and delivering technical programs?
 - to subsidize or reduce the extraordinary costs of such programs?

- Propose a set of recommendations for LATI’s president and leadership team to meet the state’s growing needs for skilled precision machining workers. In your recommendations, consider the external partnership opportunities you identified above, plus the strengths and challenges within the internal college culture.
 - What might be some concerns raised by students, faculty, and employers about your recommendations for LATI, and how would you respond?
 - In what ways would you alter your LATI recommendations for your own institution, if you were faced with a similar situation to meet your state’s labor needs? Identify factors influencing your recommendations, such as prior history, partnerships, resources, and internal cultural context.
 - What are the ways in which LATI tracks workforce needs? How did they come into play when LATI’s leaders began considering ways to attract more students to the precision machining program? How does your institution use data on labor market outcomes to track student success and inform program decisions?
2. **Pass out the “results” section of the case study (located in Appendix B) and allow participants time to read it. How did the college’s decisions compare to your recommendations? What change management processes do you think leaders needed to use? Discuss as a whole group.**

CASE STUDY: LAKE AREA TECHNICAL INSTITUTE



After reviewing the Lake Area Technical Institute (LATI) case study assigned for pre-reading, take 30 minutes to discuss the following questions in small groups.

Based on this case study, what do you know about LATI's prior experiences that might help them to solve this problem? Consider their experiences with both internal and external stakeholders.

Given the consistently low enrollment numbers over many years, why did LATI's leadership decide that closing the precision machining program was not an option? What factors would come into play at your institution?

How can an institution leverage its relationships with K-12 systems, industry, and other stakeholders and partners:

- to increase student awareness of the career opportunities and benefits of an industry sector?
- to develop creative or nontraditional approaches to organizing and delivering technical programs?
- to subsidize or reduce the extraordinary costs of such programs?

Propose a set of recommendations for LATI's president and leadership team to meet the state's growing needs for skilled precision machining workers. In your recommendations, consider the external partnership opportunities you identified above, plus the strengths and challenges within the internal college culture.

What might be some concerns raised by students, faculty, and employers about your recommendations for LATI, and how would you respond?

In what ways would you alter your LATI recommendations for your own institution, if you were faced with a similar situation to meet your state's labor needs? Identify factors influencing your recommendations, such as prior history, partnerships, resources, and internal cultural context.

What are the ways in which LATI tracks workforce needs? How did they come into play when LATI's leaders began considering ways to attract more students to the precision machining program? How does your institution use data on labor market outcomes to track student success and inform program decisions?

CASE STUDY: HARPER COLLEGE.....30 MINUTES

1. Provide participants time to review the Harper College case study in Appendix C, or assign it as pre-reading. Then, show [this video](#) of Quirk-Bailey discussing the INAM (Illinois Network for Advanced Manufacturing) consortium (show 0:00-1:30 of the video). Provide participants time in small groups to consider the following questions using Handout 9:
 - Consider the eight strategies for improving labor market outcomes that are explored in this module. Which strategies do you see the most evidence of in this case study? In what areas might you make further recommendations to the college?
 - How do you see the principles of collective impact playing out in the context of this case study?
 - Consider Quirk-Bailey’s comments about the role of Harper College’s president, Dr. Ken Ender, in the partnership. What role did the president play in this specific partnership? What lessons could you take away from this example to apply to other partnerships that you may be engaged in?

CASE STUDY: HARPER COLLEGE



After reviewing the case study assigned for pre-reading and watching the video, take 15 minutes to discuss the following questions in small groups.

Consider the eight strategies for improving labor market outcomes that are explored in this module. Which strategies do you see the most evidence of in this case study? In what areas might you make further recommendations to the college?

How do you see the principles of collective impact playing out in the context of this case study?

Consider Quirk-Bailey's comments about the role of Harper College's president, Dr. Ken Ender, in the partnership. What role did the president play in this specific partnership? What lessons could you take away from this example to apply to other partnerships that you may be engaged in?

INDEPENDENT APPLICATION ACTIVITY: ACTION PLANNING

It is recommended that participants do this assignment independently—perhaps as homework—after completing the rest of the module.

- 1. Colleges have many ways of measuring how students fare in the labor market after they leave the community college—student surveys, employer surveys, labor market data, and so forth. Consider an area where your community college could improve students’ post-graduation outcomes in terms of success in the labor market. Using the questions below and on Handout 10, sketch out the steps that your institution might take in addressing this problem.**
 - What data do you have to show the size and projected duration of the problem?
 - What has your campus done to address this problem in the past?
 - What other organizations in the area are serving the students you serve or serving a different set of students who might benefit from addressing this problem?
 - What can you bring to the partnership for the employer that the employer cannot get without you? And what can the employer bring that you couldn’t accomplish without them?
 - Map out a common agenda and a handful of shared measurements.
 - How might the community college and the employer share the costs associated with the partnership?
 - How long do you think it will take to address the problem? What do you envision the partnership looking like in 5 years? 10 years?
 - How will you monitor the effectiveness of the partnership as it relates to addressing the problem you’ve prioritized?



ACTION PLANNING

Colleges have many ways of measuring how students fare in the labor market after they leave the community college—student surveys, employer surveys, labor market data, and so forth. Consider an area where your community college could improve students’ post-graduation outcomes in terms of success in the labor market. Using the questions below, sketch out the steps that your institution might take in addressing this problem.

What data do you have to show the size and projected duration of the problem?

What has your campus done to address this problem in the past?

What other organizations in the area are serving the students you serve or serving a different set of students who might benefit from addressing this problem?

What can you bring to the partnership for the employer that the employer cannot get without you? And what can the employer bring that you couldn’t accomplish without them?

Map out a common agenda and a handful of shared measurements.

How might the community college and the employer share the costs associated with the partnership?

How long do you think it will take to address the problem? What do you envision the partnership looking like in five years? Ten years?

How will you monitor the effectiveness of the partnership as it relates to addressing the problem you've prioritized?

APPENDIX A: INNOVATION AND FOCUS TO MEET LABOR MARKET DEMANDS

A CASE STUDY OF LAKE AREA TECHNICAL INSTITUTE

About five years ago, Lake Area Technical Institute (LATI) President Mike Cartney attended a skilled workforce advocacy council meeting in Pierre, South Dakota. Then vice president of the technical college, Cartney heard a story that had become troublingly familiar to South Dakota's technical institutes. One of the manufacturers attending the meeting had just turned away \$20 million in new business because it couldn't find enough people to staff and maintain the advanced manufacturing equipment needed to keep the lines moving.

"It's the same old story: 'We had the orders—we didn't have the people,'" Cartney recalls. "We can't get enough students to meet their needs."

BACKGROUND

Meeting needs in the labor market isn't just part of LATI's mission—it is its reason for existing.

"Our mission is workforce development," Cartney declares.

The college offers only technical degrees, with nearly 30 programs ranging from aviation mechanics to nursing and welding. Each of the school's programs has an advisory board, in which area professionals meet regularly with faculty members—at least twice a year in formal meetings. What sets the program apart is the additional frequency of contact—many program instructors engage in informal conversations with employers multiple times per semester.

With just over 2,000 students, LATI's completion rates are among the nation's highest. Over two-thirds of its students graduate within two years. Of those who complete their program of study, 98 percent are employed or continuing education six months after completion. Those student success rates are in large part the result of how students are guided into technical programs when they enroll and move with a cohort through a prescribed course sequence.

A three-time Aspen Prize finalist, LATI has emerged as a national leader in responding to shifts in workforce demand. In recent years, the technical college had rapidly created several new programs from scratch in response to demand

from fast-growing sectors, ranging from energy technology to fabrication. When weaknesses in existing programs were identified by advisory board members, faculty responded immediately, redesigning the agriculture program with a greater focus on precision technology, giving dental assisting students more practice taking impressions, teaching energy students not just how to operate hydroelectric equipment but also how to repair it, and adding conflict resolution training to the nursing program to smooth interactions in the high-stress environment nurses sometimes find themselves in.

Over time, LATI had become proficient at adjusting programs to ensure that students left the institution with the skills employers needed. But in precision machining, Cartney and other school leaders faced a different—and ongoing—challenge: getting enough students into the program in the first place.

SUPPLY AND DEMAND

Cartney's colleagues in the president's cabinet confirmed that the issue wasn't new. LuAnn Strait, who had been at LATI for nearly three decades, recalled how as an admissions representative early in her career, she'd visit what was then called the machine tools program and have faculty ask her when her department would bring them more students to train. In later years, as director of student services, she'd hear the region's employers ask for more skilled machinists, even as the economy ebbed and flowed.

LATI tracks labor market outcomes for all graduating students, and its precision machining graduates were earning the highest salaries of all of its programs—\$18.59 an hour just six months after graduation. With additional training, graduates could look ahead to careers in tool and die making or computer numerical control (CNC) machining with salaries exceeding \$70,000. In recent years, virtually every graduate of the program had either remained employed or continued their education. Only a handful had left the state.

Despite strong employer demand and high wages, the precision machining program remained stubbornly small. Over the years, the program had consistently attracted just over a dozen people to each cohort—barely enough to keep it financially viable. And now, as the economy was rebounding, demand was growing.

LATI's Watertown campus is close to a few advanced manufacturing plants, a potential source of both students and employment for graduates. But much of the demand for workers was scattered across its rural, 18,000-square-mile service area—in places like Aberdeen, Brookings, and Sioux Falls, which were between 45 minutes and several hours away from LATI's campus.

"SURGEONS OF STEEL"

Despite the consistently low enrollment numbers and the financial strain they caused, LATI leaders believed that closing the precision machining program wasn't an option. "Industry wouldn't tolerate it," Cartney said. More importantly, the opportunity for students was exceptional—precisely what drives the college's efforts across all programs.

The college's senior leaders opted to revisit the longstanding challenge of attracting students to the program. The college knew that the issue was not program quality. Not only were placement and wage outcomes consistently strong, but conversations with both the college's industry advisory board and former students confirmed that the program was up-to-date and graduates were entering careers with the skills they needed. "When asked by my employer what I would have liked to gain from my education that I didn't, I replied, 'I could not have asked for a better education and I feel I was very well prepared for my position,'" one former LATI student told the college.

So, LATI leaders took a close look at the program's students. As in many of its programs, they were becoming older—many had begun working in manufacturing plants straight out of high school, when the pay for less skilled labor was higher. As they got older, many realized their careers had plateaued—and upskilling was the only way to improve their

prospects. Given the relatively small number of manufacturing plants close to the Watertown campus, the potential pool of older workers with financial and family responsibilities willing to make regular trips to LATI was very small.

“We probably were getting as many of these students as we were going to get on campus,” Cartney recalls.

Cartney and others revisited the potential of attracting younger students, who tended to gravitate to careers with longstanding roots in the region, including agriculture, the institution’s largest program. “How many people in high school even know what a machinist is?” Cartney asked. “If they don’t know, they won’t want to pursue a career in it, even if they’re told there are good dollars in it.”

LATI had already taken steps to improve perceptions of both the program and the occupation. It moved the program from a dark and dingy shop to a gleaming new space in the early 2000s. Investments had been made to keep equipment up-to-date, with more than 20 CNC machines serving as the centerpiece of its lab.

The program’s name was changed to precision machining to provide a clearer linkage with careers in advanced manufacturing, and LATI created special exploration days for high school students—called “manufacturing camps”—to introduce them to the program and the field. Still, enrollment remained flat.

Cartney and others decided to revisit the issue of perceptions. “What’s the ‘wow factor?’” Strait asked the program’s faculty. “How should people think about precision machinists?” Faculty stressed the scope of the field—machinists make almost every part used in every industry—and the high-tech nature of the work.

So school leaders decided to change the way they talked about and marketed the program. In its materials, LATI called precision machining “a purposeful American career.”

“Virtually everything manufactured in the U.S. today—in the automotive, space, medical, green, or any other industry—can be traced back to a machinist,” the program’s website states. “Machinists are respected, capable, and well-paid.” LATI also reached out through its advisory boards and other industry connections to encourage them to make similar efforts. “We needed to show that the precision industry wasn’t a dark, dirty industry anymore,” Cartney says. A pipe and tube manufacturer ran ads on television showing young people working in the high-demand jobs in gleaming workshops, and several employers began sponsoring their own scholarships to the program.

Strait coined a new phrase for instructors and students—Surgeons of Steel. Soon, both were wearing T-shirts emblazoned with a dramatic logo that closely resembled the ones found on motorcycle jackets. “They were representing a profession,” she says.

CASTING A WIDER NET

Using funds from the state department of economic development, LATI also created a critical needs scholarship to entice students to enroll in precision machining and related advanced manufacturing fields. The scholarship targeted both high schools and workplaces, offering incentive scholarships of \$2,000 to \$3,000, partially offsetting the program’s roughly \$3,500 per semester cost.

Cartney had also been keeping an eye out for how other institutions were planning to leverage the then-new Trade Adjustment Assistance (TAA) grant program. Some were planning to apply for grants to fund specialists to help bring high-need workforce training programs online.

LATI had already successfully expanded its nursing program to include online offerings and was working with a grant to do the same with some of its agriculture offerings. But Cartney and other leaders realized right away that precision machining was very different.

“It’s very hands-on,” Cartney says. “How do you do hands-on education at a distance?”

In discussions with the precision machining program's industry advisory board, the same question kept coming up: "Where are the students going to get the lab time?" And while the program's faculty acknowledged the need to grow the program, some flatly thought teaching precision machining online was impossible. Safety and supervision, they said, seemed untenable in an online setting. Many said they didn't know where to begin adapting their program for online use.

School leaders considered keeping the precision machining lab open at night and on weekends. Talking to students, however, it quickly became clear this wasn't enough. Some worked weekends or couldn't afford to drive as much as six hours round-trip on a regular basis.

In other fields of study, LATI's business partner specialists had convinced companies to give their workers access to high-speed Internet and time during their lunch breaks to take online classes. Some employers had gone even further: The nursing program's specialist had established a relationship with a hospital in Pierre, where nursing students 200 miles away from campus could conduct their clinicals and practicum under the supervision of master's-level nurses hired as adjuncts for the distance-learning program. And at its plant 90 miles north of campus in Aberdeen, 3M had opened its factory floor to students in LATI's robotics program—including a handful of nonemployee students.

While the way forward was unclear, there was new urgency. Amid the energy boom and an improving economy, unemployment was dropping below 3 percent, making it all the more challenging for employers to find potential hires. Even companies that offered their own precision machining scholarships often saw them go unfilled.

Then Cartney returned from another state workforce council meeting with a new challenge. The only other technical college offering precision machining in the state, facing many of the same pressures as LATI, was shutting its program down.

"Now we have the whole state," he says. "How are we going to meet the needs now?"

APPENDIX B: INNOVATION AND FOCUS TO MEET LABOR MARKET DEMANDS

CASE STUDY RESULTS

Given the ongoing challenges of getting far-flung students to the campus on a regular basis, school leaders ultimately gravitated to exploring a hybrid online option for the precision machining program.

For several months, leaders, instructors, and industry members deliberated about the potential online offering. During these conversations, the same concerns kept surfacing—the lack of supervision, the unknown availability of hands-on opportunities for remote students, and the limited knowledge of online instruction. Ultimately, the cabinet agreed to launch online programs in precision machining and welding, given the lack of other realistic alternatives to the time and distance challenges their most likely prospective students faced.

“At some point, we had to try this,” Cartney says. He urged faculty to consider developing the online program not as a different class but as the same class in a different medium. “We have to figure out the best strategy to do that,” he told staff at the time.

LATI’s online program in precision machining officially launched four years ago, but identifying and developing the supports needed to make the program work remains an ongoing process.

A four-year TAA grant funded technology specialists that helped the precision machinery instructors, along with those in other programs, put their curriculum online. One critical role technology specialists played was identifying and implementing the CNC simulators that one faculty member had suggested during deliberations.

Following the model of LATI’s nursing and robotics programs, several companies opened their labs to employees—and in some cases, nonemployees—for work. LATI hired several of their employees as remote adjuncts to supervise student work in these offsite locations.

Precision machining enrollments have varied from year to year, but overall numbers have increased substantially from the 12 to 15 that once typically entered the program. For the 2014-15 academic year, 26 students were enrolled in the precision machining program; a total of 22 were enrolled for 2015-16.

The online welding program, however, never caught on and was soon discontinued; school leaders believe that program's shorter, nine-month timetable played the largest role in its demise.

To help bolster enrollment in its online offerings, LATI leveraged a \$50 million statewide scholarship program introduced last year to provide full scholarships to the precision machining program—with an important twist. To bring in far-flung students who would otherwise not be able to enroll in the program, it required students receiving full scholarships through the Build Dakota program to enroll in the online program. As a result, the entering 2015-16 cohort of students is evenly divided among on-campus and online participants for the first time.

One key ongoing challenge: retention remains lower among online precision machining students than their on-campus counterparts—in the 60 to 70 percent range online, compared to 80 percent or higher on campus.

School officials maintain the decision to take the precision machining program online was in the best interest of the state workforce and its students. Cartney urges other campuses to invest time as well as resources when implementing similar programs.

"It's a cultural change and paradigm shift for staff," Cartney says. "You have to take the time and let them absorb it, and then let them understand it and improve it. So your change management just becomes crucial."

APPENDIX C: ADDRESSING WORKFORCE SHORTAGES THROUGH PARTNERSHIPS

A CASE STUDY OF HARPER COLLEGE

This case study discusses the way in which William Rainey Harper College (Harper College) in Palatine, Illinois, used partnerships to mitigate workforce challenges within the manufacturing sector—first locally, and then statewide.¹¹

HARPER COLLEGE'S LOCAL APPROACH

Harper College, a comprehensive community college located 30 miles northwest of Chicago, Illinois, serves 23 communities. With over 27,000 credit students annually, Harper offers 34 career and technical (applied) associate degrees, 108 career and technical certificates, and 7 transfer degrees. Its proximity to O'Hare International Airport and several major highways makes the area a manufacturing and logistics hub for northern Illinois.

A unique division at Harper, Workforce and Strategic Alliances, is charged with facilitating partnerships with local business and industry that support the economic vitality of the community. One such partnership is with the Golden Corridor, an industry group that represents a large contingent of manufacturers located along a 26-mile stretch of Interstate 90 (I-90) in the northwest suburbs of Chicago. The primary issue facing the Golden Corridor was a lack of qualified workers to support precision tool-making and maintenance of highly technical manufacturing equipment. In addition to needing a qualified workforce to grow their businesses, companies struggled to find replacements for highly skilled workers, who were retiring in greater numbers. Thus, there was a need to engage younger workers in the sector, a challenging proposition due to the negative perception of manufacturing as a dull and dead-end industry.

In October 2011, at the request of the Golden Corridor, Harper hosted a summit to discuss the shortage of workers in the manufacturing sector. More than 100 individuals participated, focusing on the fact that there was an inadequate supply of qualified workers to operate and maintain the high-tech equipment that greatly streamlined production.

At the conclusion of the summit, Harper formed a Manufacturing Task Force. Members included the president of Harper College, the Vice President for Workforce and Strategic Alliances at Harper College, executives from four local manufacturers, two high school career and technical administrators, two local economic development officers, and a representative from the statewide manufacturing industry association. Harper College convened the group biweekly with the goal of jointly developing a manufacturing program of study that addressed the local skills shortage.

ESTABLISHING THE ADVANCED MANUFACTURING PROGRAM

Within three months, the task force created a new advanced manufacturing career pathway. Subsequent certificates, stacked in various manufacturing specialties such as welding, computerized numerical control, and mechatronics, were structured to provide a pathway to an associate's degree in Advanced Manufacturing. Once employed, students could use employer tuition reimbursement programs to continue their studies, or have the means to continue with their education. In addition, the courses were offered for college credit, enabling eligible students to receive Title IV financial aid.

Next, the task force, seeking to show students that manufacturing was a high-tech sector offering family-sustaining wages and a solid career track (not a dull, dead-end industry), set out to recruit manufacturers to hire interns. Over 90 paid internships came to fruition, almost double the task force's goal, underscoring the commitment by area manufacturers to not only provide paid work experiences but also nurture students' interests in this career field. However, because many students entering the program had some experience in manufacturing, fewer students than initially expected participated in the early internship experience. This prompted the task force to pursue another initiative to assist students in gaining experience while learning about manufacturing: apprenticeships.

The new initiative, Apprenticeships on Demand (AOD), was an all-encompassing system that could be applied to any apprenticeship program. It addressed skills gaps by enabling employers to attract, train, and nurture apprentices. This fully employer-driven system consisted of a three-phase integration process focused on three industry sectors:

Phase 1 began in the first year and pertained to the manufacturing sector. In this phase, small manufacturers offered for-credit apprenticeship experiences to degree-seeking students, creating a cohort of skilled workers.

Building on the successes of the manufacturing apprenticeship, Phase 2 incorporated the unique needs of the business and professional services sector to offer apprenticeships in the insurance field.

The final phase, Phase 3, encompassed a non-credit track for information technology apprentices focusing on industry-recognized credentials that enable workers to gain skills and credentialing to advance in the field.

Harper College served and continues to serve as the apprenticeship support mechanism for this initiative.

STATEWIDE APPROACH

Illinois is one of the nation's manufacturing leaders. Recent reports have revealed that manufacturing contributes \$97 billion to the state's economy. However, as in Harper College's service area, a shortage of manufacturers throughout the state is threatening the success of the sector. To address this shortage, 21 geographically dispersed Illinois community colleges formed a consortium called the Illinois Network for Advanced Manufacturing (INAM), led by Harper College. INAM's members seek to expand and improve the network's ability to deliver education and career training programs leading to industry-recognized certificates or associate degrees that can be completed in two years or less.

They seek to prepare students for employment in high-wage, high-skill advanced manufacturing occupations that meet employer needs.

INAM used Harper's Advanced Manufacturing program of study as the basis for its work. Although consortium members were not required to adopt a common curriculum, they had to agree to common terminal learning objectives for manufacturing certificates and degrees. This ensured a common platform that allowed partners to tailor specific curricula to local workforce needs. For example, one partner needed to address specific skills within chemical manufacturing processing that were critical to local businesses.

IMPACT OF DEPARTMENT OF LABOR'S TAACCCT GRANT

As INAM was forming in early 2012, the Department of Labor issued a solicitation for Trade Adjustment Assistance Community College and Career Technical (TAACCCT) grants. The TAACCCT program provided capacity-building grants to drive innovation and the development of model training programs for community colleges and universities. TAACCCT-funded programs were targeted to high-wage, high-skill occupations. Harper College filed a grant application on behalf of INAM, resulting in a \$13 million award over four years to support the group's work. The funding has assisted community colleges throughout Illinois in upgrading their advanced manufacturing facilities with the latest equipment, expanding welding and mechatronics labs, and updating curricula to reflect the changing face of manufacturing. Through the efforts of INAM and its network of educational leaders, faculty, professional manufacturers, and government officials, students enter careers in advanced manufacturing with all the tools in place for success. By helping students land good-paying jobs and providing manufacturers with a quality workforce, INAM's work strengthens the communities in which it operates—and ultimately economic growth throughout Illinois.

Measuring progress in meeting key objectives is critical to the success of the TAACCCT grant. Each college committed to deliverables in the following areas: unique participants served, participants completing the program of study, participants retained, credit hours completed, and credentials earned. Each month, Harper convenes the group either by phone or in person to review progress in meeting these deliverables. All partners receive a scorecard that includes data from all 21 community colleges. This transparency is critical in highlighting progress and enforcing accountability.

Monitoring progress is also accomplished by communicating directly with and visiting each partner. Twice each year, Harper staff visit with partners to review their progress and discuss challenges and successes. This individualized communication also helps in building relationships. As of July 2015, INAM was serving 2,179 participants in advanced manufacturing programs of study throughout Illinois, or 88 percent of what was targeted. The consortium is on track to exceed the targets in most deliverables. Because many students are finding employment before completion, the most challenging goals to reach have been how many students earn the credentials and how many students complete the program of study. The next phase in the program evaluation is to track participants' wages.

INAM partners meet semiannually in a highly structured conference-type format to discuss specific grant requirements, review progress in meeting grant goals, and engage with subject matter experts. For example, the grant proposed exploring Prior Learning Assessment (PLA) as a means of awarding credit for the knowledge, skills, and abilities participants gained before entering the program of study. A subject matter expert in PLA addressed the group during the convening to provide a framework for awarding credit. Subsequently, a subcommittee of partners was formed to pilot PLA systems and report back to the group.

Because archiving and sharing the work of INAM is important, a robust website (www.inam.net) was developed to house curricula, best practices, and key reports. The website also publicizes local manufacturing programs and key events.

Although the grant period will end shortly, Harper will continue to convene the group to share best practices, curricula, and employer engagement strategies.